

Colorado River Storage Project Management Center

Annual Customer Meeting

June 30, 2020 | Virtual meeting

IT Technical Support

For WAPA Attendees – WITCC@wapa.gov or 720-962-7111 or
720-962-7066

For Non-WAPA Attendees – Tony Henriquez at 801-524-6388

Agenda

11:00 – 11:05 Welcome and Introductions

Steve Johnson, Senior Vice President and CRSP Manager

11:05 – 11:30 Adjusting, Responding, Serving

Mark Gabriel, Administrator and Chief Executive Officer

11:30 – 12:00 Information Technology Update

Mike Montoya, Senior Vice President and WAPA CIO

12:00 – 12:20 CRSP & DSW One Transmission Rate Exploration

Brent Osiek, Program and Regulatory Advisor

12:20 – 12:40 Western Energy Imbalance Service Update

Amy Cutler, WEIS Project Manager

12:40 – 1:00 Break

1:00 – 1:20 Fish Biology Update

Derek Fryer, Fish Biologist

1:20 – 1:45 CRSP Financial Update

Lisa O'Brien, Financial Program Analyst

1:45 – 2:30 Contracts and Rates Update

Timothy Kutz, Contracts Specialist

Thomas Hackett, CRSP Rates Manager

2:30 – 3:00 Questions and Closing

Tim Vigil, Vice President of Power Marketing

Adjusting, Responding, Serving

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Mark A. Gabriel
Administrator and CEO

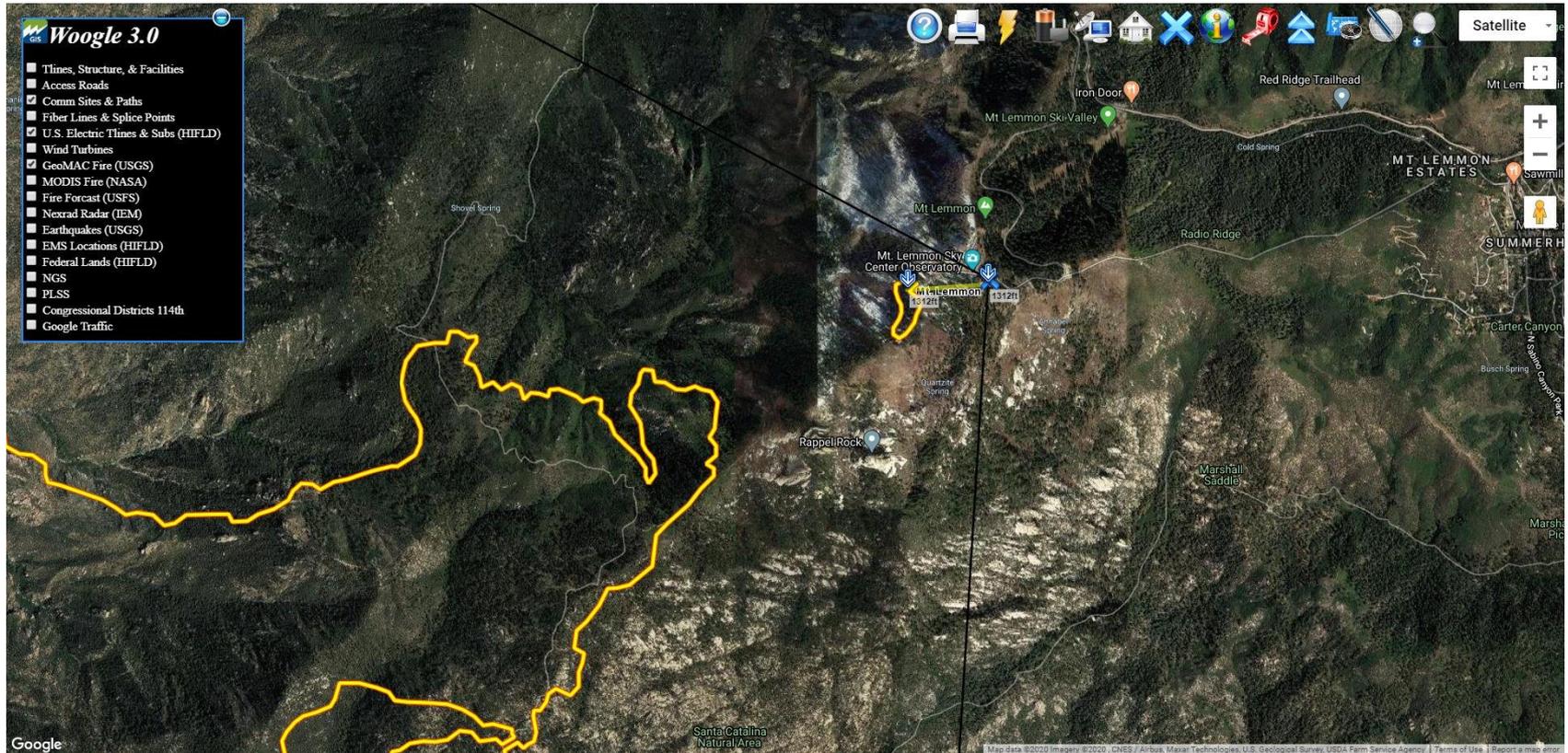
Engaging in a World of Change



2020 Accomplishments

Common SCADA platform
State fact sheets and stat appendix
Top safety performance
Workplace violence prevention training
Transmission vision moving ahead
Progress on workload planning
Integrated Communications Group
WEIS/EIM on track
New Leadership Development Program
Exploring battery storage with BOR
Began consolidated CRSP and DSW t-line rates initiative
Planning for Craig plant retirement
Four new Asset Management categories
Fiber report finished
T-line and substation projects on track
Received a clean audit
Joined NWPP Reserve Sharing Agreement
Leading DSW markets study

Mt. Lemmon Fire



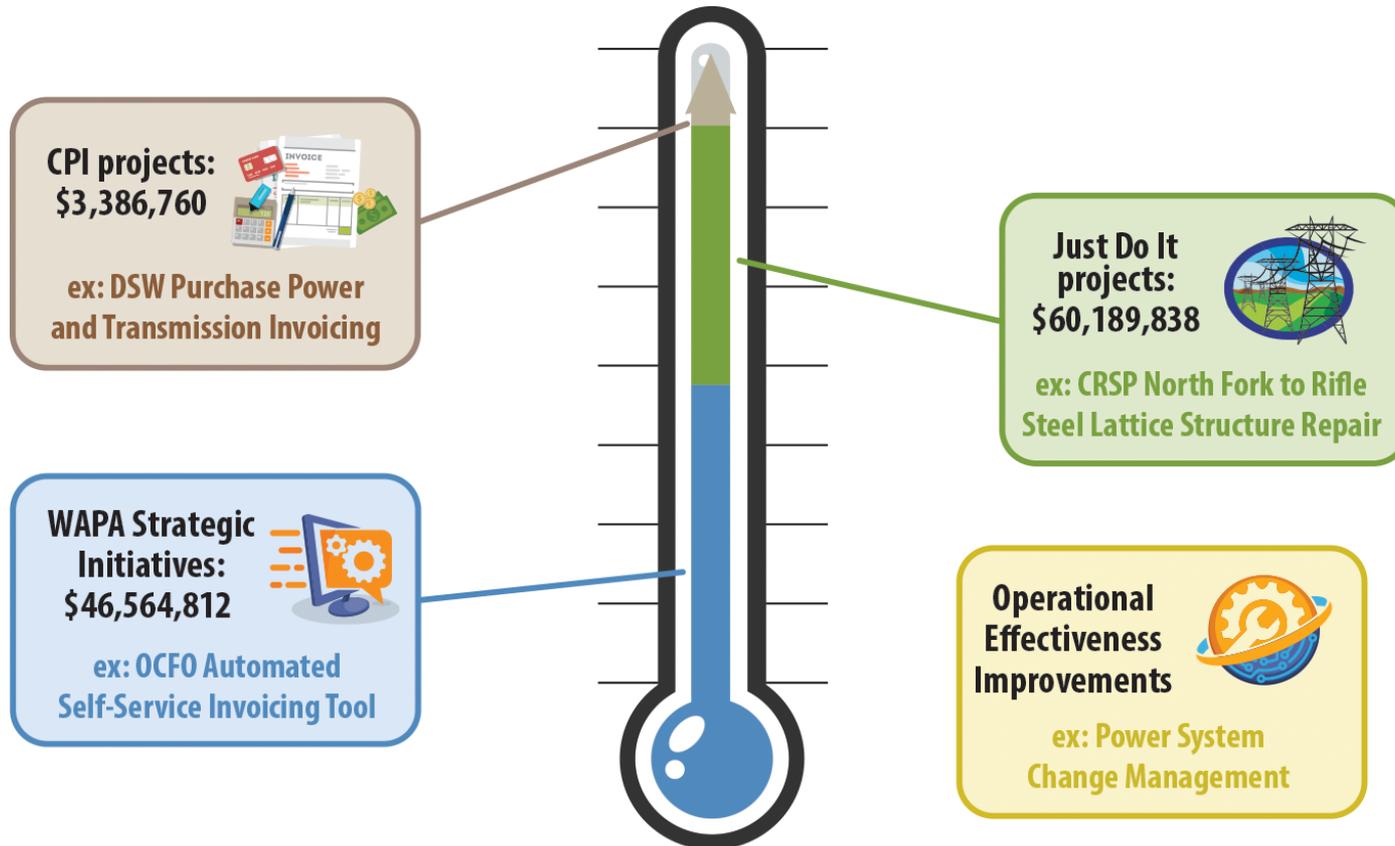
Common SCADA System

- Does not equal one SCADA across WAPA
- OSI vendor selected
- Expected benefits
 - Improve operational flexibility
 - Increase reliability
 - Avoid future support and administrative costs due to cross training and supporting multiple contracts

Project timeline

FY 2019	FY 2020	FY 2020-2021	FY 2021-2022	FY 2023-2024
Evaluation of products	Selection and procurement of product	Sierra Nevada implementation	Upper Great Plains implementation	Desert Southwest and Rocky Mountain implementation

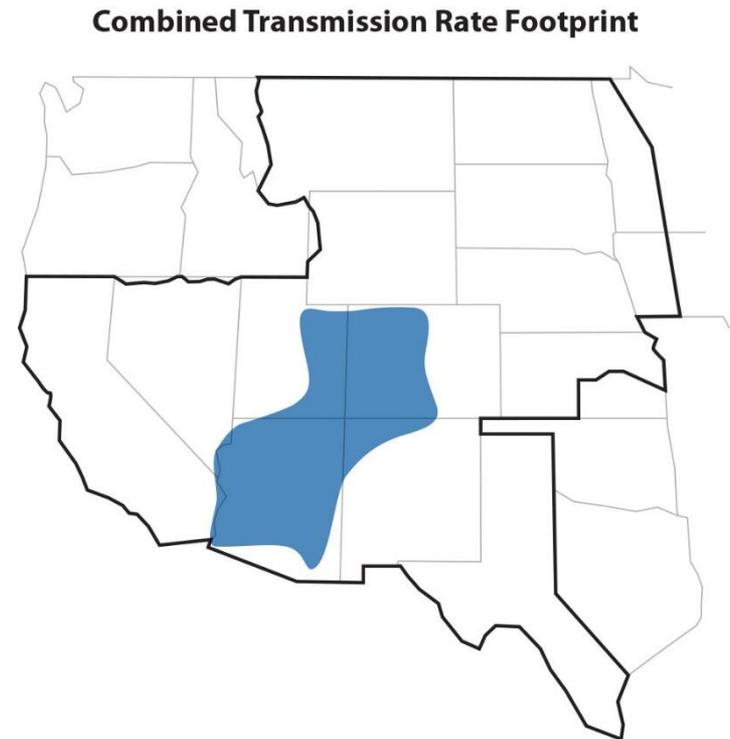
Continuous Process Improvement



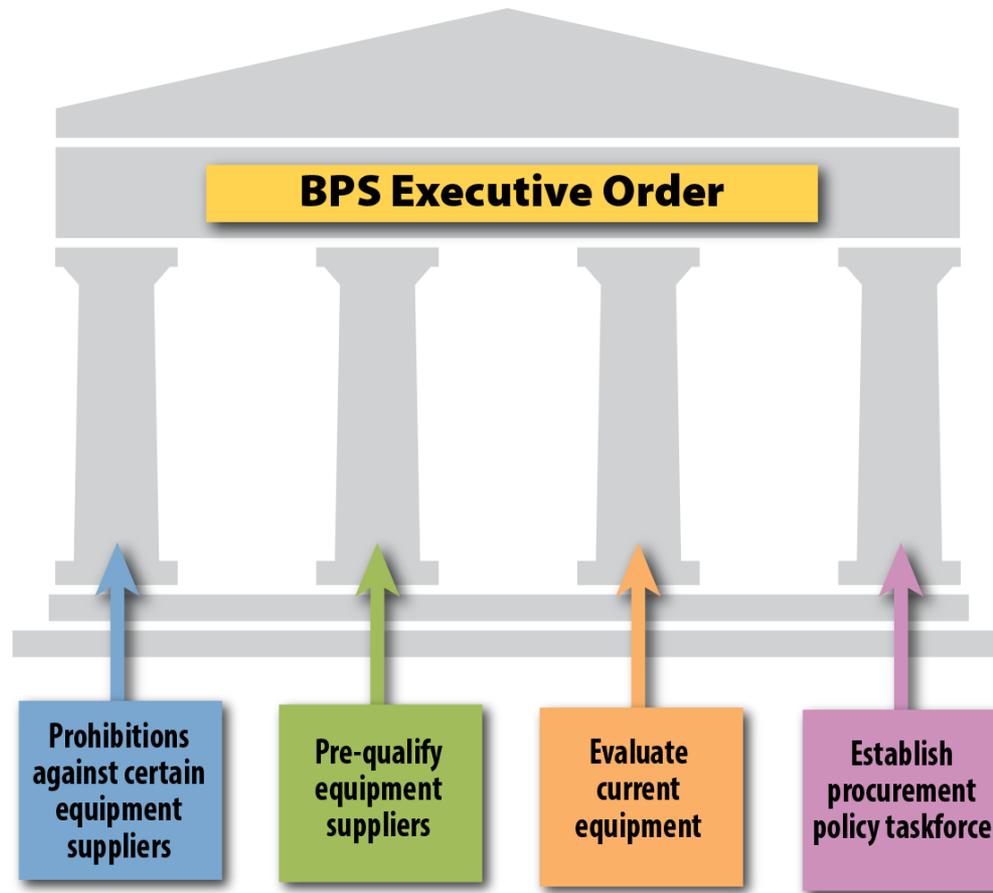
WAPA cost savings and avoidance: \$110,141,410 as of March 31, 2020

Combined Transmission Service Rate

- Includes CRSP & DSW transmission projects
- Beginning of collaborative process with customers
- Part of continuous improvement and increasing efficiency

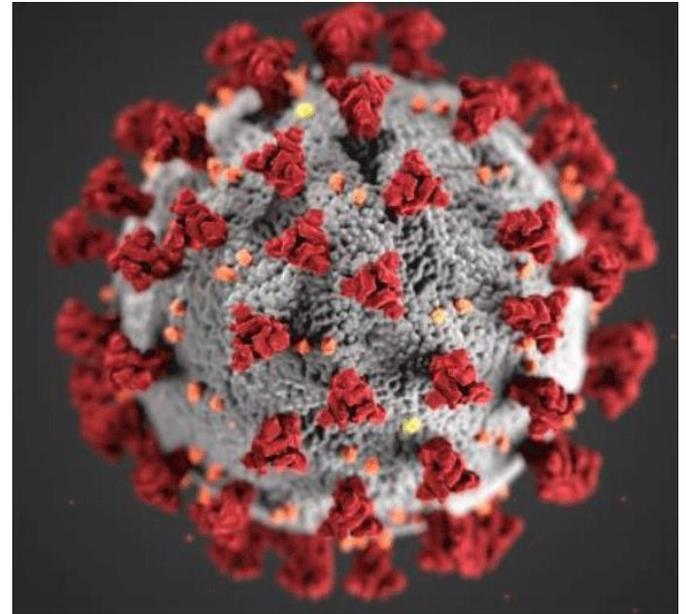


BPS Executive Order



Coronavirus Response

- Objective: Ensure continued mission success and protect employees
- Maximized telework
- Social distancing plans in place for Ops & Maintenance
- Collaborating with federal, state & local entities
- No visitors to WAPA facilities
- Starting Responsible Workplace Re-entry
 - Mission-critical travel & training only
 - Potential sequestration of operators in Phoenix



DSW COVID-19 Cases

- As of June 26, 2020
 - 2 positive cases
 - 2 active quarantine cases
 - 8 completed quarantine



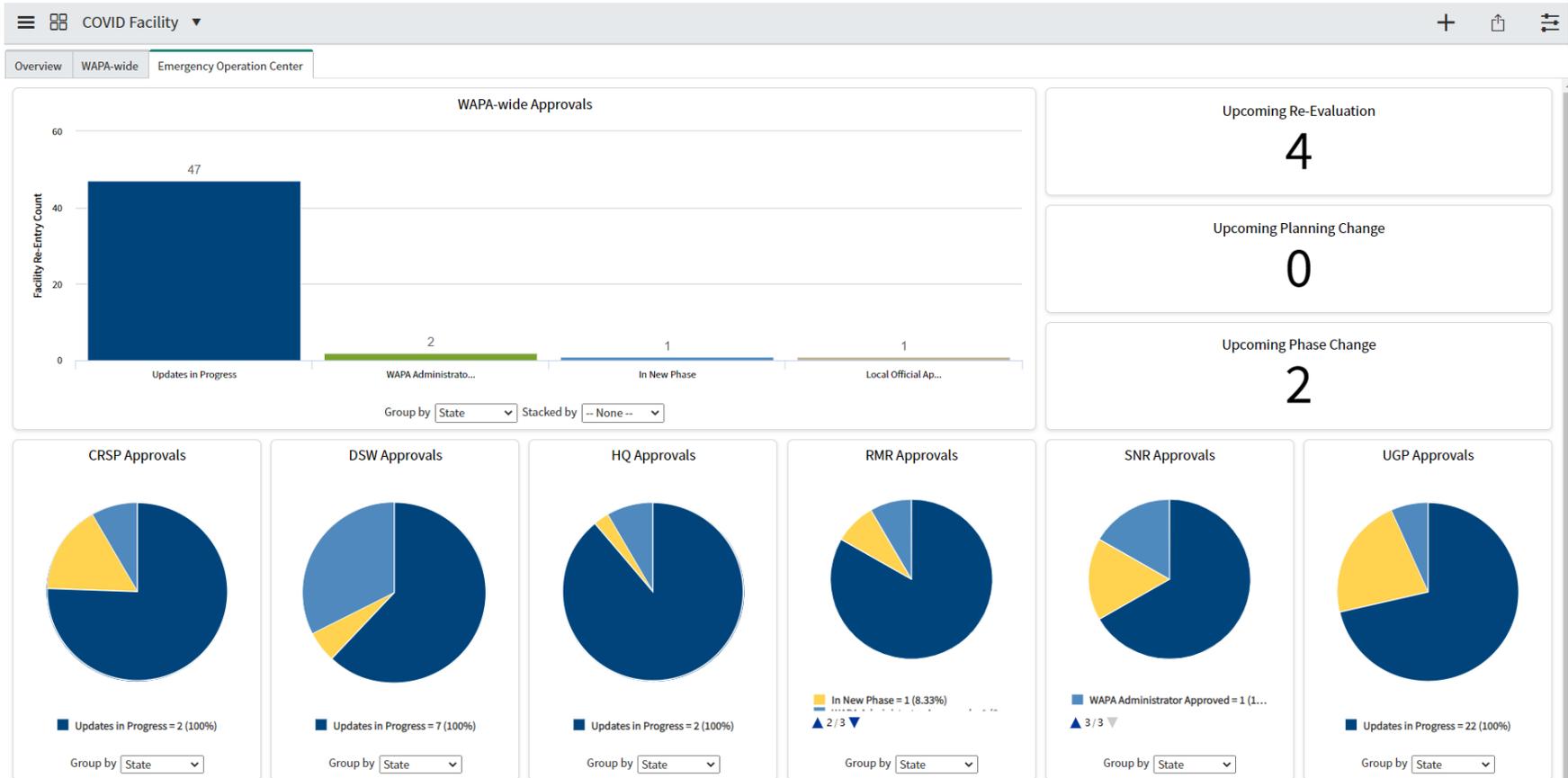
got mask?

face it:

Masks are a must when less than six feet apart. This is a WAPA requirement during the pandemic.



Facility Testing Dashboard



New Cyber Challenges

- Increased phishing and spam attempts
- Availability, speed and security of employees' internet
- VPN reliability (10x increase in use)
- Doubled help desk tickets
- Third-party video conferencing software (e.g., Zoom)

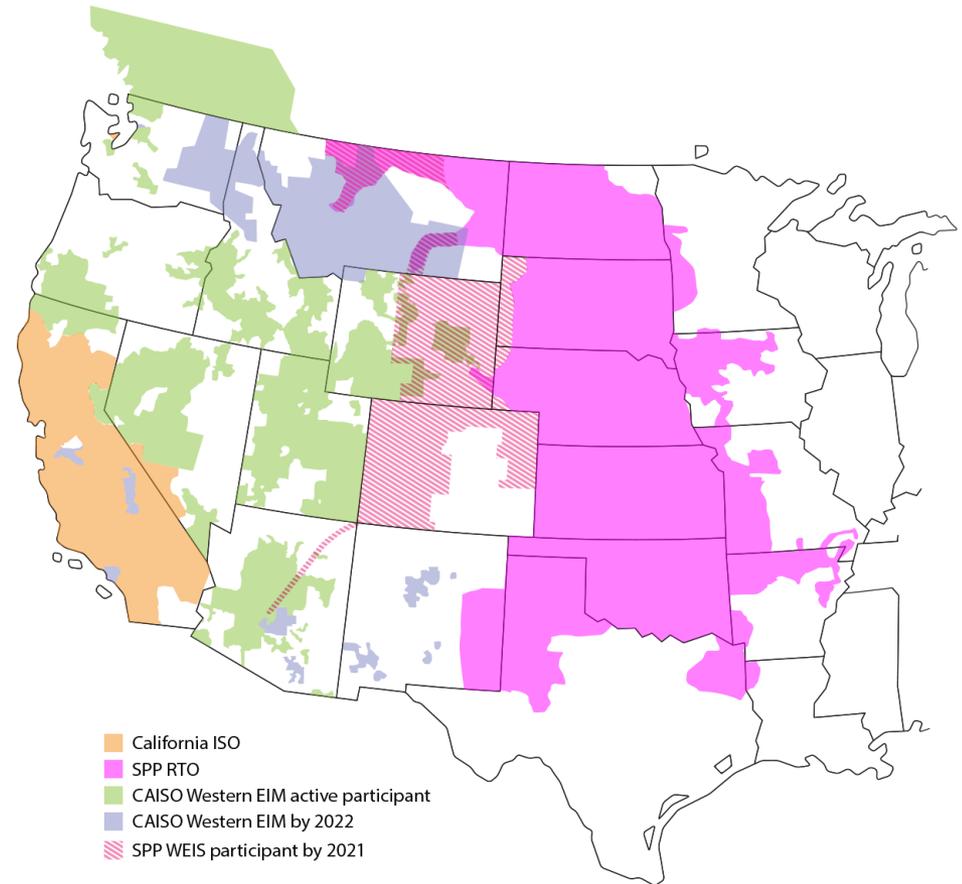


Employee Well-being Survey

- 792 respondents
- ~83% able to fulfill work responsibilities
- Return to work
 - 46% not ready
 - 26.7% uncertain
 - 27% ready
- Major concerns on return to work
 - Exposure to virus/other people's actions
 - Wearing masks for extended periods of time

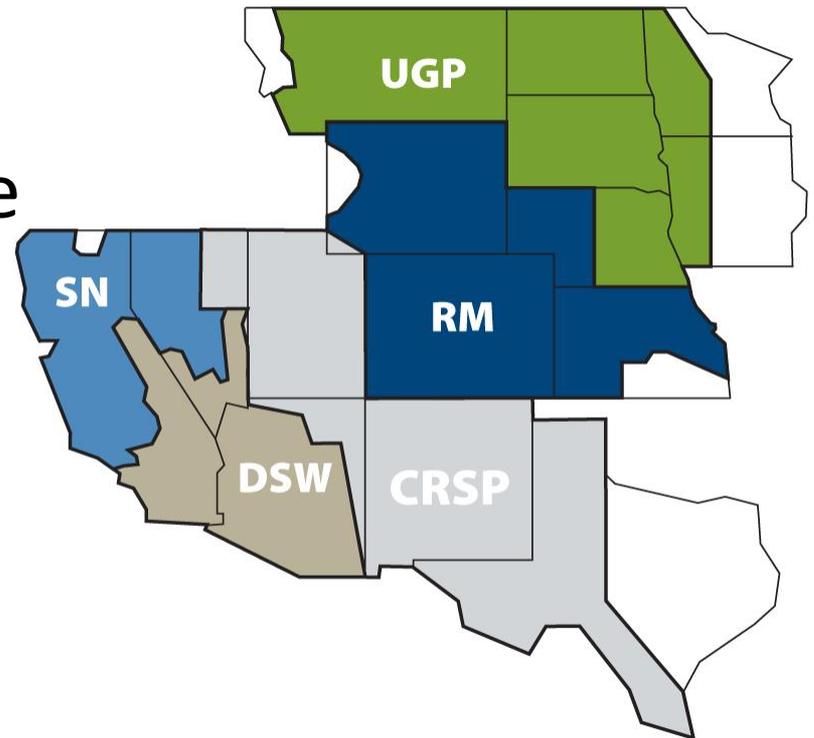
Why are we joining EIS/EIM

- Change in generation mix
- Shortage of electric capacity
- Reduced bilateral trading partners
- Price volatility
- Increasingly dynamic system



WAPA's Position on Markets

- No “one-size-fits-all” solution
- Stay strategic, proactive and aligned with our mission
- Create best possible outcome for our customers and WAPA



AM Almanac

- Protecting Assets in World of Change
- Support informed and strategic decision making
- Provides info on WAPA's assets, performance data and trends



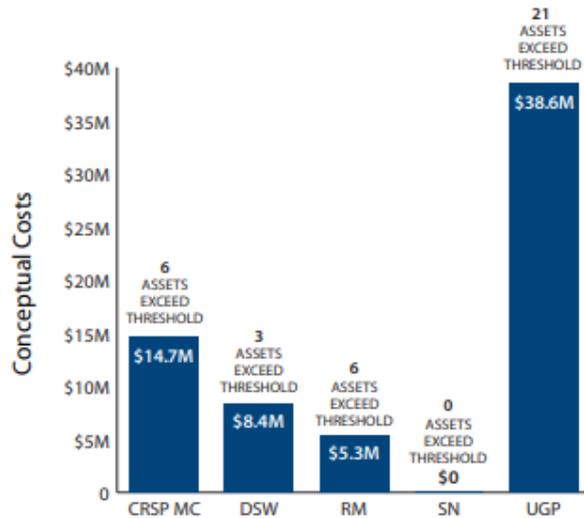
Asset Management
Program Summary 2019

Western Area
Power Administration 

AM Almanac

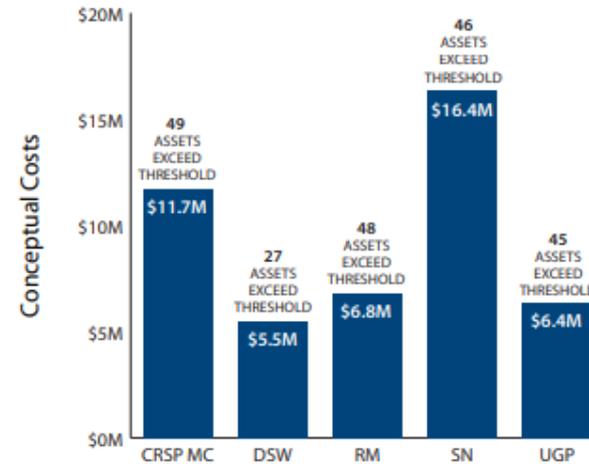
WARE RESULTS: POSSIBLE FUTURE INVESTMENT NEEDS

Possible Transformer Investment:
10-Year Outlook: 2019 – 2028



Commentary: The WARE tool projects asset replacement using current health and risk data for the current year, but only uses age data to extrapolate to future years. Mitigation options for assets that fall outside thresholds may include asset investment, replacement, additional maintenance or accepting the risk.

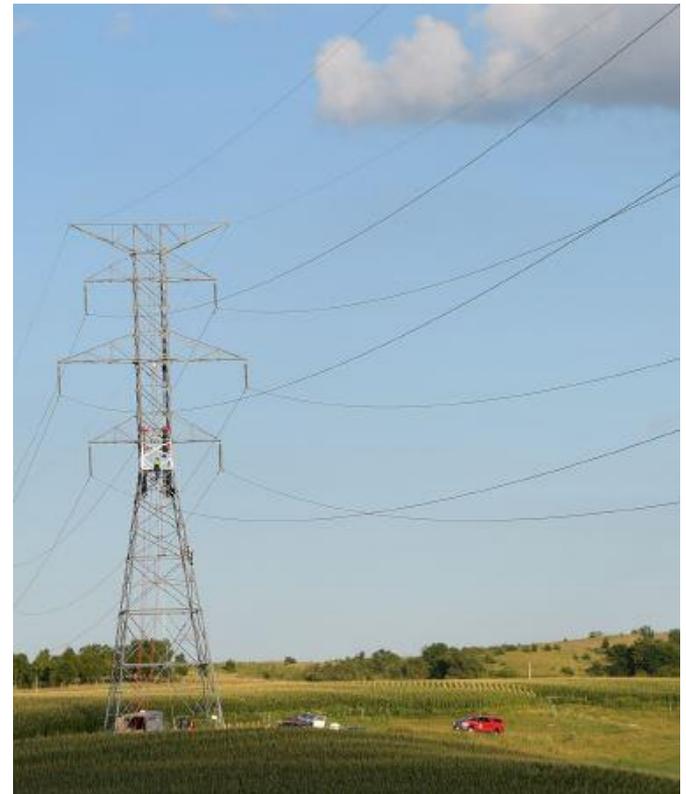
Possible Circuit Breaker Investment:
10-Year Outlook: 2019 – 2028



Commentary: The WARE tool projects asset replacement using current health and risk data for the current year, but only uses age data to extrapolate to future years. Mitigation options for assets that fall outside thresholds may include asset investment, replacement, additional maintenance or accepting the risk.

Fiber Update

- Awaiting final DOE approval
- Pilot project with three customers
- 60 days to complete pilot project plan



WIRED Participation

- Western Interstate and Regional Electricity Dialogue
- Focused on electricity markets in the West
 - Consider state's clean energy standards & GHG accounting
 - Develop transmission and resource planning
 - Understand reliability and resilience issues

Personnel Updates

- Senior VP & acting CFO is Jody Sundsted.
 - CFO selection announcement expected soon.
- Acting Senior VP & UGP Regional Manager Lloyd Linke began in June.
- Senior VP & DSW Regional Manager is Tracey LeBeau.
- CAO job vacancy announcement posted.

Key Takeaways

We are committed to delivering on our mission. Industry is changing at a rapid pace, and we must keep up. Focus on optimizing existing technologies & assets.



Contact/Follow Me

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[WesternAreaPower1](https://www.youtube.com/channel/UC...)



[westernareapower](https://www.instagram.com/westernareapower)



[wapa.gov](https://www.facebook.com/wapa.gov)



Information Technology Update

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Mike Montoya
SVP & CIO

Office of the Chief Information Officer Operating Principles



Innovation

We model an innovative spirit and leverage technology that enables mission delivery amid a changing industry.

Keeps WAPA relevant, resilient, agile

Partnership

We partner with stakeholders to provide strategic and technology solutions that create business value across the organization.

Keeps WAPA connected, engaged, responsive

Stewardship

We value operational excellence and cost management in all we do, as we provide secure and reliable services.

Keeps WAPA efficient, focused, responsible

Transparency

We operate transparently and make information available to promote trust and maintain integrity with all stakeholders.

Keeps WAPA accessible, open, trustworthy

Delivering Strategic Business Value

Solve business problems

Provide business value

Help identify efficiencies

Align with 11/14 TAP initiatives



IT Business Philosophy

- Adhere to lifecycle replacement schedule
- Stay within two versions of current
- Keep up with upgrades, patching
- Use common tools
- Use commercial-off-the-shelf when possible



IT Priority Projects - Completed

Network Modernization

Records Management

Reliability Coordinator services



IT Priority Projects - Ongoing

Common SCADA vendor

Modern Workplace – O365

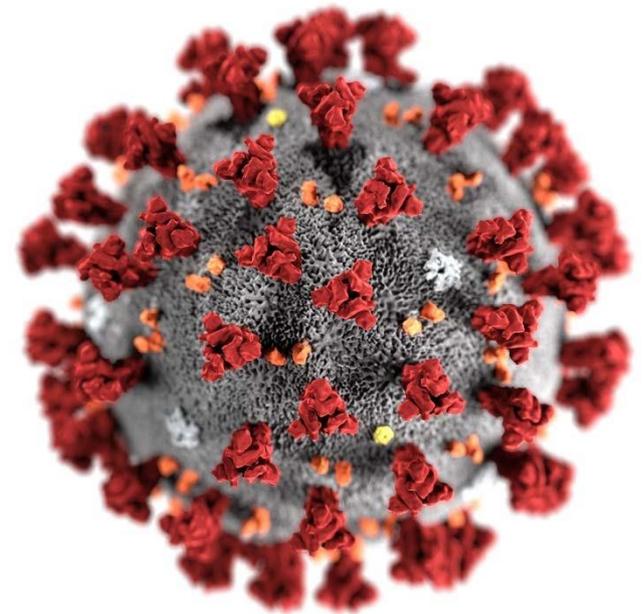
WEIS / EIM



IT's Response to COVID-19

WAPA was well prepared thanks to recent strategies and investments

- Network Modernization
- VPN infrastructure
- Laptop deployment strategy
- Video conferencing
- Collaboration toolsets
- Secure Enclave Support Center
- High Impact Intermediate System
- Cloud strategy
- Office 365
- Zero Trust Networking



COVID Response: Lessons Learned

- Job aids
- Home internet / Wi-Fi capabilities
- Collaboration tools
- Home peripherals
- Engineering studies
- Phone service
- Cybersecurity



Cyber Security Vigilance

- Cyber Security policy
- Incident response plan
- Hygiene
- User training
- Leadership support
- **Trending topic:**
Supply chain
risk management



Questions



Combined Transmission Service Rate

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Brent Osiek
Program and Regulatory Advisor

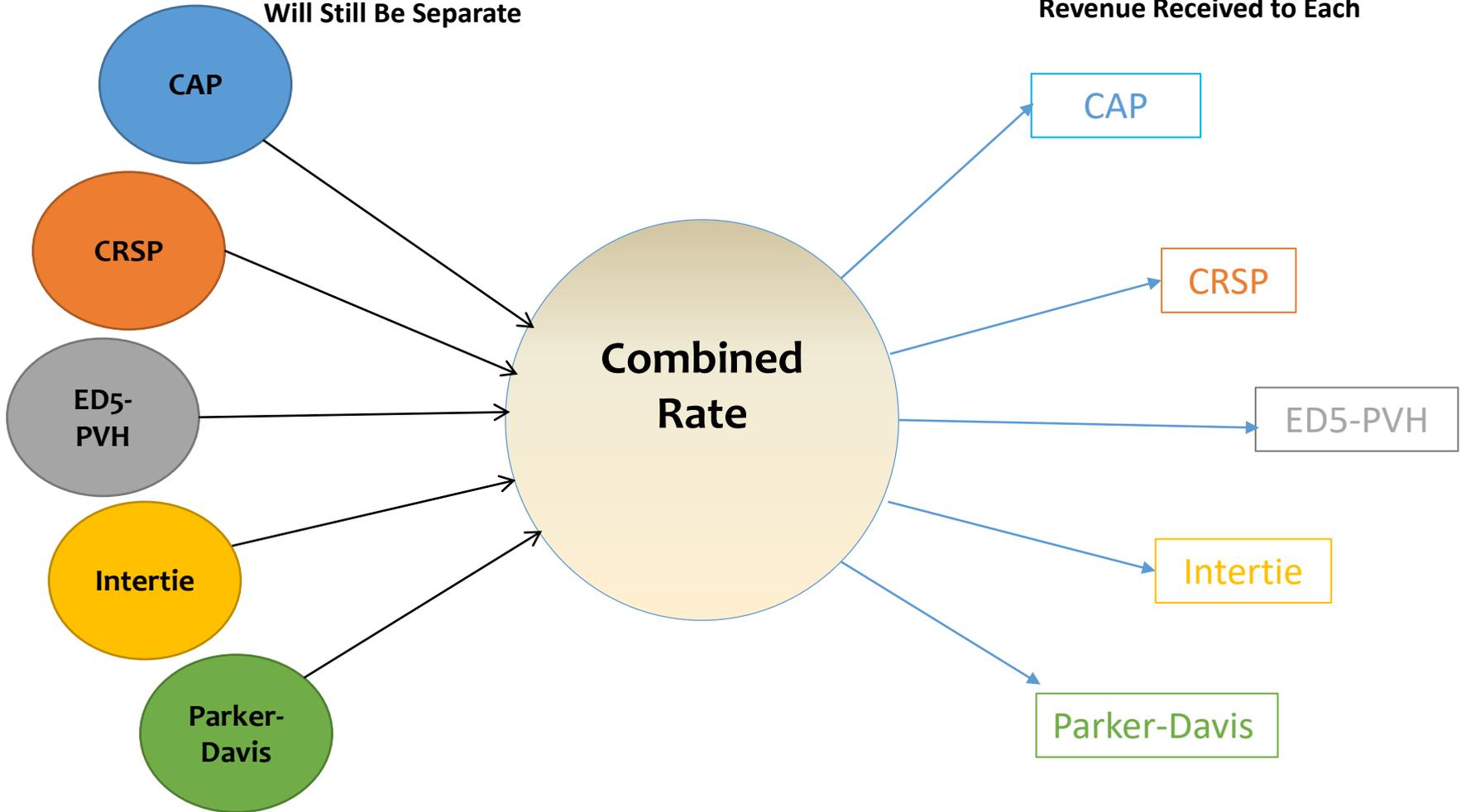
Overview

- WAPA is investigating combining the transmission rates of the DSW and CRSP transmission systems
- DSW has been working on this effort recently and also in the past. Involvement of CRSP is new.
- This effort began with discussions at the staff level
- There are multiple aspects to this issue. We are beginning with understanding how rates would be impacted.

Overview

Revenue Requirements
Will Still Be Separate

Revenue Received to Each



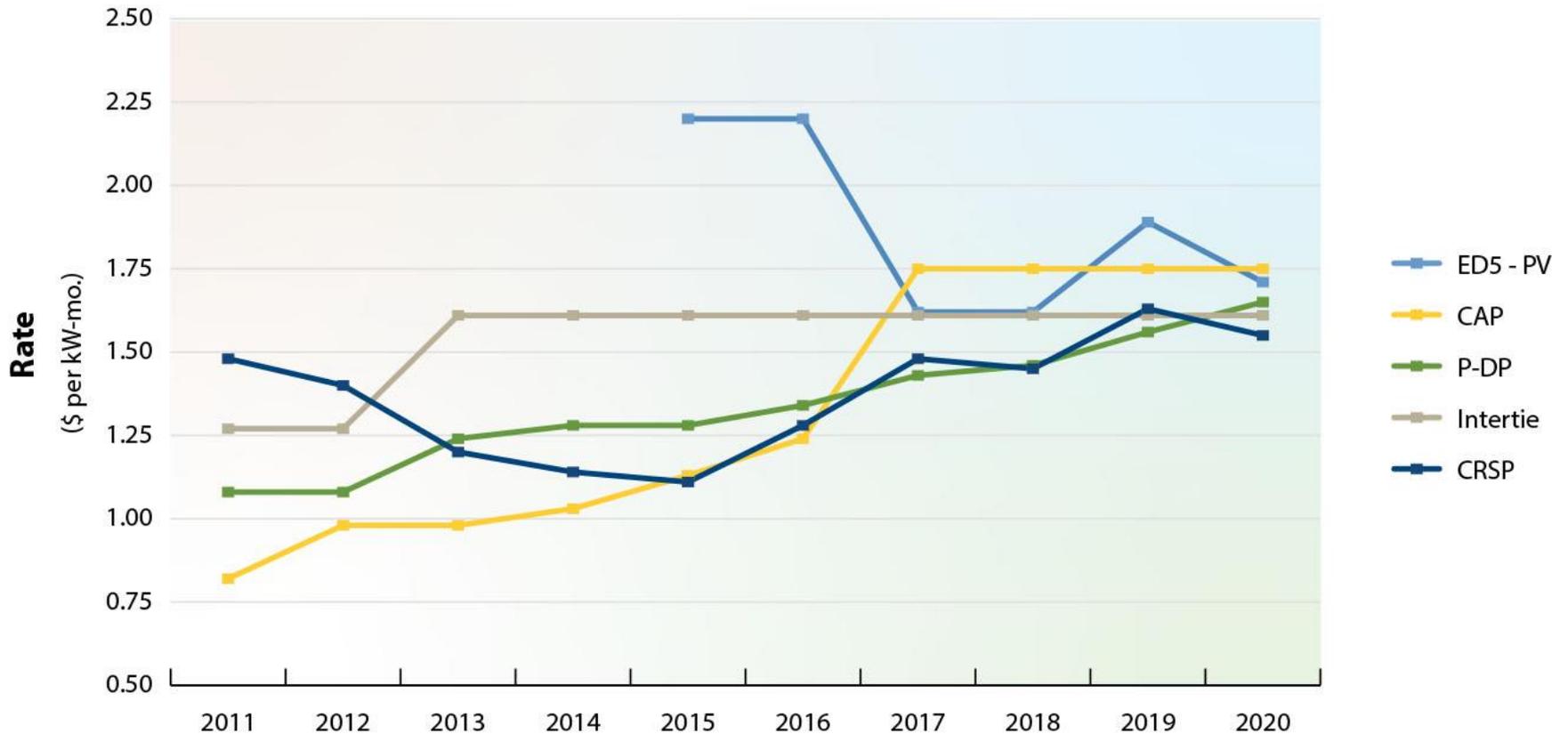
Overview

Customer Collaboration

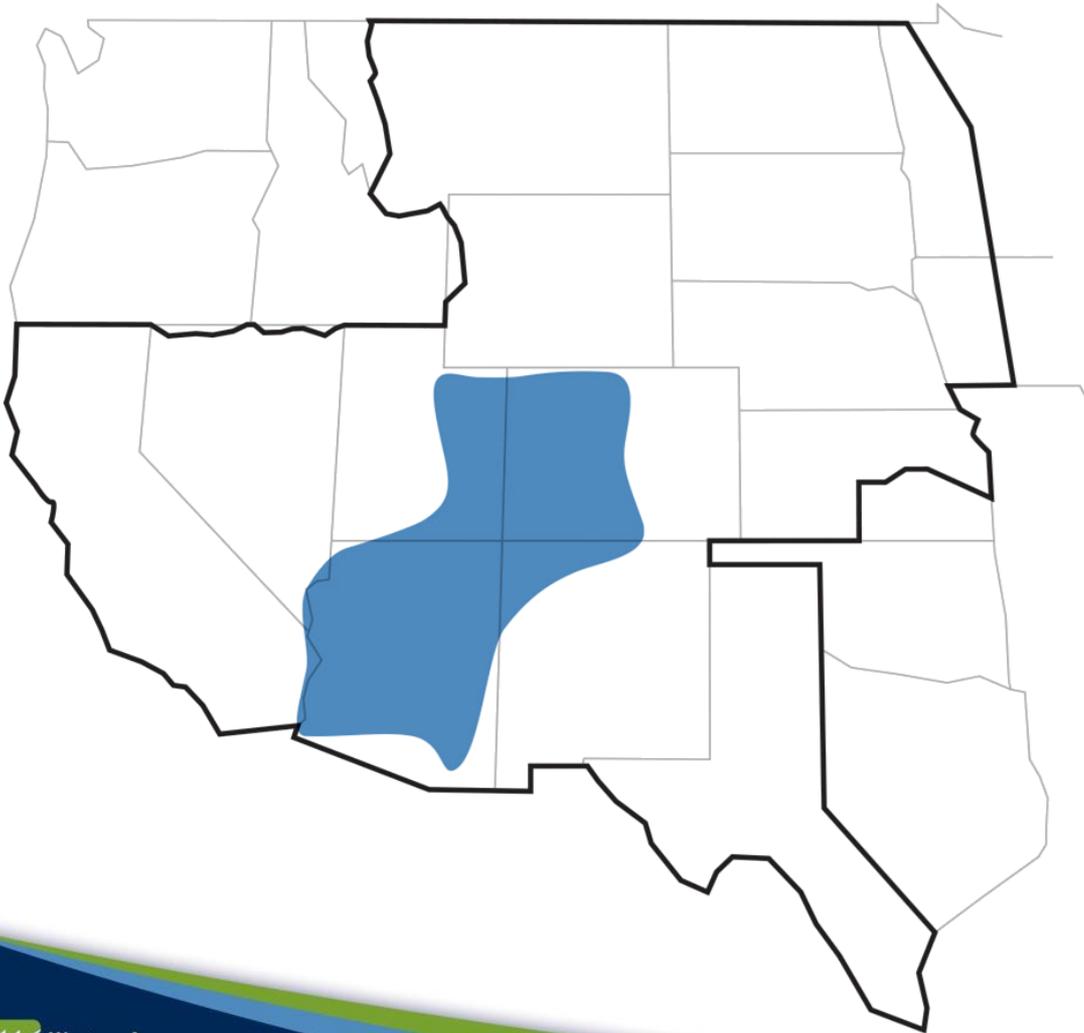
- We are just starting this process
- Customer Presentation on April 27th
- Customer meetings beginning in September
- Decision to move ahead (or not) in Dec./Jan.

Overview

Rate Convergence 2011-2020

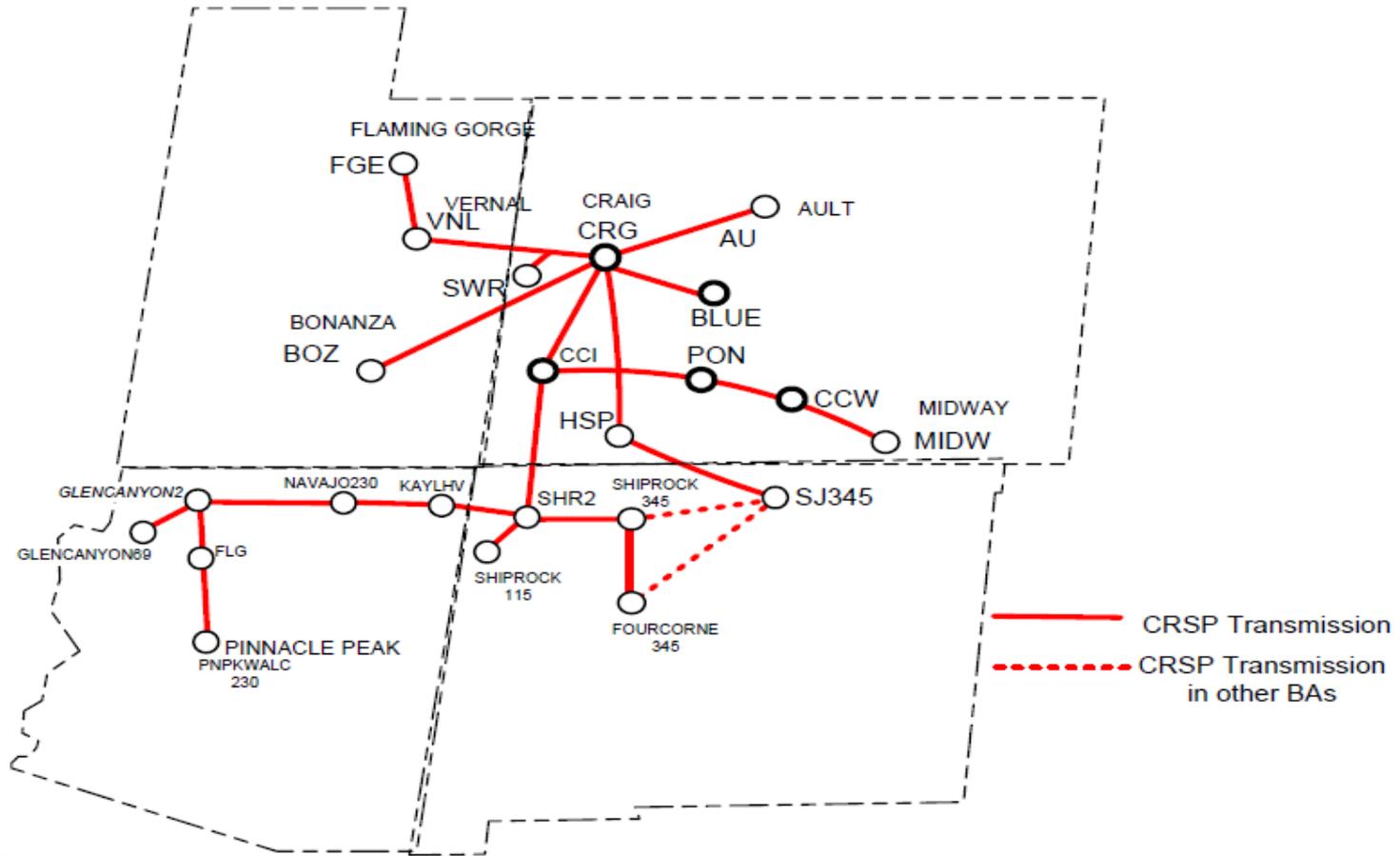


Overview

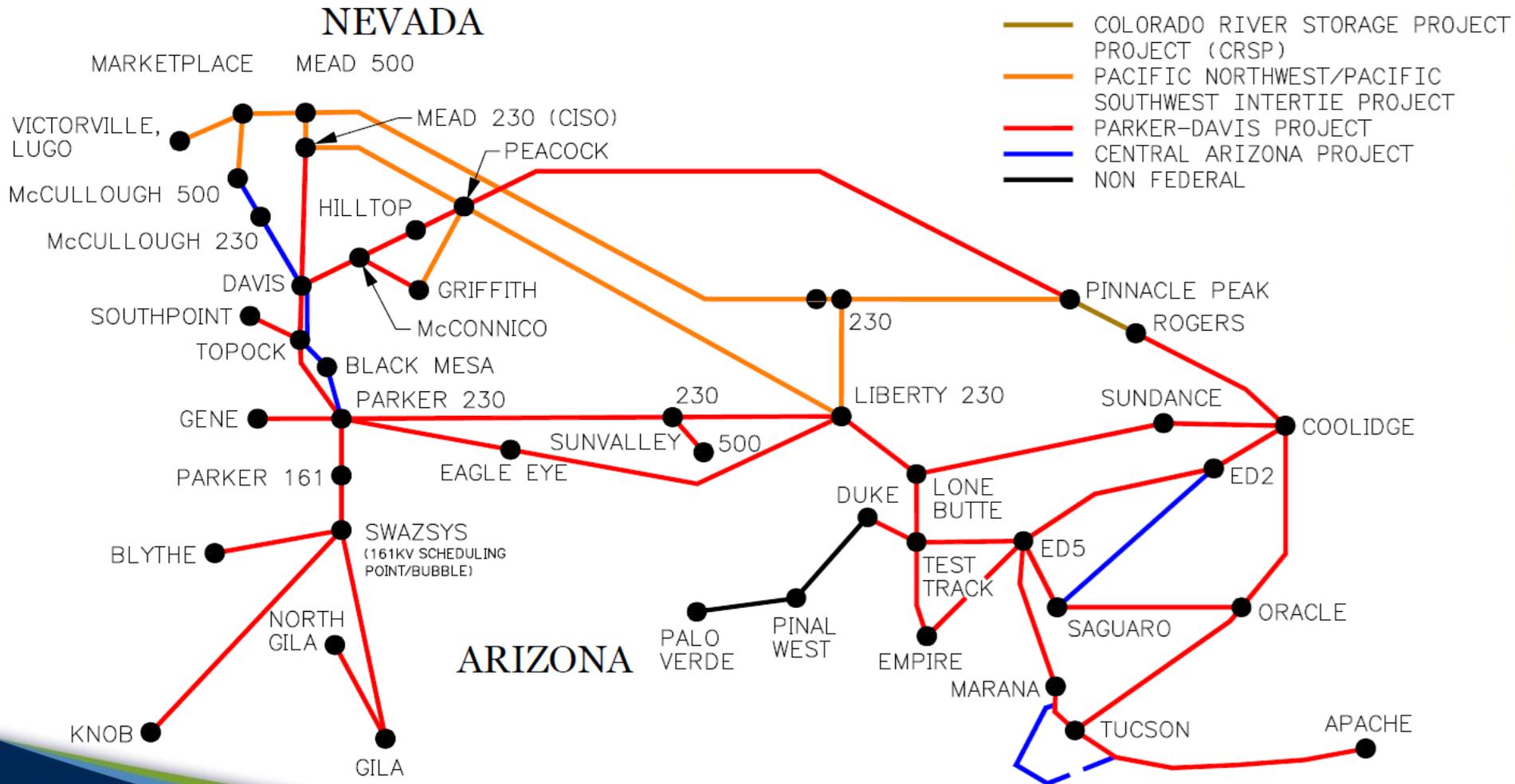


- Large service territory
- Eliminates pancaking
- Overlapping customers of CRSP and DSW
- Overlapping customers across DSW systems

CRSP Transmission System



DSW Transmission Systems



Combined Rate Principles

- Equitable/Fair pricing and treatment for all transmission users
- Recognize and preserve the value of Firm Electric Service
- Transparency in our processes, methods, and materials
- Minimize administrative burden
- Produce measurable results

Approach and Process

Three-phased approach. So far this has been internal only with rates staff.

1. Educate

- Learn about the systems involved
- Understand our collective needs/use

2. Explore

- Identify issues, both positive and negative

3. Formulate

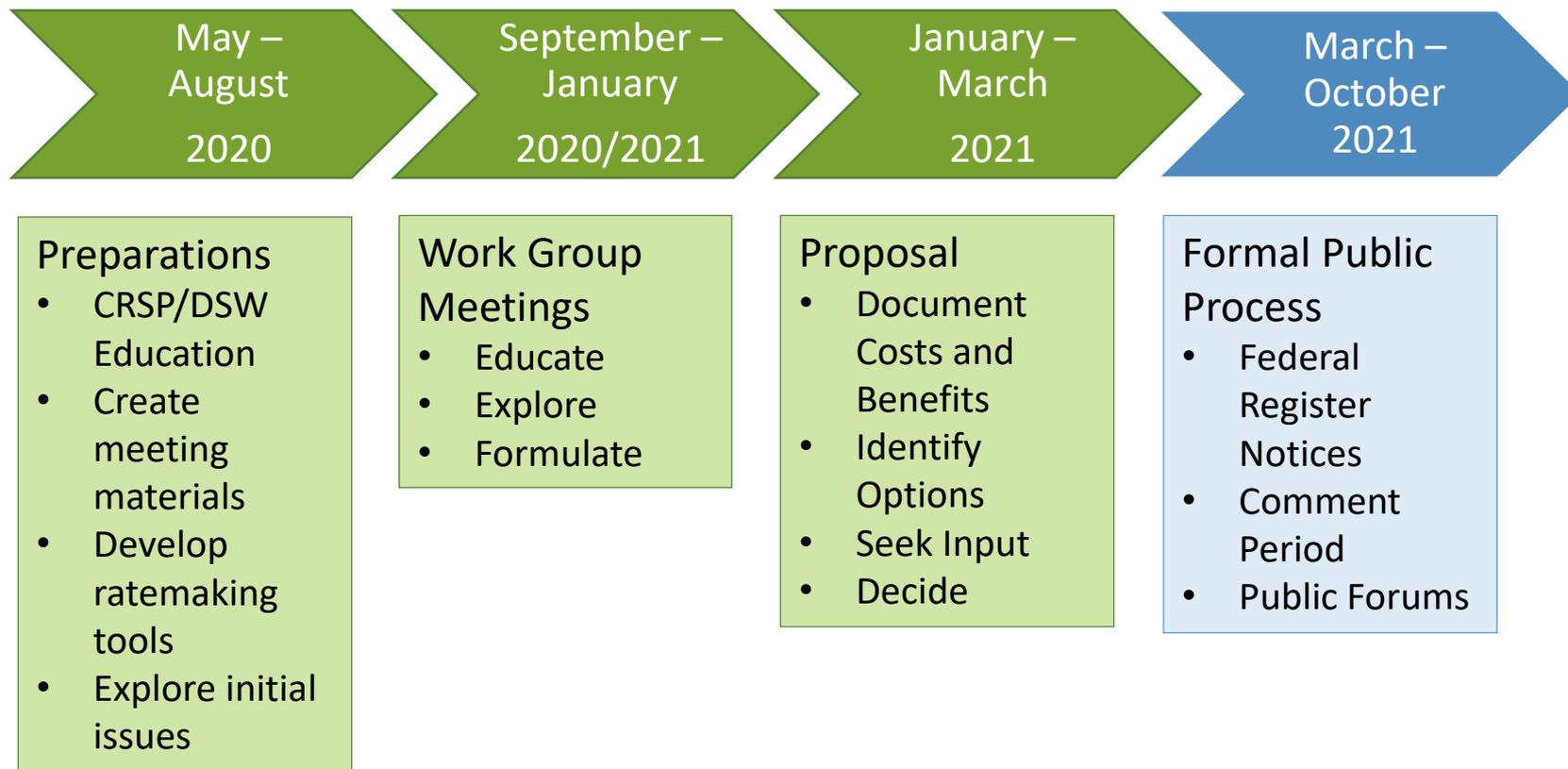
- Develop, analyze, and assess combined rate designs

Education Phase

Currently capturing similarities/differences:

- Rate Setting Methodologies
 - Balloon, Fixed-Charge, Compound Interest
- Stated vs. Formula Rates
- Treatment of Depreciation
- Fiscal Year/Calendar Year
- Financial Data Sources

Tentative Timeline



Resources

- Briefings, FAQ, notes, presentations, and other information is available at:

<https://www.wapa.gov/regions/DSW/Rates/Pages/CombinedTransRate.aspx>

- FAQ will be updated throughout the process and we will keep you apprised of progress through periodic emails/contact
- Continue preparations for work group meetings later this year

Contact Information

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[@westernareapowr](https://twitter.com/westernareapowr)



[WesternAreaPower1](https://www.youtube.com/WesternAreaPower1)



Questions



WAPA Western Energy Imbalance Service (WEIS) Implementation Project Update

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Amy Cutler
WEIS Project Manager

Purpose of Presentation

- Case for Change
- Timeline of the Project
- Current Status
- Upcoming Efforts

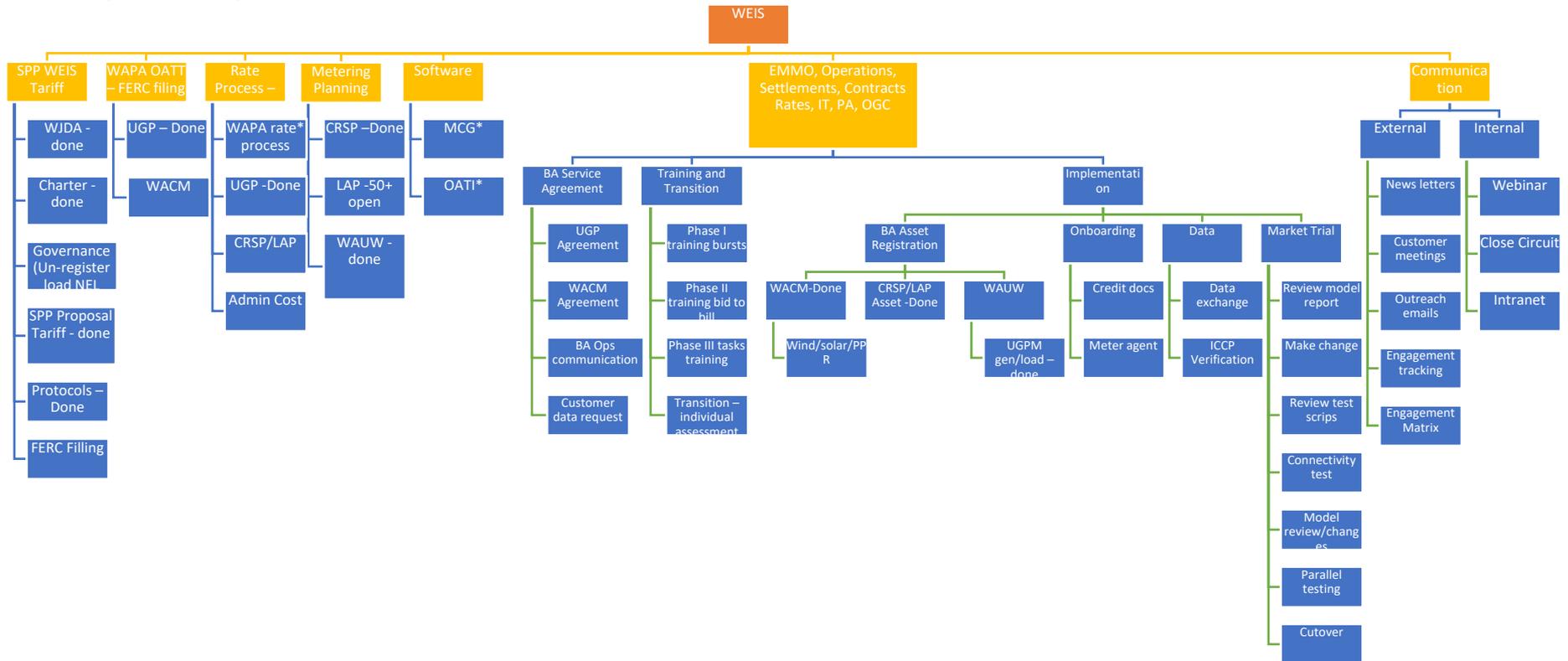
The Project Case for Change

- Our industry is going through massive change. There is a cost to WAPA and our customers if we fall behind.
- The operational assumptions WAPA uses to meet reliability needs and ancillary service requirements in some cases are no longer viable.
- Renewable generation in the United States is outgrowing coal-fired generation.
- We want to stay ahead of the curve in addressing energy imbalance requirements with a broader scope of available resources, respond to the changing electricity industry.
- If we do not, we won't have the experience of our neighbors to explore options for a fully integrated market in the Western Interconnection in the future.
- With coal-fired generation being shut down, and a rise in renewable generation, WAPA will be in a difficult place if we do nothing.

What initial actions have been taken?

- Decision to join WEIS was made September 2019
- Project planning completed January 2020
- Protocols development with SPP completed March 2020
- Asset registration April 2020
- Onboarding May 2020

Project Scope



Project Timeline

October 2019 to April 2020

- Planning (Oct 2019)
- Asset Registration I (Oct 2019)
- WEIS Charter (Nov 2019)
- WEIS Tariff (Dec 2019)
- SPP WEIS training (Dec 2019)
- WJDA (Jan 2020)
- Asset Registration II and MMU data (Feb 2020)
- Protocols (March 2020)
- BA Service Agreement I (March 2020)
- OATT I (Mar 2020)
- AE Webinar (Mar 2020)
- Onboarding (April 2020)

May 2020 to February 2021

- Meter Agent (May 2020)
- WAPA OATT (May 2020)
- Software (June 2020)
- Model Review/ICCP (June 2020)
- Training (July 2020)
- BA Service Agreement (July 2020)
- WACM Rate (August 2020)
- Connection Test (Aug 20)
- More Training (Sept 20)
- Parallel testing (Nov 20)
- More Training (Dec 2020)
- WEIS goes live (Feb 21)



Customer Engagements

- BA service Agreement
 - 1st customer meeting – April 15
 - 2nd customer meeting – May 28
 - 3rd customer meeting – July 8
 - Finalize Agreement – end of July
- OATT revision
 - OATT Revision notification of OATT Revision 20-02 posting June 1
 - Stakeholder meeting materials posting June 16
 - Stakeholder meeting June 22
 - Stakeholder comments due July 16
- Rate Schedule
 - Short-term rate schedules approved by January 1st – bridge until completing formal public processes to update WACM, LAP, and CRSP rates to reflect WEIS participation
- Data exchange requirements
 - Information sessions after each BAs service Agreement meeting

Training

- Internal WAPA training
 - Phase I – short e-learning modules – June
 - Phase II – A day in the life of all functional areas - August
 - Phase III – Task based training – November
- SPP Training
 - WEIS UP – Past April
 - WEIS a day in the life of - July
 - Cutover training - November



Questions?



Amy Cutler 801-524-3386

CRSP Environmental Projects Update

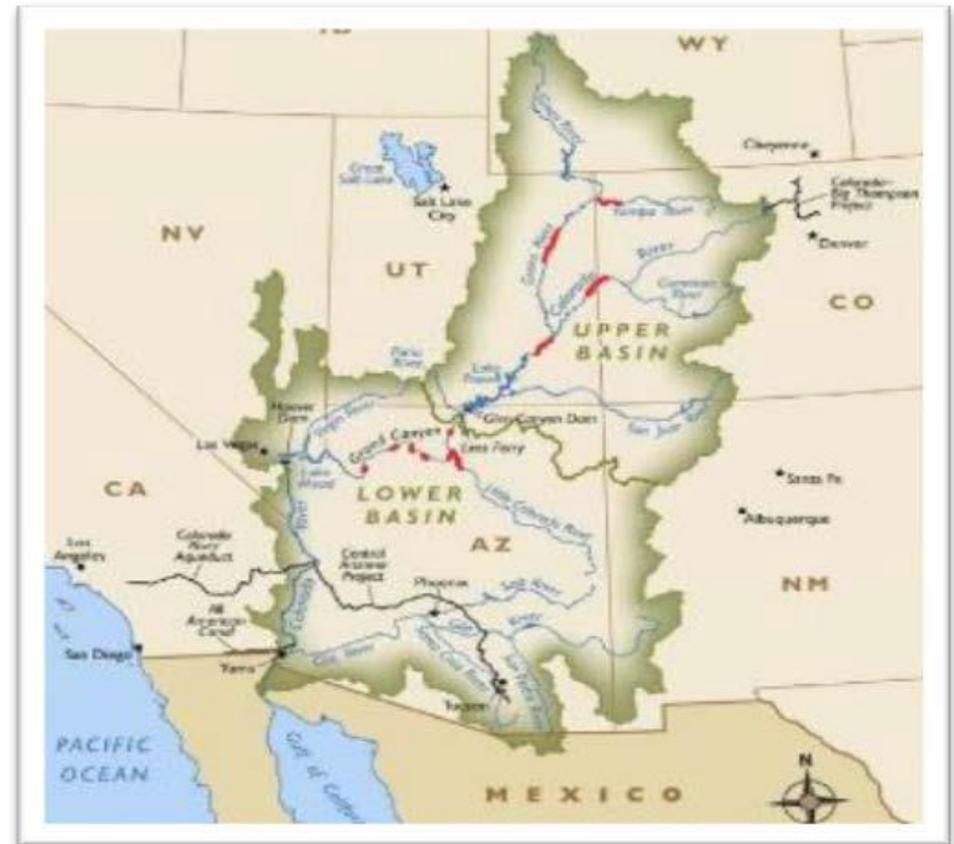
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Derek Fryer
Fisheries Biologist

CRSP's Environmental Programs

Upper Colorado River Basin

- Represent WAPA in the Upper Basin Recovery Program
- Coordinate fish flows with power marketing staff to ensure we plan and utilize hydropower efficiently
- Commitment to make data-driven decisions that lower the cost of environmental compliance



CRSP's Environmental Programs Upper Colorado River Basin

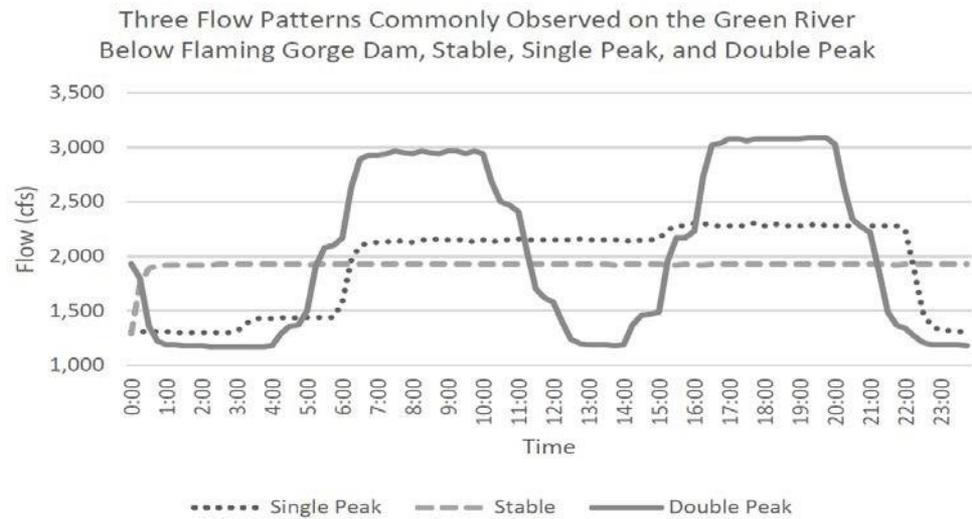
- Flaming Gorge Trout Fishery
 - Trout Electrofishing Surveys
 - Trout food base monitoring
 - UDWR Angler Survey
- Larval Razorback Sucker Study Plan Implementation
- New Flow and Temperature Recommendations (aka GREAT)

Flaming Gorge Trout Fishery

Develop and Maintain Relationships with fishing and recreational communities— Meet Spring and Fall

Developed research to better understand the effects of winter double peaking on trout and the aquatic insect community

Developed tools to assess changes – Trout Individual Based Model



Flaming Gorge Trout Fishery

Fish Population Trends - 2019

- 38% Rainbow Trout / 62% Brown Trout
- Fish densities have decreased, but size and condition has increased
- Brown Trout condition is up 20% and average length is up from 14.5 to 15.6 inches



Flaming Gorge Food Base

Aquatic Insect Population Trends:

Annual densities in 2019 were the third highest measured in 26 years

Mayflies and true flies have increased from the previous 2 years

Invasive New Zealand Mud Snails have increased 10-fold over previous densities



GREEN RIVER FOODBASE: TRENDS AND UPDATES - FALL 2019

*BLM-USU National Aquatic Monitoring Center, 5210 Old Main Hill, Logan, UT 84321
Phone: (435)-797-3945, www.usu.edu/buglab; trip.armstrong@usu.edu*

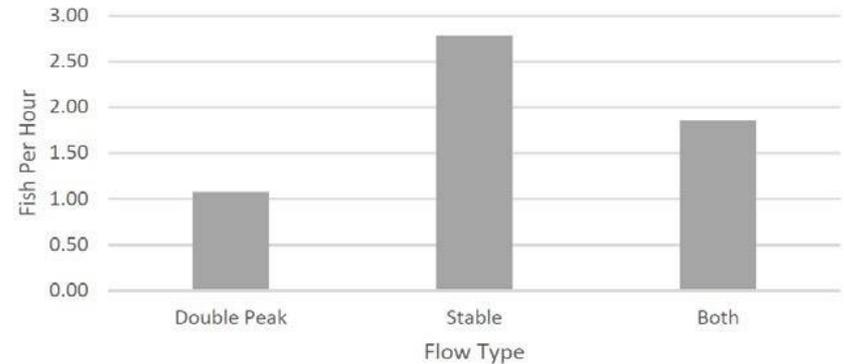
Flaming Gorge Angler Survey

UDWR 2018 Angler Survey

- Mar-Sept & Dec
- 3,100 Interviews
- Overall, Anglers were satisfied and likely to return

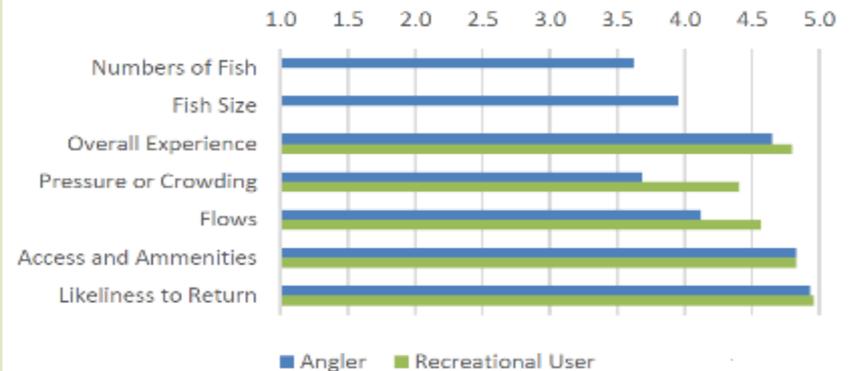


December Catch Rates (fish/hour) Collected in Stable Vs Double Peak Flows (n=92)



Satisfaction Ratings (1-5) by User Type

1 being poor, 5 being good



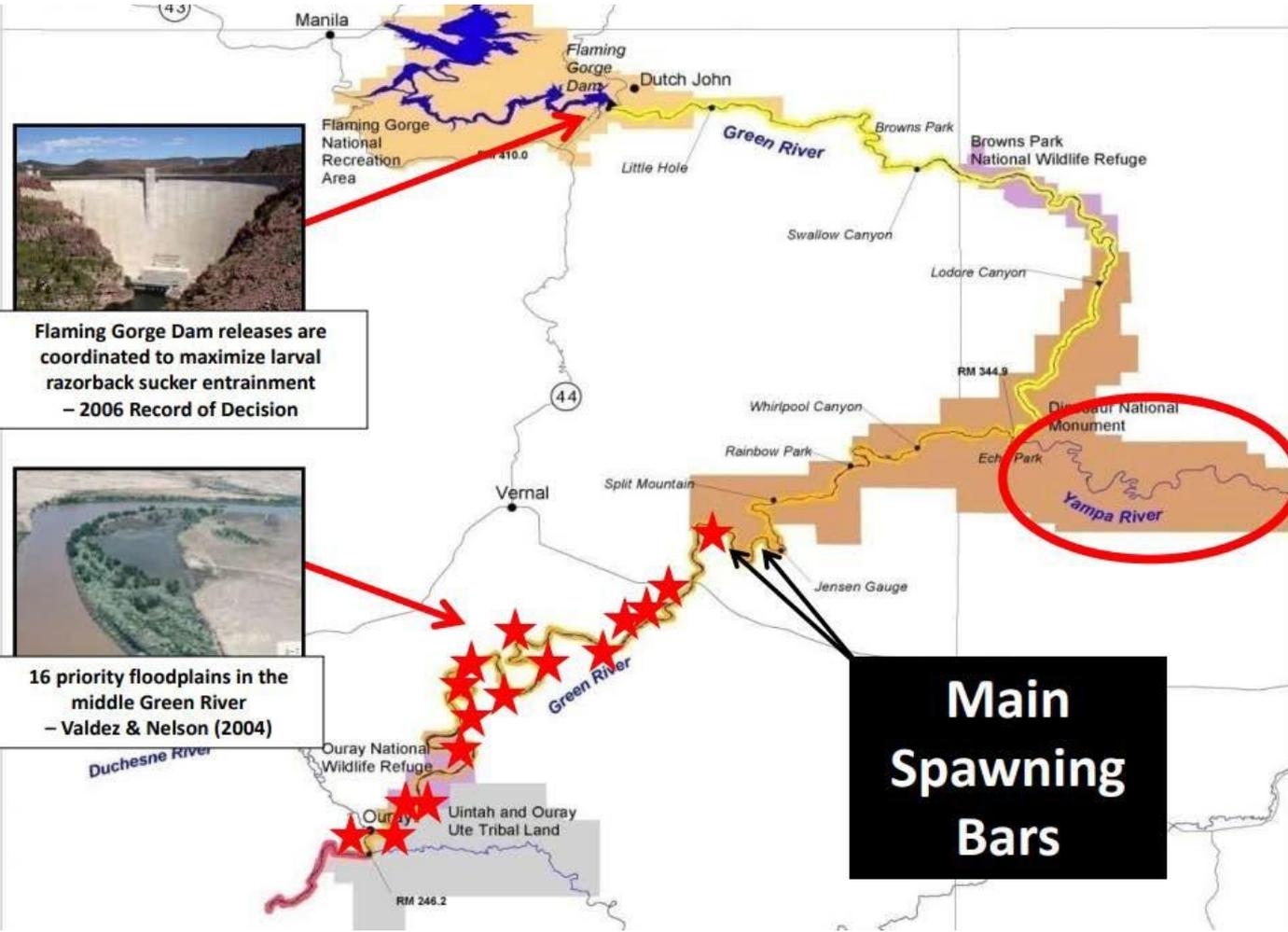
Green River – Larval Trigger Study Plan Operations

Release flows from Flaming Gorge Dam of sufficient magnitude and duration fill wetland and floodplain habitats

- Hydrologic based (dry to wet years)
- Timed to match when larval fish are newly emerged and drifting – Light trapping
- Wetlands provide warmer water and rich food base to grow and survive



Green River – Larval Trigger Study Plan Operations (cont.)



Green River – Larval Trigger Study Plan Operations (cont.)



**July 1, 2012 - fish mortality due to insufficient filling
under extremely dry hydrologic conditions**



Green River – Larval Razorback Sucker Operations



Green River – Larval Razorback Sucker Operations (cont.)



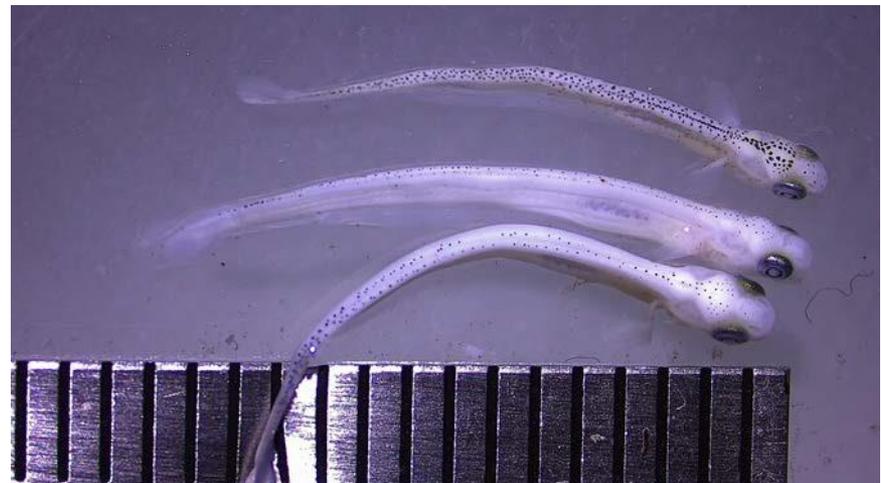
Green River – Larval Razorback Sucker Operations (cont.)

Results and Success

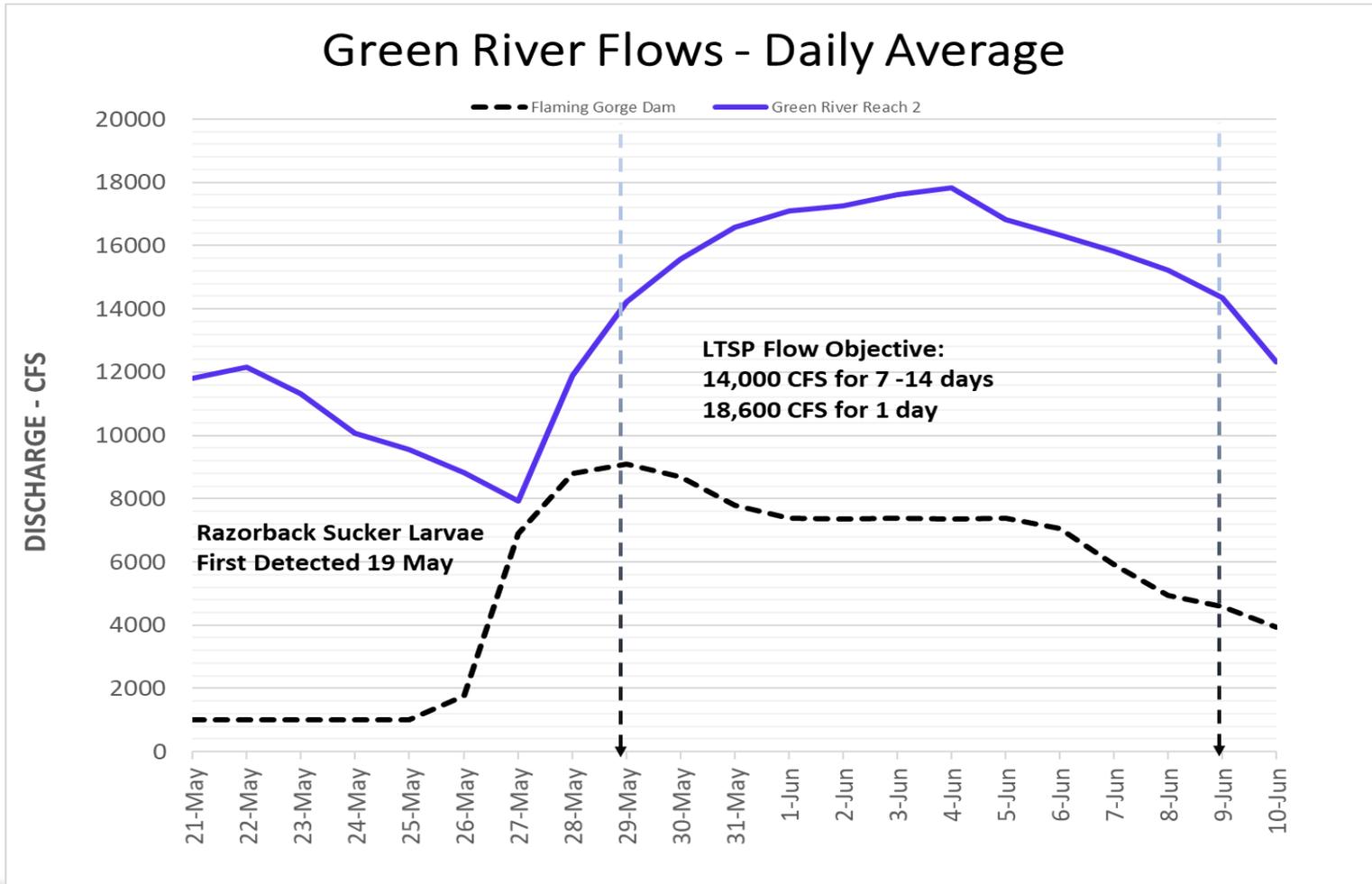
Wild age-1 suckers are being detected in managed wetlands indicating success from 2019

Wild age-0 larvae detected in wetland sites filled this spring

Many of managed and unmanaged wetland habitats were filled with water this spring



Green River – Larval Razorback Sucker Operations (cont.)



GREAT Report – Hydropower Analysis

Report took many years to develop and includes a synthesis of all available information

Proposed Experiments

- LTSP Flows
- Elevated Summer Base Flows
- Smallmouth Bass Spike Flows
- *Changes in ramp down rates spring peak to base flow

*Non-Experimental change

Evaluation and Suggested Revisions of Flow and Temperature Recommendations for Endangered Fish in the Green River Downstream of Flaming Gorge Dam



GREAT Report – Hydropower Analysis (cont.)

Important elements:

- CRSS modeling of future scenarios 15-20 years (BOR) across a range of hydrologic conditions
- WAPA modeling (GT Max) and analysis of CRSS results
- Ability to evaluate experiments and the cost or benefit to hydropower
- Allows us to have input into implementation
- May allow an analysis of the probability of having extra water in the winter



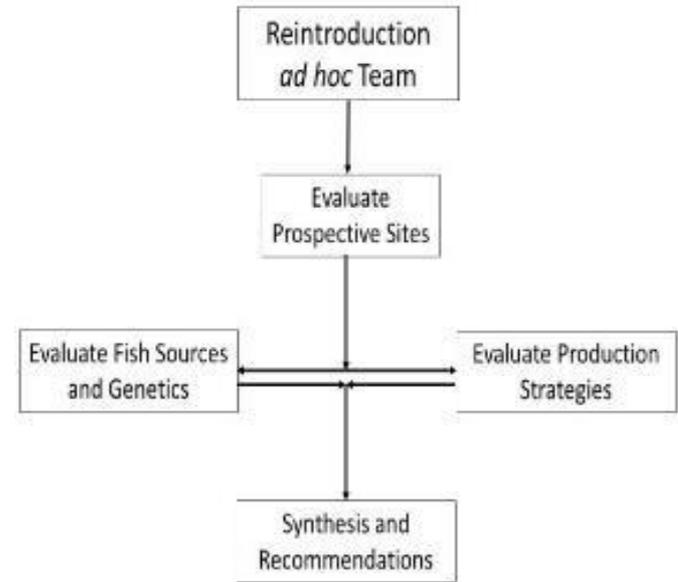
CRSP's Environmental Programs

Upper Colorado River Basin

- Look for win-win situations fish and hydropower
- Examples of success
 - Development of GT Max SuperLite model allows for more robust hydropower analyses and improved productivity of CRSP system operators
 - Preserved the ability to double peak out of Flaming Gorge during the winter months
 - Positive results from LTSP Operations
 - Continued relationship with river users and stakeholders
 - Positive Angler Survey, Trout Fishery and Food base

Reintroducing Humpback Chub Into Yampa River

- Proposed Downlisting and Species Status Assessment (SSA)
 - Near term extirpation risk of multiple populations is low
 - Populations in Grand Canyon are doing well
 - Most populations in Upper Basin steady
 - USFWS currently in the process to downlist
- Moving forward:
 - Reintroducing Chub to the Yampa River
 - Participating in *Ad hoc* team to determine recommendations of source populations and methods for reintroduction



Questions / Contact



Derek Fryer

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(O) 970-252-3032

(M) 970-708-0591

<https://www.coloradoriverrecovery.org/>

<https://www.usu.edu/buglab/>

CRSP Finance Update

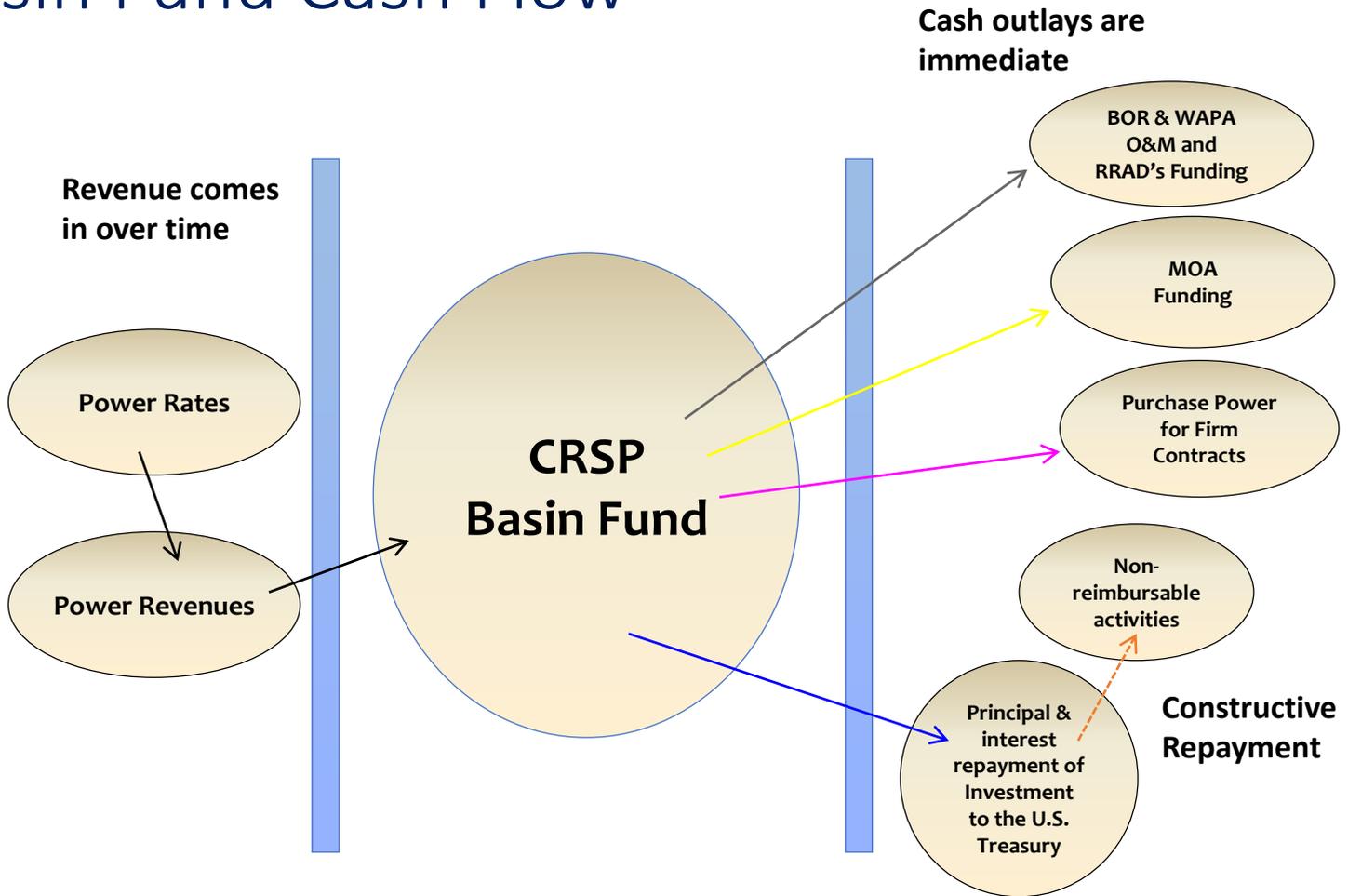
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Lisa O'Brien
Financial Program Analyst

CRSP Act and the Basin Fund

- *Sec. 5(a) "There is hereby authorized a separate fund in the Treasury..."*
- *Sec. 5(c) "All revenues collected in connection with the operation of the Colorado River storage project and participating projects shall be credited to the Basin Fund, and shall be available, without further appropriation, for (1) defraying the costs of operation, maintenance, and replacements of, and emergency expenditures for, all facilities of the Colorado River storage project and participating projects..."*
- *Sec. 5(d) "Revenues in the Basin Fund in excess of operating needs shall be paid annually to the general fund of the Treasury..."*

Basin Fund Cash Flow



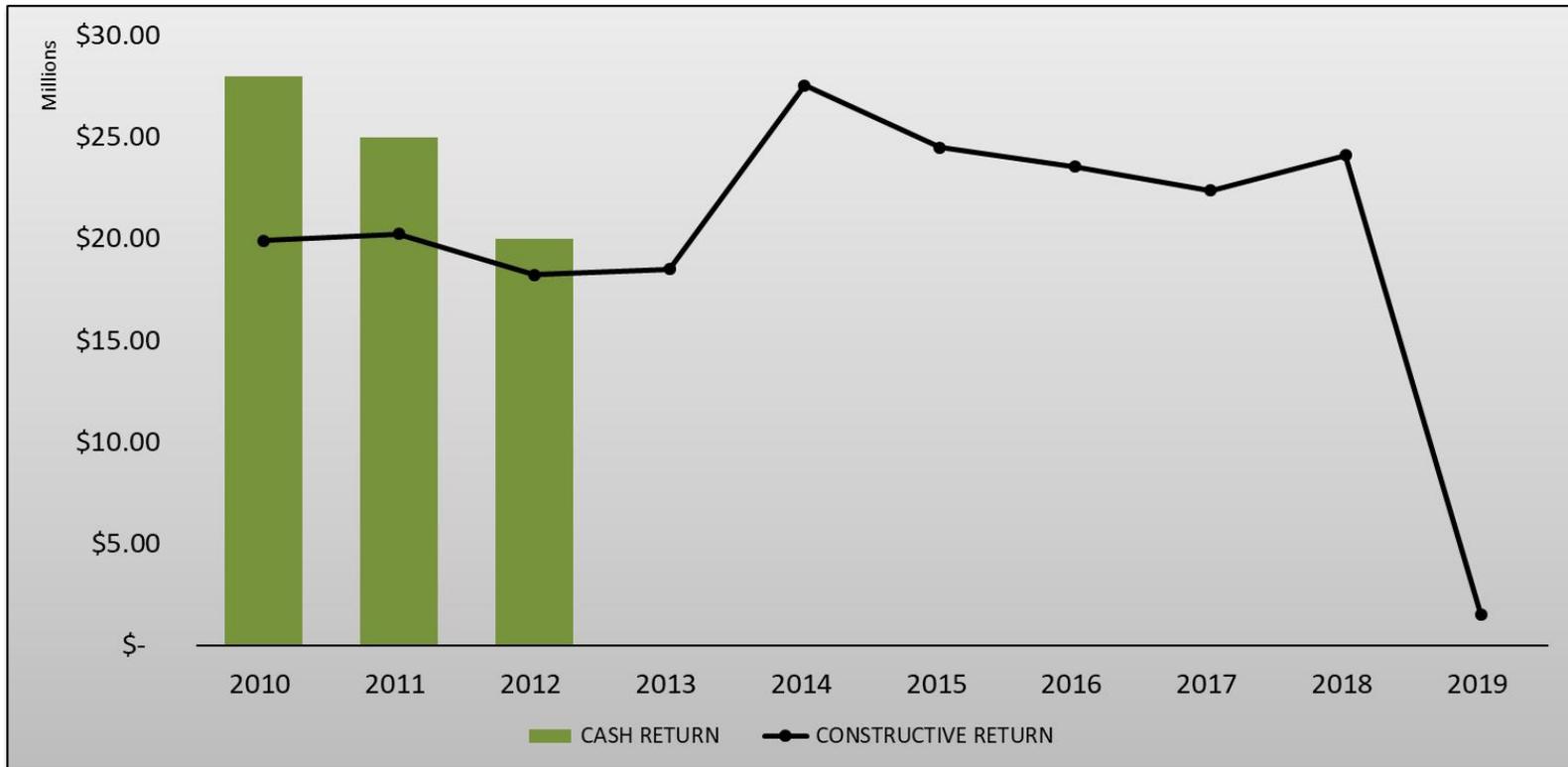
CRSP Operations, Operating Needs, and Cash Outlays

1. Annual Operations & Maintenance (O&M)
2. Replacement, Retirements, Additions, and Deletions (RRAD's) – Capital projects (Amortized)
3. Memorandum of Agreement (MOA)
4. Purchase Power and Wheeling (PPW)
5. Emergency Expenditures
6. Returns to Treasury

Emergency Expenditures/Reserve Balance Strategy

- CRSP has a Reserve Balance Strategy for the Basin Fund to help ensure its financial stability
- It is to help mitigate the unique risks associated with a revolving fund, including, but not limited to:
 - Drought
 - Equipment failures
 - Unplanned and catastrophic events
 - Purchased power uncertainty
- Posted on WAPA's "The Source" website

Returns to Treasury/Constructive Returns



Basin Fund Hot Topics

- Expenses for environmental programs, booked as constructive returns, have increased over time, while repayment obligations have decreased.
 - Potential risk of draining the Basin Fund
 - This creates funding pressures for the non-reimbursable environmental programs
- Legislation and Administrative Guidance – WAPA works with and adheres to Legislation and Administrative guidance from Congress, Office of Management and Budget (OMB), and Department of Energy (DOE)

Basin Fund Balance

- Basin Fund Reserve Target Balance for FY2020
 - \$174M
- Basin Fund Balance as of 6/29/2020
 - \$130.7M
- End of Year Projected Balance with following assumptions
 - \$134M
 - \$21.4M transfer to Reclamation for non-reimbursable Environmental Programs (FEB)
 - \$20.7M transfer from Reclamation for historical miscellaneous revenues (AUG)
 - \$21.4M transfer to General Fund of the Treasury (SEP)
 - \$40M below target balance

Questions / Contacts



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CRSP Contracts

Colorado River Storage Project Management Center
Annual Customer Meeting
June 30, 2020 | Virtual meeting

Timothy Kutz
Contracts Specialist

2025 Firm Electric Service Contracts

- All Contracts have been sent out
- Have received 80 signed Contracts back
- 56 Contracts still outstanding
- Approximately 80% of resource under contract
- If you have not received your contract, or need us to send it again, please contact me
- New contracts take effect Oct. 1, 2024
- Effective through September 30, 2057

Benefit Crediting Program

- Designed to maximize the benefit to tribal customers of federal hydropower
- Agreements are between the tribe, the utility and WAPA
- Amounts are based on difference between the cost of WAPA power and the utility's other power supplies
- Tribe's allocation is then taken by the utility, who then pays the difference in order to benefit entire tribe
- Some of our tribal customers have established their own utilities, and take direct delivery of their CRSP allocation

Benefit Crediting Program (cont.)

- Some of our tribal customers have established their own utilities, and take direct delivery of their CRSP allocation
- The current agreements will expire with the Firm Electric Service Contracts at the end of FY2024
- We are preparing to discuss and work through the replacement agreements as the new 2025 FES Contracts are signed

Questions / Contacts



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CRSP Rates

Colorado River Storage Project Management Center
Annual Customer Meeting
June 30, 2020 | Virtual meeting

Thomas Hackett
CRSP Rates Manager

This is not a Public Information Forum

- Information mentioned that is tied to the current rate is already public and posted to the rate action website
- Extended Comment Period through July 10th
 - Email comments to: CRSPMC-rate-adj@wapa.gov
- Purchase Power and Cost Recovery Charge webinars should have been considered Public Meetings and announced by FRN

Rates Agenda

- Generation
- Status of Repayment
- Transmission Rate
- SLCA/IP Rates
- Future Rate Actions
- Next Steps
- Questions

Generation

SLCA/IP Energy Generated

Percentages Based on FY 2019 Data

	Generated - GWh	% of Generation
CRSP	4,924,692	96.65%
Glen Canyon	3,823,966	75.04%
Flaming Gorge	504,190	9.89%
Aspinall	596,537	11.71%
Participating / Integrated Projects:	170,956	3.35%
Dolores	21,385	0.42%
Seedskadee	56,862	1.12%
Collbran	45,007	0.88%
Rio Grande	47,702	0.94%
Total Generation:	5,095,648	100.00%

SLCA/IP Energy Generated

5 Year Average per Project

	Generated - MWh					5yr Average
	2015	2016	2017	2018	2019	
Glen Canyon	3,863,803	4,016,226	3,969,625	4,050,661	3,823,966	3,944,856
Flaming Gorge	504,135	495,226	781,596	628,820	504,190	582,793
Aspinall	721,475	755,470	708,253	868,491	596,537	730,045
CRSP:	5,089,414	5,266,922	5,459,474	5,547,972	4,924,692	5,257,695
Dolores	21,119	22,923	23,200	13,875	21,385	20,501
Seedskadee	75,559	51,886	31,918	66,662	56,862	56,577
Collbran	39,248	41,069	37,760	22,796	45,007	37,176
Rio Grande	37,642	43,433	45,218	39,524	47,702	42,704
Participating / Integrated Projects:	173,567	159,311	138,097	142,858	170,956	156,958
Total Generation:	5,262,981	5,426,234	5,597,570	5,690,830	5,095,648	5,414,653

	2015	2016	2017	2018	2019	2020
Percent of 5 Yr Avg:	97.20%	100.21%	103.38%	105.10%	94.11%	99.54%

Note: Current year estimate based on monthly year to date generation comparison to 5yr averages

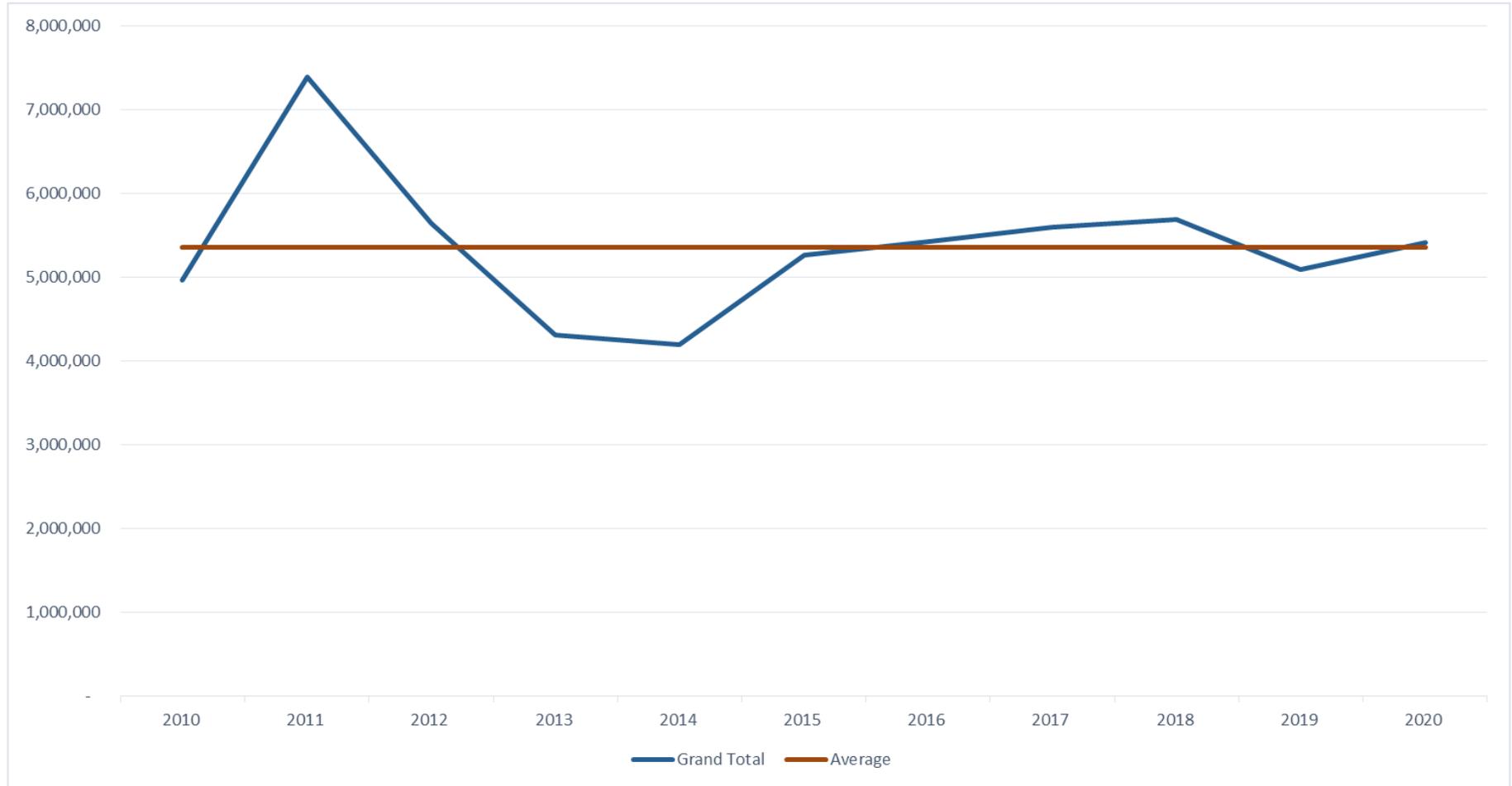
SLCA/IP Energy Generated

10 Year Historical (GWh)

Fiscal Year	Collbran	CRSP	Dolores	Rio Grande	Seedskadee	Grand Total	Percent of Avg.
2010	39,254	4,796,914	19,461	67,489	36,347	4,959,466	92.6%
2011	49,599	7,223,614	22,242	33,883	55,107	7,384,445	137.9%
2012	37,227	5,495,989	20,804	28,861	56,818	5,639,699	105.3%
2013	13,850	4,244,867	10,047	9,377	35,222	4,313,363	80.5%
2014	43,754	4,059,817	21,365	12,768	58,588	4,196,292	78.3%
2015	39,248	5,089,414	21,119	37,642	75,559	5,262,981	98.3%
2016	41,069	5,266,922	22,923	43,433	51,886	5,426,234	101.3%
2017	37,760	5,459,474	23,200	45,218	31,918	5,597,570	104.5%
2018	22,796	5,547,972	13,875	39,524	66,662	5,690,830	106.2%
2019	45,007	4,924,692	21,385	47,702	56,862	5,095,648	95.1%
10 Yr Average:	36,956	5,210,968	19,642	36,590	52,497	5,356,653	

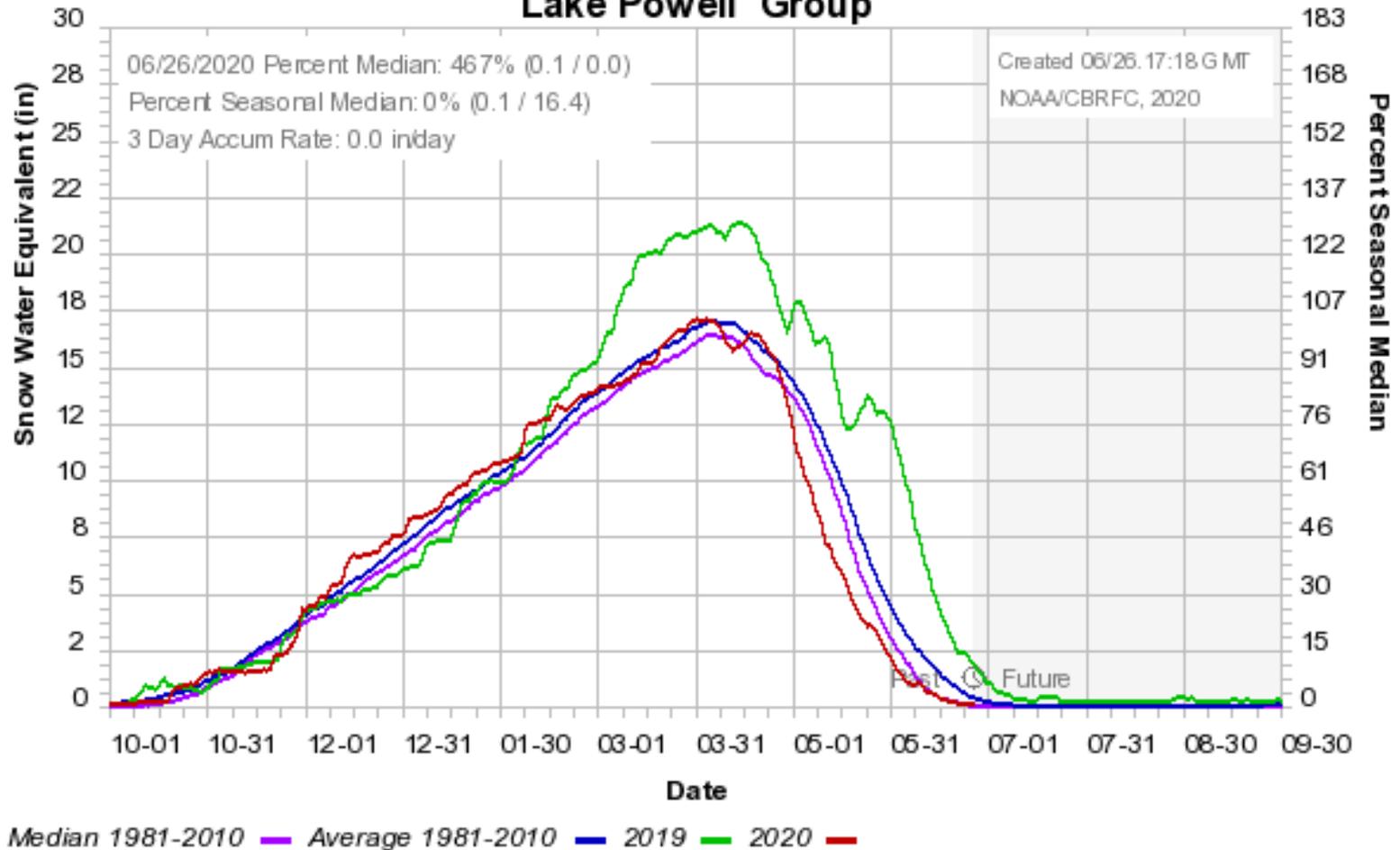
SLCA/IP Energy Generated

10 Year Historical (GWh)



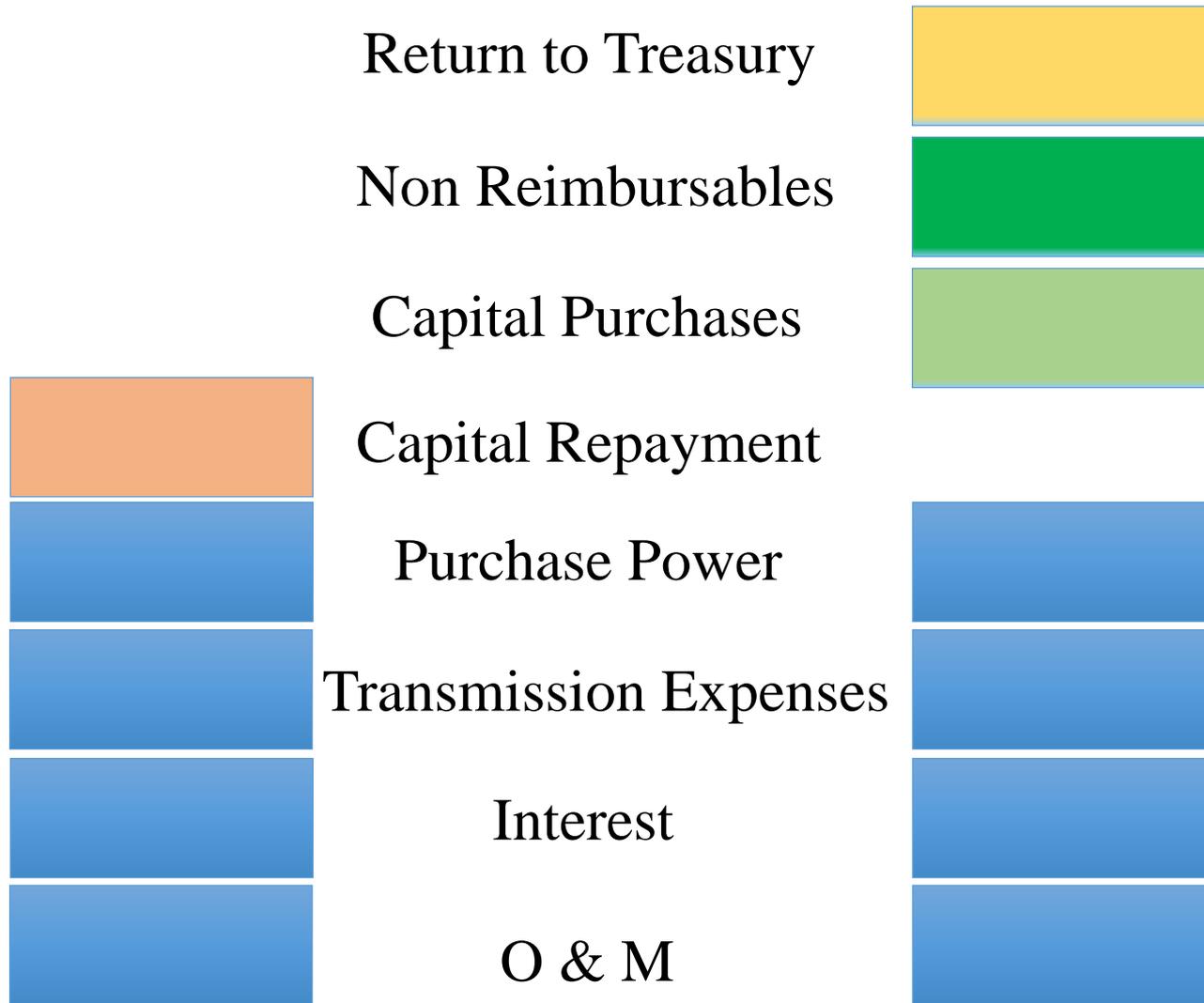
Snotel Chart

Colorado Basin River Forecast Center Lake Powell Group



Status of Repayment

Rates Revenue vs Basin Fund Cash



Status of Repayment

SLCA/IP Status of Repayment As of September 30, 2019

Project	FY2019 Investment (\$thousand)	FY2019 Repaid (\$thousand)	FY2019 % Repaid %	FY2018 Investment (\$thousand)	FY2018 Repaid (\$thousand)	FY2018 % Repaid %
CRSP (Power Only)	1,394,434	1,243,975	89.21%	1,374,515	1,205,178	87.68%
CRSP Irrigation/Aid	1,211,564	241,500	19.93%	1,174,515	208,792	17.78%
Collbran	27,463	23,320	84.91%	27,023	23,191	85.82%
Dolores	39,851	38,410	96.38%	38,986	38,167	97.90%
Rio Grande	29,678	24,758	83.42%	29,651	24,758	83.50%
Seedskadee	12,398	9,882	79.71%	12,527	9,699	77.42%

Transmission Rate

Transmission Rates History



FY2021 Transmission Update

Firm Transmission Reservations (kW)

Item	Entity	FY21 Rate	PY True-Up	FY21 Final Rate
<u>Annual Transmission Revenue Requirement</u>		\$ 86,894,976	\$ 2,710,252	\$ 89,605,228
<u>Transmission Revenue Credits</u>				
	Non-Firm/Short-Term Point-to-Point Service	\$ 387,303	\$ 187,181	\$ 574,484
	Scheduling and Dispatch Ancillary Service	\$ 502,161	\$ -	\$ 502,161
	Miscellaneous Revenue	\$ 20,587	\$ -	\$ 20,587
	Phase Shifter Revenue	\$ 723,379	\$ (344,123)	\$ 379,256
	Provo River Project	\$ 29,788	\$ (12)	\$ 29,776
	Exchange Contracts	\$ -	\$ -	\$ -
	Transformation	\$ 197,500	\$ -	\$ 197,500
	Total Transmission Rev Credits	\$ (1,860,718)	\$ 156,954	\$ (1,703,764)
<u>Net Annual Transmission Revenue Requirement</u>		\$ 85,034,259	\$ 2,867,206	\$ 87,901,465

FY2021 Transmission Update

Item	Entity	FY21 Rate	PY True-Up	FY21 Final Rate
<u>Net Annual Transmission Revenue Requirement</u>		\$ 85,034,259	\$ 2,867,206	\$ 87,901,465
<u>Transmission System Load:</u>		4,333,197	\$ -	\$ 4,333,197
<u>Firm Point-to-Point Transmission Rate in \$/kW:</u>				
	kW-year	\$ 19.62		\$ 20.29
	kW-month	\$ 1.635		\$ 1.690

Primary Drivers of True-Up

Increased Actual O&M cost led to higher percentage of fixed charge rate.

Reduction in Transmission Credits, Primarily Phase Shifter Revenue & Non-Firm Transmission

Primary Drivers of Rate Increase

Reduction in Transmission Load (APS/Pacificorp, Mean)

Reduction in Transmission Credits, Primarily Phase Shifter Revenue & Non-Firm Transmission

SLCA/IP Rates

History of SLIP Rates

Effective	Capacity	Energy	Composite
<u>Date (CY)</u>	<u>\$/kW</u>	<u>mills/kWh</u>	<u>mills/kWh</u>
1993	3.54	8.40	18.70
1995	3.83	8.90	20.17
1998	3.44	8.10	17.57
2002	4.04	9.50	20.72
2005	4.43	10.43	25.28
Step 1 { 2008	4.70	11.06	26.80
Step 2 { 2009 (FY10)	5.18	12.19	29.62
2015	5.18	12.19	29.42

Original Investments

- Repaid Original Investment on Aspinall FY2016
- Repaid Original Investment on Dolores FY2017

Glen Canyon Cost Reallocation

- Glen Canyon Cost Reallocation
 - Grand Canyon Protection Act of 1992
 - Cost Reallocation entered in FY2013 PRS
 - \$25,775,772 Glen Canyon Dam multipurpose capital costs
 - \$10,144, 413 (37.8%) reduction in annual multipurpose OM&R FY 1999 – FY 2012
 - \$136,000,000 in Interest recouped and applied to repayment of capital costs

Original Apportionment

Colorado	New Mexico	Utah	Wyoming
46.0	17.0	21.5	15.5

For every dollar spent out of Basin Fund			
\$0.46	\$0.17	\$0.215	\$0.155

Cost for every dollar spent in each state			
\$2.17	\$5.88	\$4.65	\$6.45

Vernal Unit Sample:	\$8,610,000
Total:	\$40,046,512

Apportioned Amount to each State			
\$18,421,395	\$6,807,907	\$8,610,000	\$6,207,209

MOA 1

- Agreement between CREDA, Upper Basin States, Reclamation & WAPA to reduce Apportionment
- Revenues so apportioned to each State shall be used only for the repayment of construction costs of participating projects or parts of such projects in the State to which such revenues are apportioned and shall not be used for such purpose in any other State without the consent, as expressed through its legally constituted authority, of the State to which such revenues are apportioned.
- further the purposes of CRSPA through application of those revenues to the costs of implementation of Projects recommended by the Upper Division States
 - \$390M in Apportionment removed from PRS
 - \$161M provided to Upper Basin States for projects
 - 2012 -2025 average \$11.5M per year

Shared Apportionment

Colorado	New Mexico	Utah	Wyoming
46.0	17.0	21.5	15.5

For every dollar spent out of Basin Fund			
\$0.46	\$0.17	\$0.215	\$0.155

Cost for every dollar spent in each state			
\$1.00	\$1.00	\$1.00	\$1.00

Vernal Unit Sample:	\$8,610,000
Total:	\$8,610,000

Apportioned Amount to each State			
\$3,960,600	\$1,463,700	\$1,851,150	\$1,334,550

MOA 2

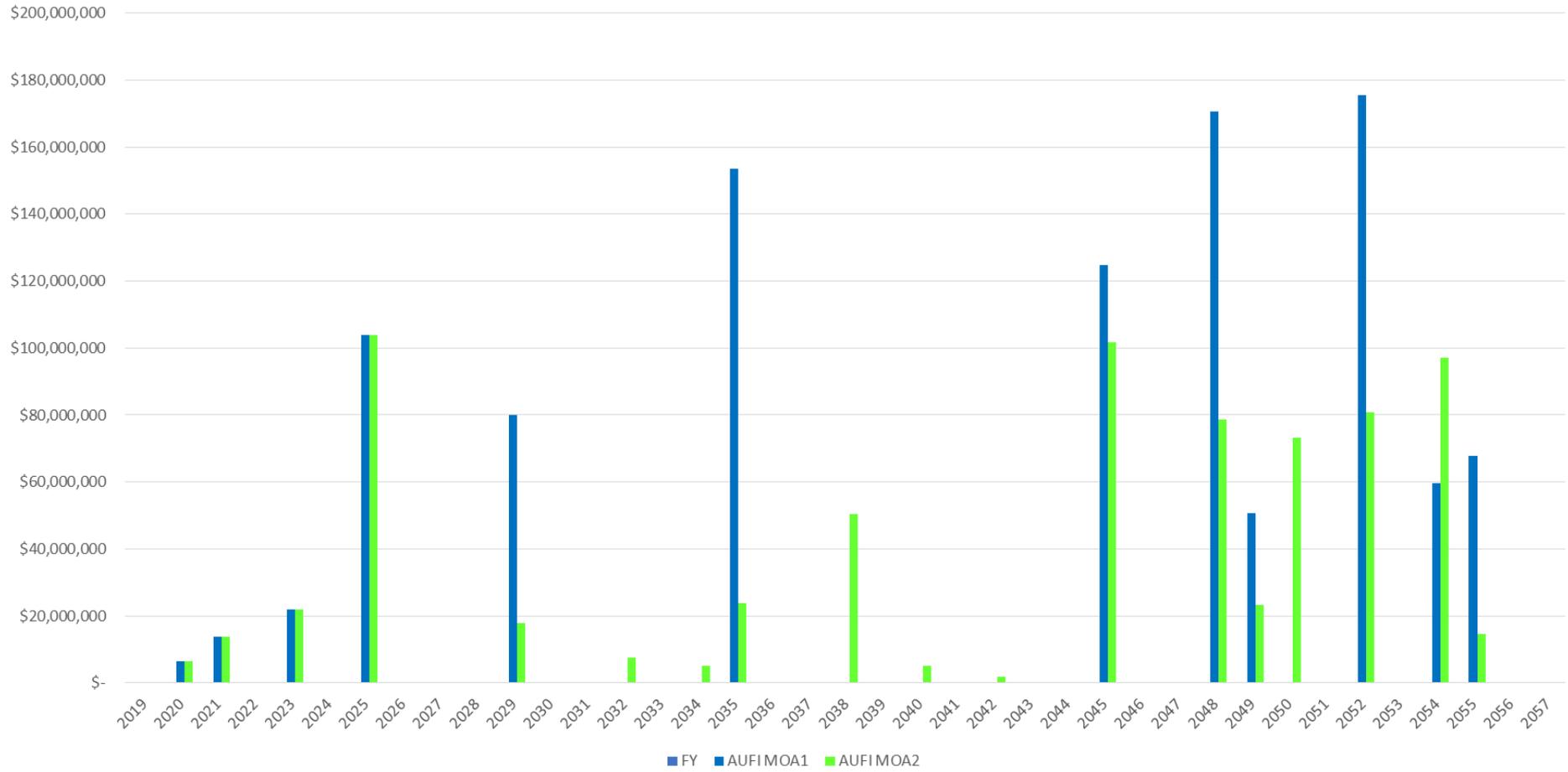
- Reduces remaining apportionment
 - \$323M in Apportionment removed from PRS
 - \$187M provided to Upper Basin States for projects
 - \$249M (\$57.5M from MOA 1) to collect
 - 2021 -2037 average \$14.4M per year

Aid to Participating Projects Irrigation Repayment Obligations FY 2019 PRS

Unit: \$ 1,000

year	Colorado 46%		New Mexico 17%		Utah 21.5%		Wyoming 15.5%		Annual Obligation	Cumulative Obligation
	Obligation	W/Appor	Obligator	W/Appor	Obligation	W/Appor	Obligator	W/Appor		
2015	-	-	-	-	-	-	-	-	-	-
2016	-	4,039	-	1,493	8,781	1,888	-	1,361	8,781	8,781
2017	3,190	2,030	-	750	-	949	1,224	684	4,414	13,195
2020	-	2,940	-	1,086	6,391	1,374	-	991	6,391	19,586
2021	13,684	6,295	-	2,326	-	2,942	-	2,121	13,684	33,270
2022	-	-	-	-	-	-	-	-	-	33,270
2023	-	10,027	21,797	3,705	-	4,686	-	3,379	21,797	55,067
2024	-	-	-	-	-	-	-	-	-	55,067
2025	-	47,726	-	17,638	103,753	22,307	-	16,082	103,753	158,820
2029	5,482	8,220	-	3,038	-	3,842	12,387	2,770	17,869	176,689
2031	-	-	-	-	-	-	-	-	-	176,689
2032	-	3,486	7,578	1,288	-	1,629	-	1,175	7,578	184,267
2033	-	-	-	-	-	-	-	-	-	184,267
2034	-	2,289	-	846	4,977	1,070	-	771	4,977	189,244
2035	-	10,954	-	4,048	-	5,120	23,812	3,691	23,812	213,056
2036	-	-	-	-	-	-	-	-	-	213,056
2037	-	-	-	-	-	-	-	-	-	213,056
2038	50,454	23,209	-	8,577	-	10,848	-	7,820	50,454	263,510
2039	-	-	-	-	-	-	-	-	-	263,510
2040	5,146	2,367	-	875	-	1,106	-	798	5,146	268,656
2041	-	-	-	-	-	-	-	-	-	268,656
2042	1,905	876	-	324	-	410	-	295	1,905	270,561
2044	-	-	-	-	-	-	-	-	-	270,561
2045	101,807	46,831	-	17,307	-	21,889	-	15,780	101,807	372,368
2047	-	-	-	-	-	-	-	-	-	372,368
2048	78,521	36,120	-	13,349	-	16,882	-	12,171	78,521	450,889
2049	23,264	10,701	-	3,955	-	5,002	-	3,606	23,264	474,153
2050	-	33,676	-	12,446	73,209	15,740	-	11,347	73,209	547,362
2051	-	-	-	-	-	-	-	-	-	547,362
2052	80,719	37,131	-	13,722	-	17,355	-	12,511	80,719	628,081
2053	-	-	-	-	-	-	-	-	-	628,081
2054	-	44,604	-	16,484	96,966	20,848	-	15,030	96,966	725,047
2055	-	6,691	-	2,473	14,545	3,127	-	2,254	14,545	739,592
2056	-	-	-	-	-	-	-	-	-	739,592
2057	22,703	16,019	-	5,920	12,121	7,487	-	5,398	34,824	774,416
Total	386,875	356,231	29,375	131,651	320,743	166,499	37,423	120,034	774,416	

MOA 2 Impacts on Repayment



Tentative Firm Power Rates (WAPA 190)

Without MOA 2

- Effective Oct. 1, 2020
- Energy: 12.29 mills/kWh
- Capacity: \$5.22
kW/month
- Composite Rate: 29.37
mills/kWh
- Expires September 30,
2020
- Pinch Point Year 2029

With MOA 2

- Effective Oct. 1, 2020
- Energy: 11.43 mills/kWh
- Capacity: \$4.85
kW/month
- Composite Rate: 27.46
mills/kWh
- Expires September 30,
2020
- Pinch Point Year 2038

Future SLCA/IP FRNs

Future Rate Actions

- Moving to a calendar year implementation
 - Publish Proposal FRN in April instead of January
 - 90-day Customer Comment Period April – July instead of January – April
 - Provides sufficient time to complete Work Plan reviews pursuant to the 92 Agreement
 - Improves timing in relation to August CRSS Traces

CRSP Rates Next Steps

- Continue to post information to Rate Adjustment website. (CRC table with Real Customers)
- Review comments after closeout of extended comment period on July 10
- Notify customers of new rates by end of August
- FRNs for WEIS
 - Short-term Rate
 - Joint Dispatch Transmission Service
- Continue collaboration on DSW/WAPA OneRate
- Get some sleep then start building for Halloween

Questions / Contact



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Questions and Closing

Colorado River Storage Project Management Center
Annual Customer Meeting
June 30, 2020 | Virtual meeting

Tim Vigil

Vice President of Power Marketing