

**Welcome to the
CRSP Annual Customer Meeting
June 20, 2019
11:00 am – 3:00 pm**

The meeting will begin at **11:00 am MDT**

Please stand-by until the meeting begins.

Please remember to place your phone on mute.

Presentation -

Within the SOURCE: <https://www.wapa.gov/About/the-source/Pages/Presentations-Speeches.aspx>

CRSP-MC Site: <https://www.wapa.gov/regions/CRSP/Pages/crsp.aspx>

Full Binder Handout - <https://www.wapa.gov/regions/CRSP/rates/Pages/rates.aspx>



CRSP-MC Annual Customer Meeting
June 20, 2019
11:00 am – 3:00 pm

Welcome and Introductions



Agenda

CRSP-MC Annual Customer Meeting June 20, 2019 11:00 am – 3:00 pm

Time	Topic	Speaker
11:00, 5 min	Welcome and Introductions	Steve Johnson, Senior VP and CRSP Manager
11:05, 30 min	Investing in a connected future, Fiber Update	Mark Gabriel, Administrator and Chief Executive Officer
11:35, 25 min	WAPA Information Technology Update	Mike Montoya, Acting Senior VP and Chief Information Officer
12:00, 20 min	Environmental Update (Bug Flows, ESA Activities)	Craig Ellsworth, CRSP Biologist
12:20, 25 min	Chief Financial Officer Update	Dennis Sullivan, Senior VP and Chief Financial Officer
12:45	Break - 15 minutes	
1:00, 45 min	Rate Update	Thomas Hackett / Tony Henriquez - CRSP Rates
1:45, 30 min	WEIS/Markets update	Tim Vigil, CRSP MC VP of Power Marketing
2:15, 20 min	Regional Manager Updates	Steve Johnson, Senior VP and CRSP Manager Ron Moulton, Senior VP and DSW Regional Manager
2:35, 25 min	Questions and Closing	Tim Vigil, CRSP MC VP of Power Marketing





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Investing in a Connected Future

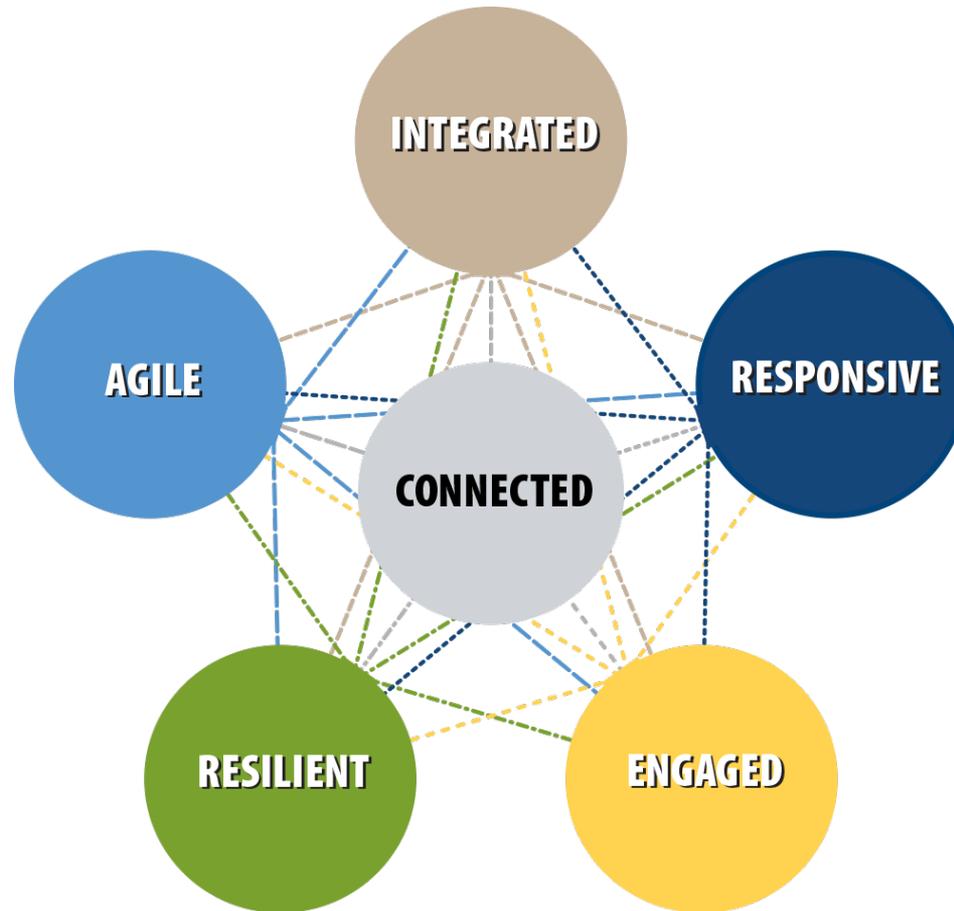
Administrator and CEO Mark A. Gabriel

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Salt Lake City, UT



A connected WAPA



Shared Integrated Grid



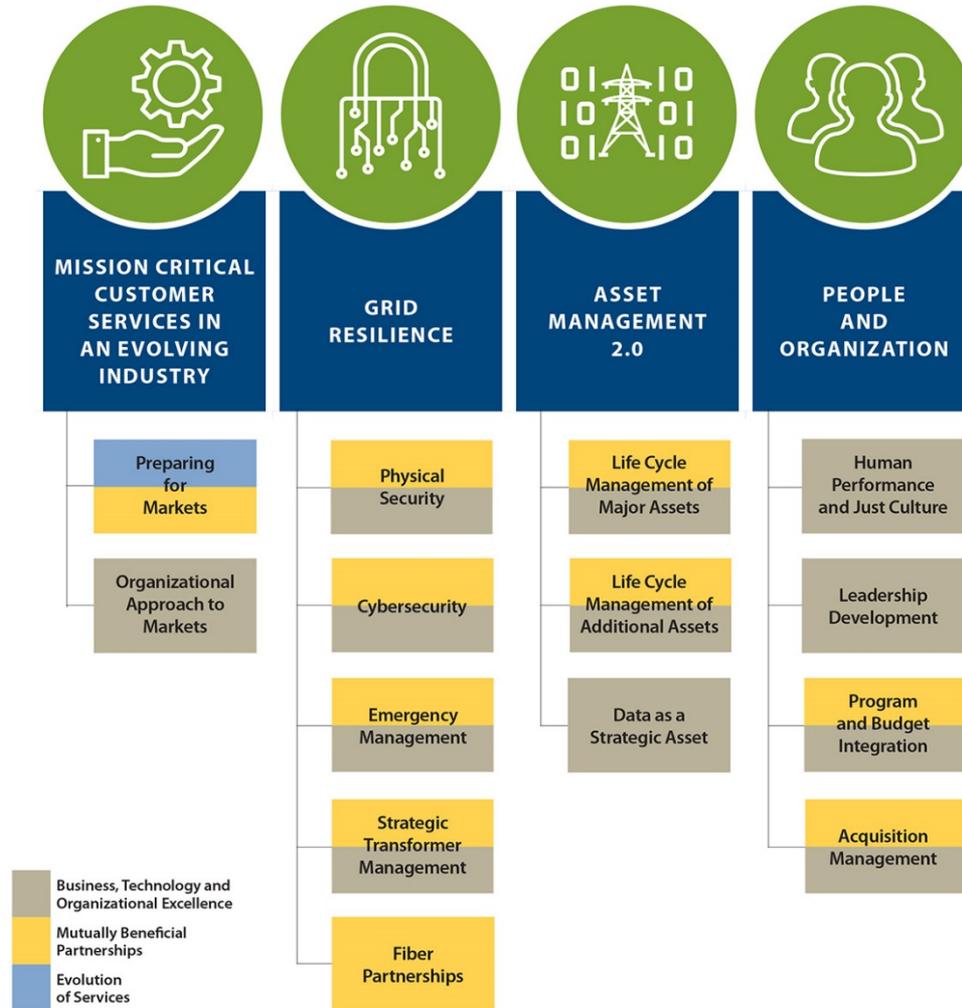
Preparing for the future



Connected world

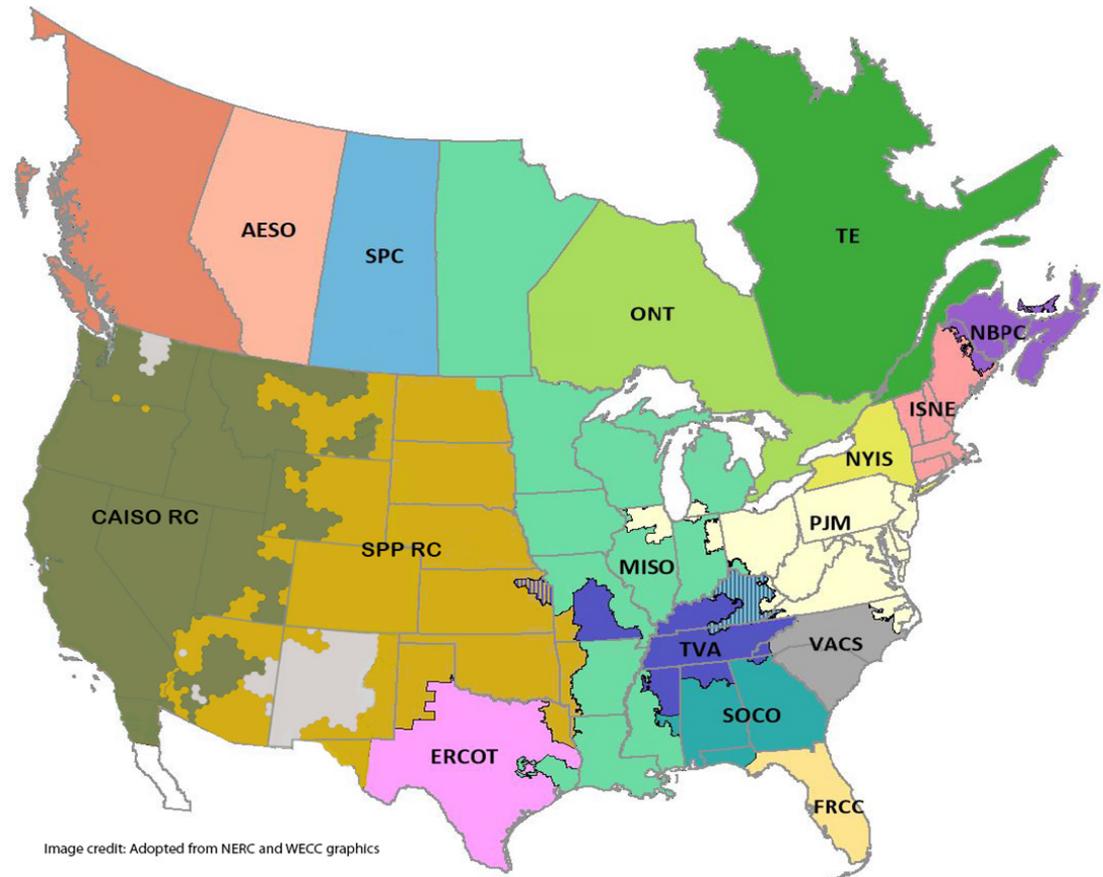


Tactical Action Plan



Mission-critical services

- Exploring energy imbalance options
- Organizational Approach to Markets
- Reliability coordinator transition



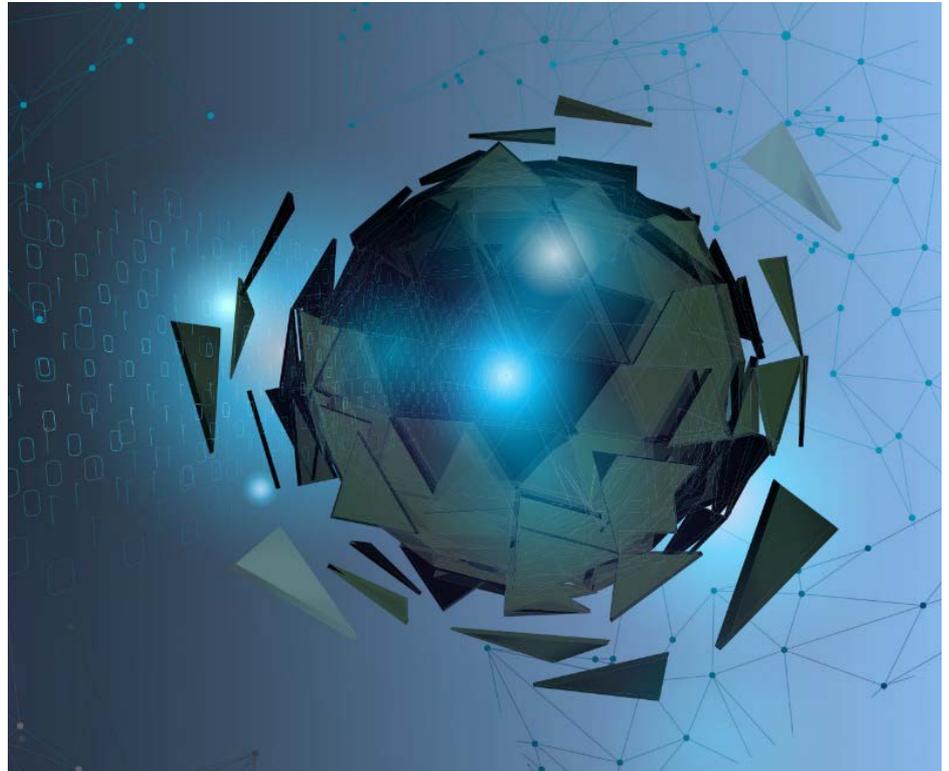
Evolving with industry, customers

- Energy Imbalance Markets
 - **Ensure reliable delivery of our hydropower while adjusting to a changing energy mix**
- Integrated Resource Plans
- RC transition
- Vegetation management
- Northwest Power Pool



Grid resilience

- Increasing regulations
- Internet of Things
- OT/IT convergence
- Asset management nexus
- “Smart” technology
- Continuing communications



Grid resilience



Physical Security update

- Implemented tiered security protection levels to focus resources on more critical sites
 - 1,000+ tasks reduced to ~450
- Expect 94 site assessments to be complete by year's end
- 72% of planned security tasks to be complete for FY 2019
- FY 2020 tasks: 103
- FY 2021 tasks: 72



Fiber update

- **To date**
 - Established Fiber Optic Partnerships feasibility assessment team
 - Submitted plan for Feasibility Assessment to DOE
 - Held initial meeting with work group
- **June-September:** Regional outreach
- **December:** Submit feasibility assessment
- Report progress quarterly using performance metrics



Asset Management 2.0

- Published 2019 almanac in May
- Data-driven insight supports decision making
- Next asset classes
 - station batteries
 - current transformers
 - capacitive voltage transformers
 - IT network equipment



VALUE OF
ASSET MANAGEMENT

Western Area
Power Administration 



People and Organization

- Human Performance and Just Culture
- Leadership development
- Program and budget integration
- Acquisition management



CRSP MC accomplishments

- Paid-off Dolores' original investment in FY 2018
 - Final repayment of original investments in SLIP
- Expecting rate decrease next year after decade of stable rates



*McPhee Dam
Courtesy of USBR*



Key takeaways

Preparing for a connected energy future.

Stay flexible to meet industry changes.

Preserve and strengthen ability to complete mission.



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Information Technology overview and update

Mike Montoya, Acting SVP and CIO



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Salt Lake City, Utah

Mission

Enable WAPA's mission by working in partnership with employees, customers and stakeholders to deliver technology services that are:

- Cost effective
- High quality
- Accessible
- Innovative
- Reliable
- Secure



Operating principles

Innovation

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

Keeps WAPA relevant, resilient, agile



Stewardship

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

Keeps WAPA efficient, focused, responsible



Prepared for future



Continued public trust

Partnership

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

Keeps WAPA connected, engaged, responsive



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

Help identify efficiencies

Align with 12/14 TAP initiatives



IT Evolution

Why

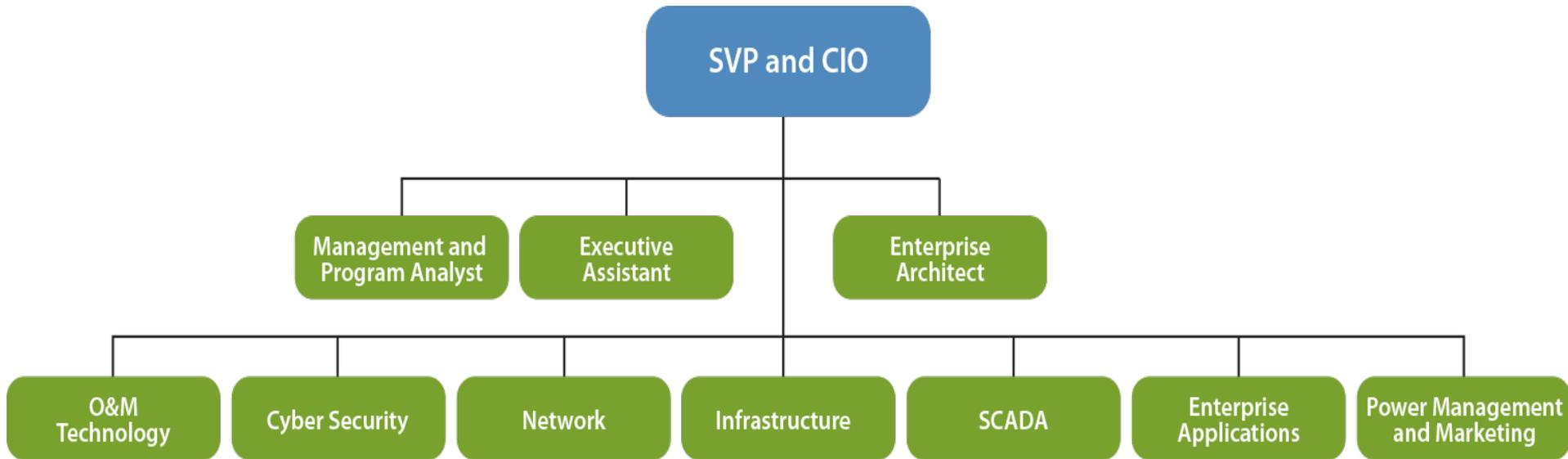
- Prior structure was 20yrs old
- Changing industry and IT landscape
- Increased complexity of operations

Outcomes

- Reduced risk
- Increased control of spending
- Apply WAPA-wide focus
- Increased efficiency
(solve problems once, not five times)
- Experts across organization
- Increased agility



How we are organized



Accomplishments

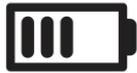
- Lifecycle management strategy
- Software inventory
- 10-year capital planning
- Focus on transparency / IT spend
- Budget process improvements



Primary IT cost drivers



Strategic initiatives



Lifecycle management



Regulatory obligations



IT priority projects

Common SCADA vendor

Network enhancements

Records Management

Reliability Coordinator services



Looking ahead: Megatrends

- Cloud computing
- AI and machine learning
- Cybersecurity





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CRSP Environmental Group Update

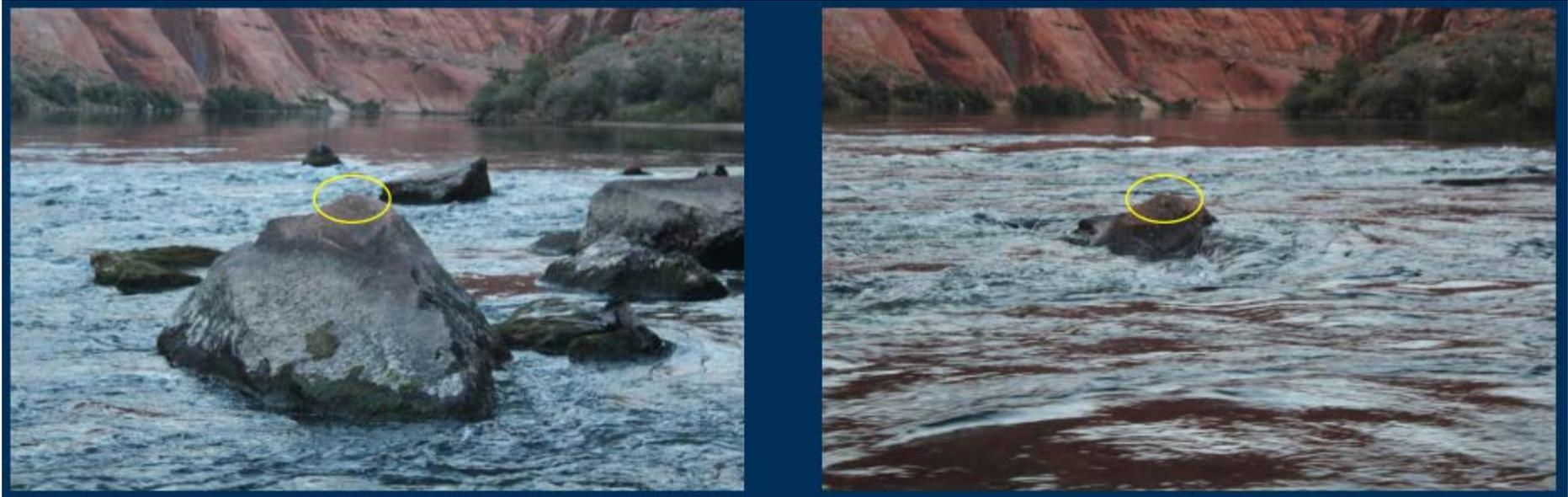
Craig Ellsworth, Fishery Biologist

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Bugflow Experiment at Glen Canyon Dam

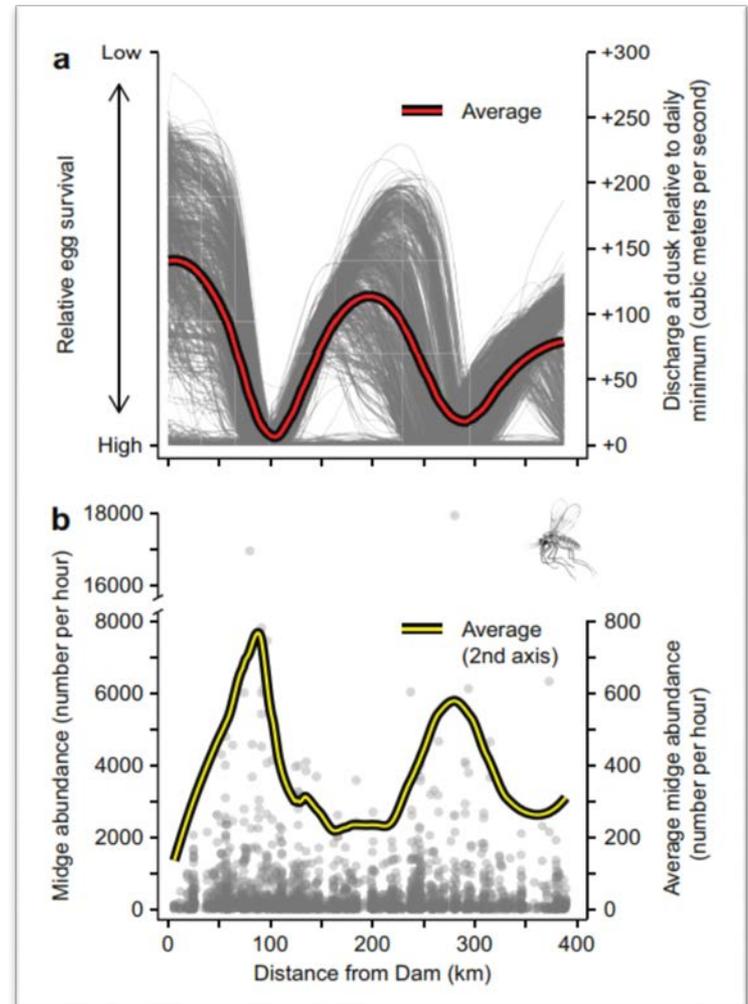


Hypothesis

- Daily fluctuations were drying out eggs laid by these aquatic insects

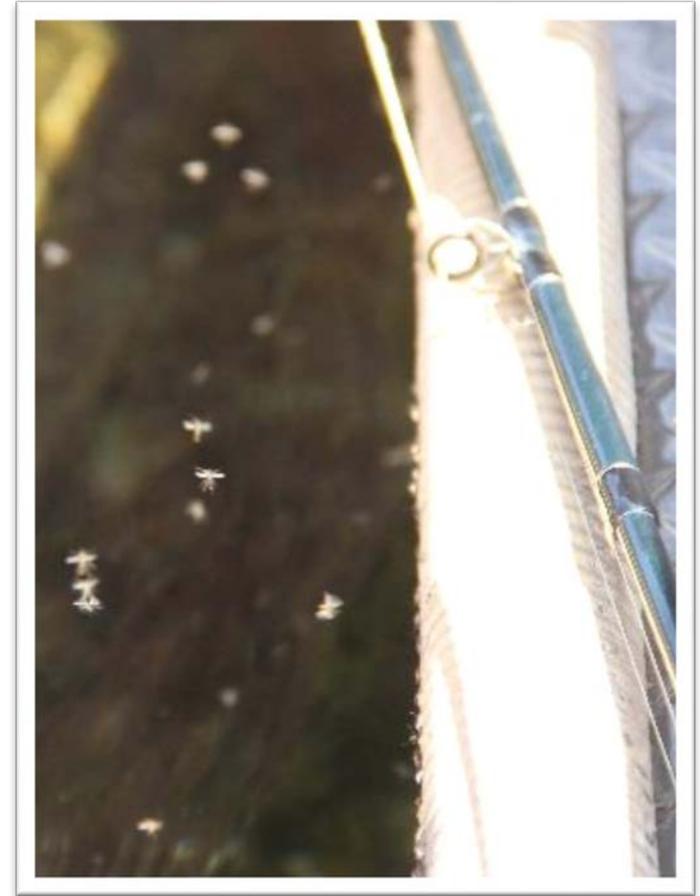


Figure 2. Three different types of aquatic macroinvertebrate eggs found attached to the bottom of a rock in the Green River below FGD.



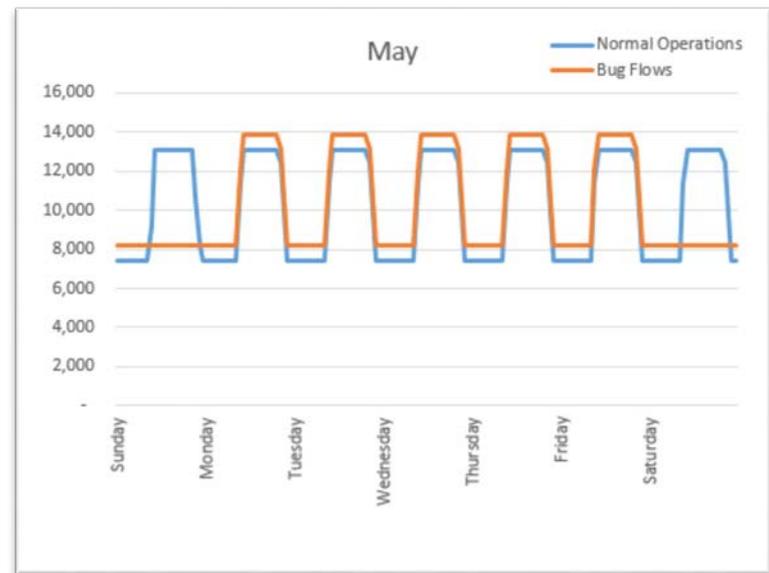
Bugflow Experiment at Glen Canyon Dam

- **Test:**
Two days of low, steady flows per week
- **Objective:**
Increase production and diversity of aquatic bugs
- **Why:**
More food for the Lees Ferry rainbow trout fishery and native fish downstream like endangered humpback chub



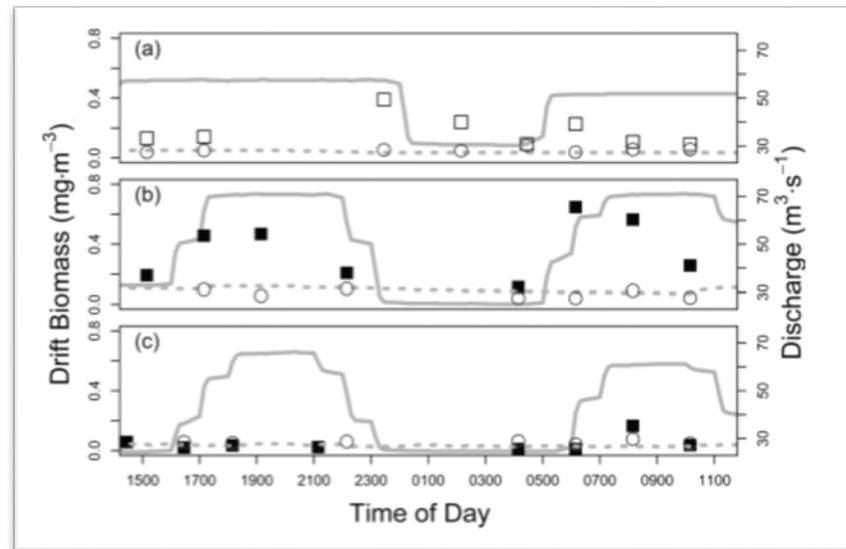
Coordination with GCMRC scientists in experimental design

- Scientists had a working hypothesis
- How to test?
- Coordinated with WAPA on a hydrograph that met study needs while reducing impacts to hydropower
 - Two days = weekend
 - Move weekend water to on-peak on weekdays
 - Increased capacity
 - Financial benefit/costs depends on difference between on-peak and off-peak prices



Additional monitoring done at WAPA's request

- Flaming Gorge and double peaking
 - Studies showed that double peaking was not adversely affecting the fishery
 - Drift (food) is linked to flow fluctuations
- Would two days of low, steady flows at Glen Canyon adversely affect the rainbow trout fishery (and possibly humpback chub)?



Weekday/weekend drift monitoring

- Bug production, food availability, and fish
 - Bugflows are expected to increase production and diversity
 - Low, steady flows may decrease drift
 - Lower flows clarify the water and may concentrate food
 - How will the fish respond?
- Catchability
 - Fluctuating flows stir up food and increase feeding (on the ascending limb)
 - Lower flows make access to good fishing spots easier



Weekday/weekend drift monitoring

- Insect monitoring

- Drift
- Light traps
- Sticky traps

- Fish diet

- Fullness
- Contents
- Quality

- Angler success

- Guides
- Stakeholders
- Scientists



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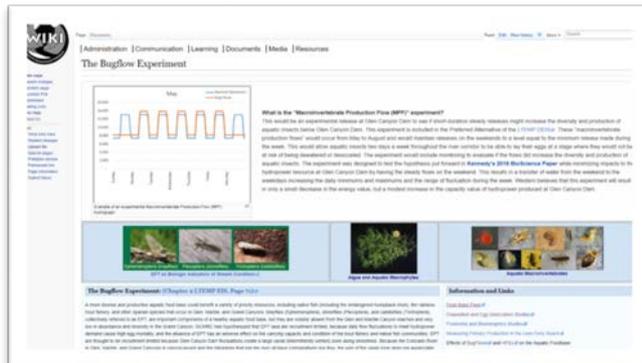
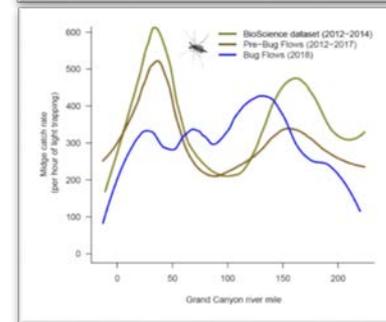
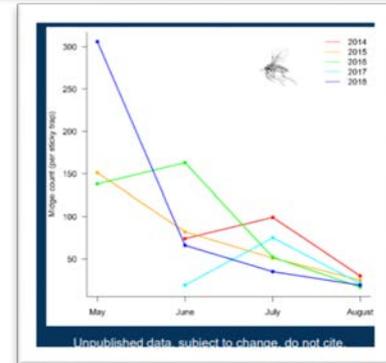
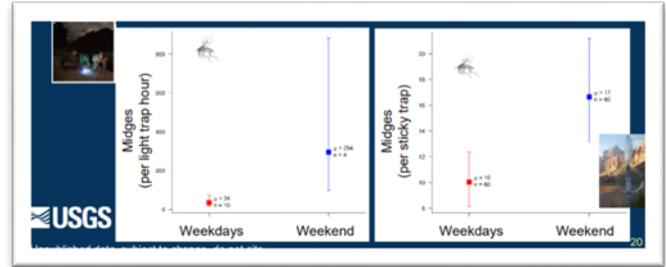
- Angler success

- Guides
- Stakeholders
- Scientists



Preliminary Results

- Increased midge emergence on weekends
- Higher catch rates of trout on weekends
- Shift in midge abundance in Grand Canyon
- Increase in caddisflies in lower Grand Canyon
- Follow along with the GCDAMP wiki site:
 - The Bugflow Experiment page



http://gcdamp.com/index.php?title=The_Bugflow_Experiment





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Chief Financial Officer Update

Dennis R. Sullivan, CFO



June 20, 2019

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Salt Lake City, UT

FY19 WAPA-wide Financial Execution

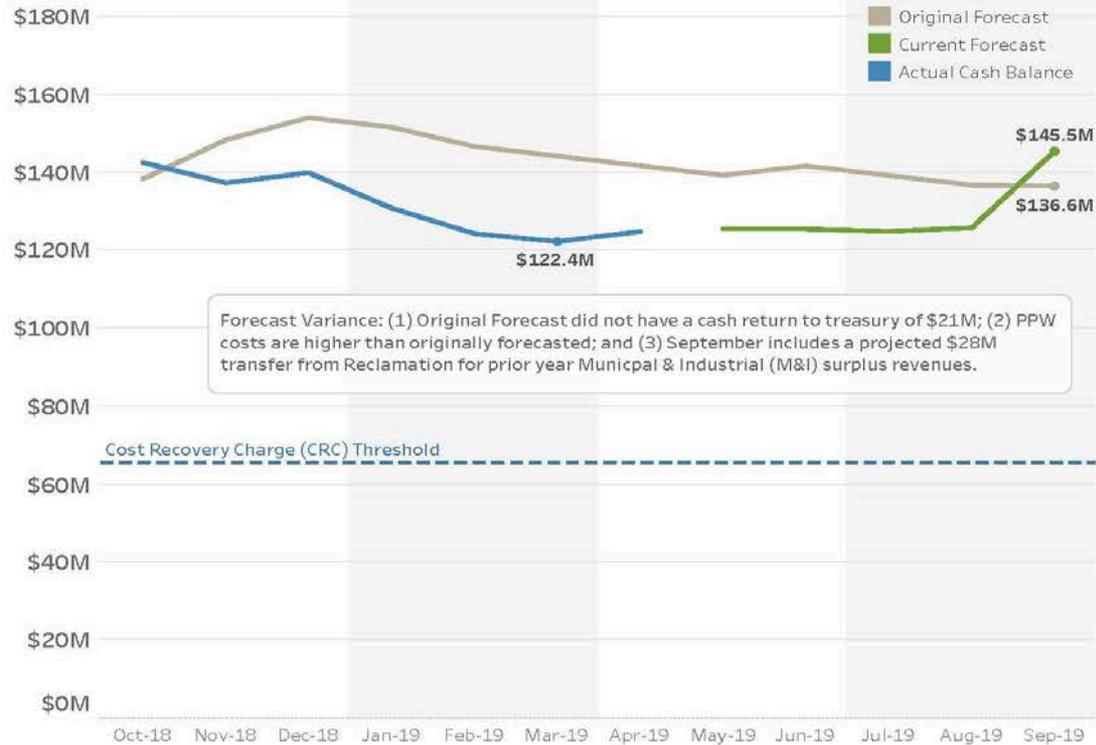


- **Purchase Power & Wheeling:** Forecasting +\$39M reserves
- **Annual O&M:** Forecasting \$1.4M over work plan
- **Appropriations:** Forecasting \$1.6M under work plan
- **Total Capital:** Forecasting \$27.9M under work plan
- **Return to Treasury:** Forecasting \$226M



FY 2019 CRSP Basin Fund: Forecast of Cash Reserve and FYE Return to Treasury

Data as of April 30, 2019



Current Year Projection

Sept 2019 Projected Return to Treasury (including constructive returns):

\$23 million

Table Summary (\$ in millions)												
Original Forecast	138.4	148.5	154.2	151.7	146.8	144.3	141.8	139.3	141.8	139.3	136.8	136.6
Current Forecast	142.6	137.4	140.0	130.9	124.4	122.4	124.9	125.6	125.5	125.0	125.9	145.5
Variance (\$)	4.2	(11.1)	(14.2)	(20.8)	(22.4)	(21.9)	(16.9)	(13.8)	(16.2)	(14.3)	(11.0)	8.9
Variance (%)	3.0%	-7.5%	-9.2%	-13.7%	-15.3%	-15.2%	-11.9%	-9.9%	-11.4%	-10.3%	-8.0%	6.5%

Source: CRSP Regional Office



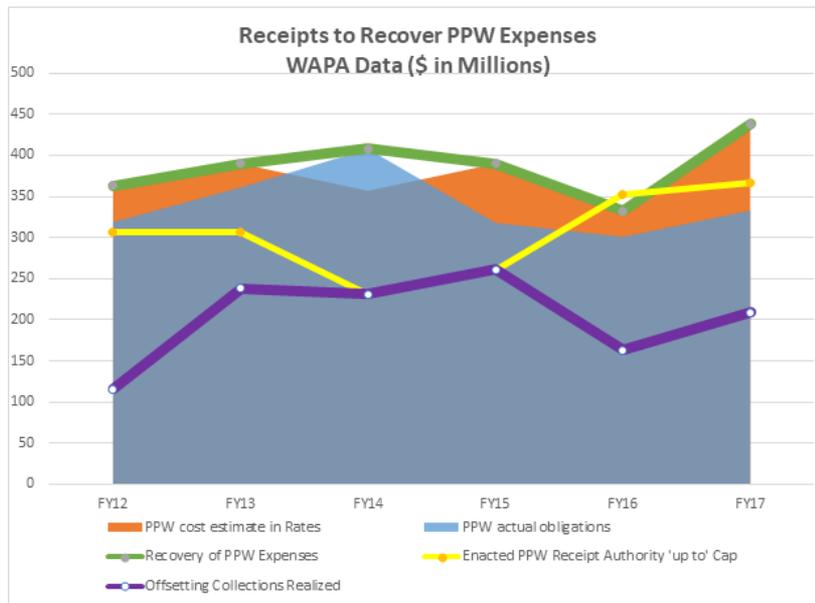
Basin Fund – Environmental Programs Funds Transfer



- Fiscal Year 2019
 - OMB administrative direction to return \$23M to Treasury
 - USBR secured appropriations
- Fiscal Year 2020
 - DRAFT House EWD bill
 - \$21.4M shall be transferred to USBR
- Sustainable solution?



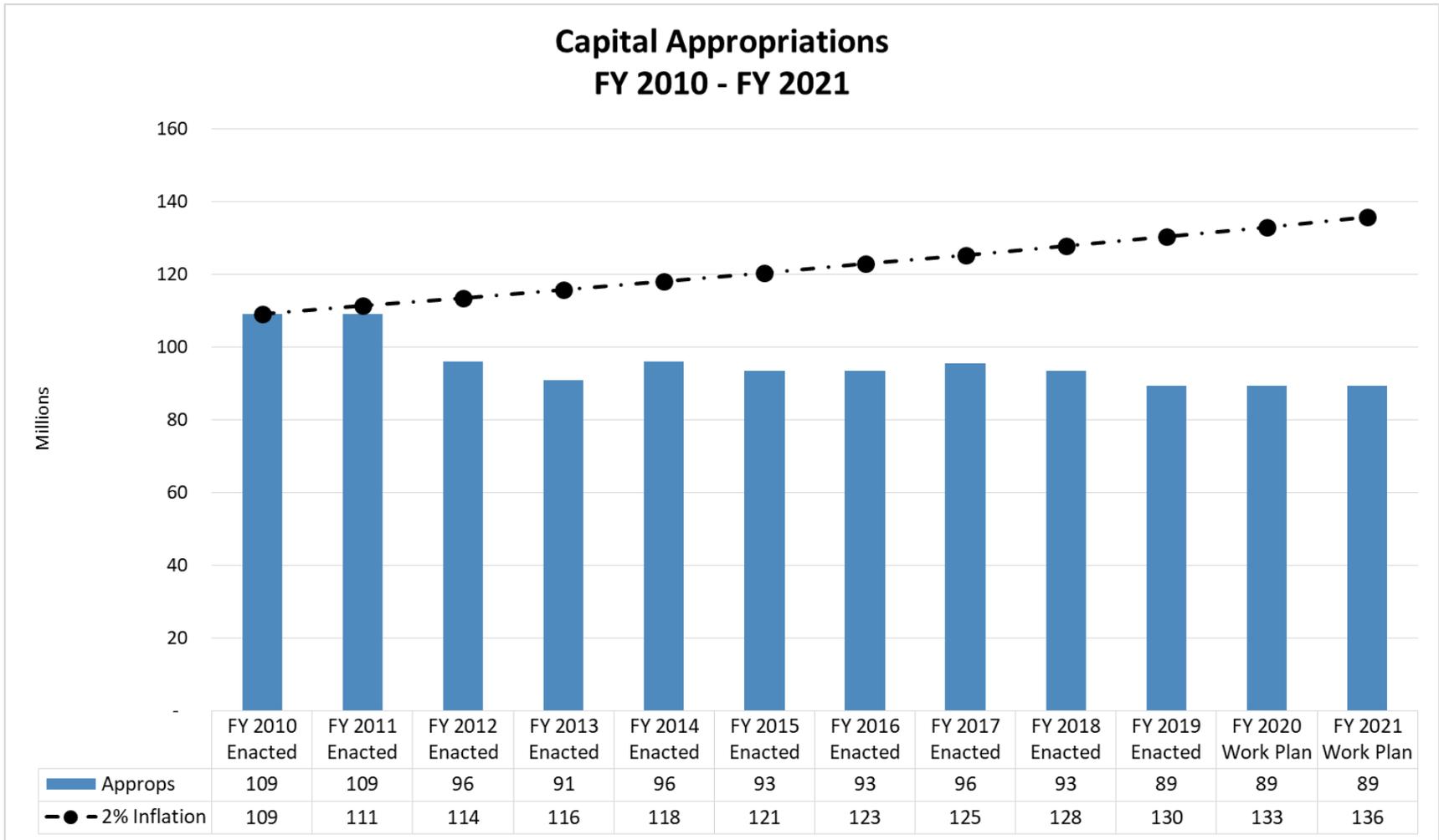
Purchase Power & Wheeling



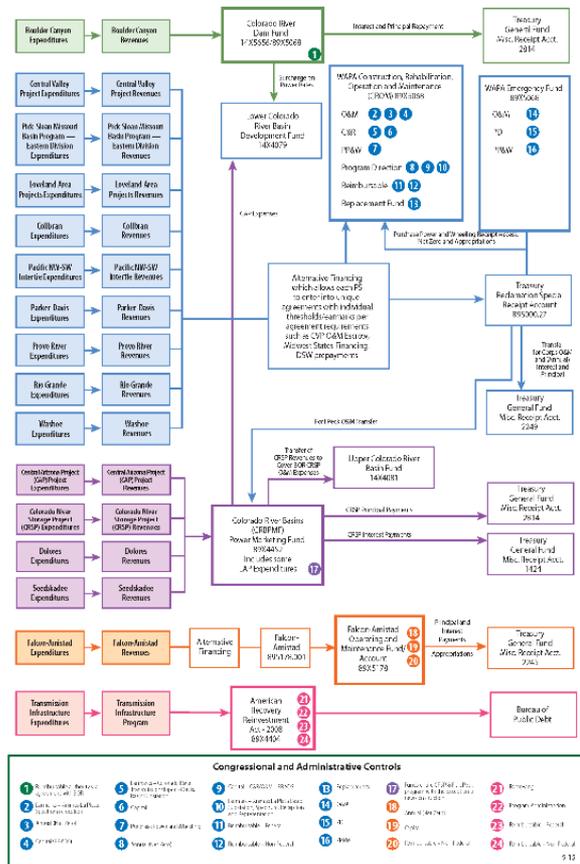
- FY18 Congressional report status
- The greater of:
 - Actual PPW obligations in current year, or ...
 - PPW estimate in PRS
- Reserve strategy progress
 - FY18 reserve: \$291m
 - FY19 projection : +\$39M
 - FY20 budget markup: -\$90M
- FY20 Congressional report request
 - Options for new PPW account structure



Capital Appropriations Status



Symptoms of a broader problem



- “Cobbled together” legislative authorities
 - Not well understood
 - Reinterpretation risk
- 100% reliant on cash
 - All receipts not discretionary
 - Alternative financing approach
- No borrowing mechanism
- Sub-optimal decisions
- Complexity implications



Financial Transparency / Program Collaboration

Financial Transparency



- Sharing historical and planned budget/execution
 - Provide opportunity for input/feedback
 - Answers: what, why, how much, value-delivered
- Results:** Common understanding of investment drivers

- Enhanced financial reviews
 - Work plans
 - Execution reviews
 - HQ 10YP
 - WAPA program leaders
- Expanded “The Source”
 - Access to historical data
- Technology & Security Symposium
- Financial transparency vs. Programmatic insight?



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Rates Update

Thomas Hackett and Tony Henriquez
CRSP-MC Rates

June 20, 2019

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Salt Lake City, UT

SLCA/IP Rate

1. Transmission Rate
2. Status of Repayment
3. Current SLCA/IP Firm Power Rate (SLIP-F10)
4. SLCA/IP Annual Revenue Requirement & Firm Power Rates Comparison
5. Rate Action



Transmission Rate

5 Year Historical

Fiscal Year	kW-month	
2015	\$1.11	
2016	\$1.28	
2017	\$1.48	
2018	\$1.45	
2019	\$1.63	
2020	\$1.58	Projected, pending final



Calculate True-Up FY2019 Transmission Rate

	<u>Projected (FY18)</u>	<u>Actual (FY18)</u>	<u>Difference</u>
Plant	\$702,352,887	\$676,031,999	(\$26,320,888)
% of Plant to Transmission			(0.17%)
After Calculations: True-Up to ATRR for FY20 = (\$108,578)			



Pending FY2020 Transmission Rate

Pending For FY 2020

	ATRR:		kW-Month:
Annual Transmission Revenue Requirement (ATRR): \$	87,754,860	\$	1.581
True-Up: \$	(108,578)	\$	0.002
Updated Attr: \$	87,646,282	\$	1.579

Rate Change 2020-2019:

FY2020	\$	1.579
- FY2019	\$	1.629
Change (kW-Month):	\$	(0.050)



SLCA/IP Rate



SLCA/IP Rate

SLCA/IP Status of Repayment [\(tab 2\)](#)

As of September 30, 2018

Project	Investment (\$million)	Investment Repaid			
		Amount (\$million)	FY2018 Percent	FY2017 Percent	Variance
CRSP (Power Only)	1,374.515	1,205.178	87.68%	87.98%	-0.30%
CRSP Irrigation/Aid	1,174.515	208.792	17.78%	17.20%	0.58%
Collbran	27.023	23.191	85.82%	85.62%	0.20%
Dolores	38.986	38.167	97.90%	34.43%	63.47%
Rio Grande	29.651	24.758	83.50%	97.07%	-13.57%
Seedskadee	12.527	9.699	77.42%	93.00%	-15.58%





Aid to Participating Projects

May 2019 Update

Values in 1,000's

FY 2018 PRS

year	Colorado 46% Incremental		New Mexico 17% Incremental		Utah 21.5% Incremental		Wyoming 15.5% Incremental		Total Incremental		Cumulative		Parents to date
	Obligation	Available W/Appor	Obligation	Available W/Appor	Obligation	Available W/Appor	Obligation	Available W/Appor	Obligation	Available W/Appor	Obligation	Available	
2015	-	-	-	-	-	-	-	-	-	-	-	-	158,261
2016	-	3,961	-	1,464	8,610	1,851	-	1,335	8,610	8,610	8,610	8,610	Repaid
2017	3,192	2,031	-	751	-	949	1,224	684	4,416	4,416	13,026	13,026	Repaid
2018	-	-	-	-	-	-	-	-	-	-	13,026	13,026	
2019	-	-	-	-	-	-	-	-	-	-	13,026	13,026	
2020	-	2,984	-	1,103	6,486	1,394	-	1,005	6,486	6,486	19,512	19,512	Repaid
2021	13,590	6,251	-	2,310	-	2,922	-	2,106	13,590	13,590	33,102	33,102	Repaid
2022	-	-	-	-	-	-	-	-	-	-	33,102	33,102	
2023	-	10,050	21,847	3,714	-	4,697	-	3,386	21,847	21,847	54,949	54,949	Repaid
2024	-	-	-	-	-	-	-	-	-	-	54,949	54,949	
2025	-	47,524	-	17,563	103,312	22,212	-	16,013	103,312	103,312	158,261	158,261	Repaid
2029	5,482	36,797	-	13,599	-	17,199	12,399	12,399	17,881	79,994	176,142	238,255	
2032	-	-	7,580	-	-	-	-	-	7,580	-	183,722	238,255	
2034	-	-	-	-	4,978	-	-	-	4,978	-	188,700	238,255	
2035	-	70,668	-	26,116	-	33,030	23,812	23,812	23,812	153,626	212,512	391,880	
2038	50,537	-	-	-	-	-	-	-	50,537	-	263,049	391,880	
2040	5,188	-	-	-	-	-	-	-	5,188	-	268,237	391,880	
2042	2,308	-	-	-	-	-	-	-	2,308	-	270,545	391,880	
2045	101,975	58,025	-	21,444	-	27,120	-	19,552	101,975	126,142	372,520	518,022	
2048	78,650	78,650	-	29,066	-	36,760	-	26,502	78,650	170,978	451,170	689,000	
2049	23,302	23,302	-	8,612	-	10,891	-	7,852	23,302	50,657	474,472	739,657	
2050	-	-	-	-	72,897	-	-	-	72,897	-	547,369	739,657	
2052	80,853	80,853	-	29,880	-	37,790	-	27,244	80,853	175,767	628,222	915,424	
2054	-	24,902	-	9,203	96,554	11,639	-	8,391	96,554	54,135	724,776	969,559	
2055	-	30,987	-	11,452	14,483	14,483	-	10,441	14,483	67,363	739,259	1,036,921	
2057	22,703	25,822	-	9,543	12,069	12,069	-	8,701	34,772	56,135	774,031	1,093,056	Balance
Total	387,780	502,806	29,427	185,820	319,389	235,007	37,435	169,424	774,031	1,093,056			934,795

Note: Boxed yellow amounts trigger apportionment. Boxed green amounts indicate total available with apportionment. **319,025**



SLCA/IP Firm Power Rate

- Current Firm Power Rate (SLIP-F10, [Tab 3](#))
 - Effective Oct. 1, 2015
 - Energy: 12.19 mills/kWh
 - Capacity: \$5.18 kW/month
 - Composite Rate: 29.42 mills/kWh
- Expires September 30, 2020
- Cost Recovery Charge ([Tab 17](#))
 - 0.00 mills/kWh



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



SLCA/IP Energy Generated

Percentages Based on FY 2018 Data

	Generated - GWh	% of Generation
CRSP	5,547,972	97.49%

Glen Canyon	4,050,661	71.18%
Flaming Gorge	628,820	11.05%
Aspinall	868,491	15.26%

Participating / Integrated Projects:	142,858	2.51%
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Dolores	13,875	0.24%
Seedskafee	66,662	1.17%
Collbran	22,796	0.40%
Rio Grande	39,524	0.69%

Total Generation:	5,690,829.56	100.00%
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SLCA/IP Energy Generated

5 Year Average per Project

Generated - GWh

	2014	2015	2016	2017	2018	5-yr Average
CRSP	4,059,817	5,089,414	5,266,922	5,459,474	5,547,972	5,084,720

Glen Canyon	3,109,906	3,863,803	4,016,226	3,969,625	4,050,661	3,802,044
Flaming Gorge	361,789	504,135	495,226	781,596	628,820	554,313
Aspinall	588,123	721,475	755,470	708,253	868,491	728,362

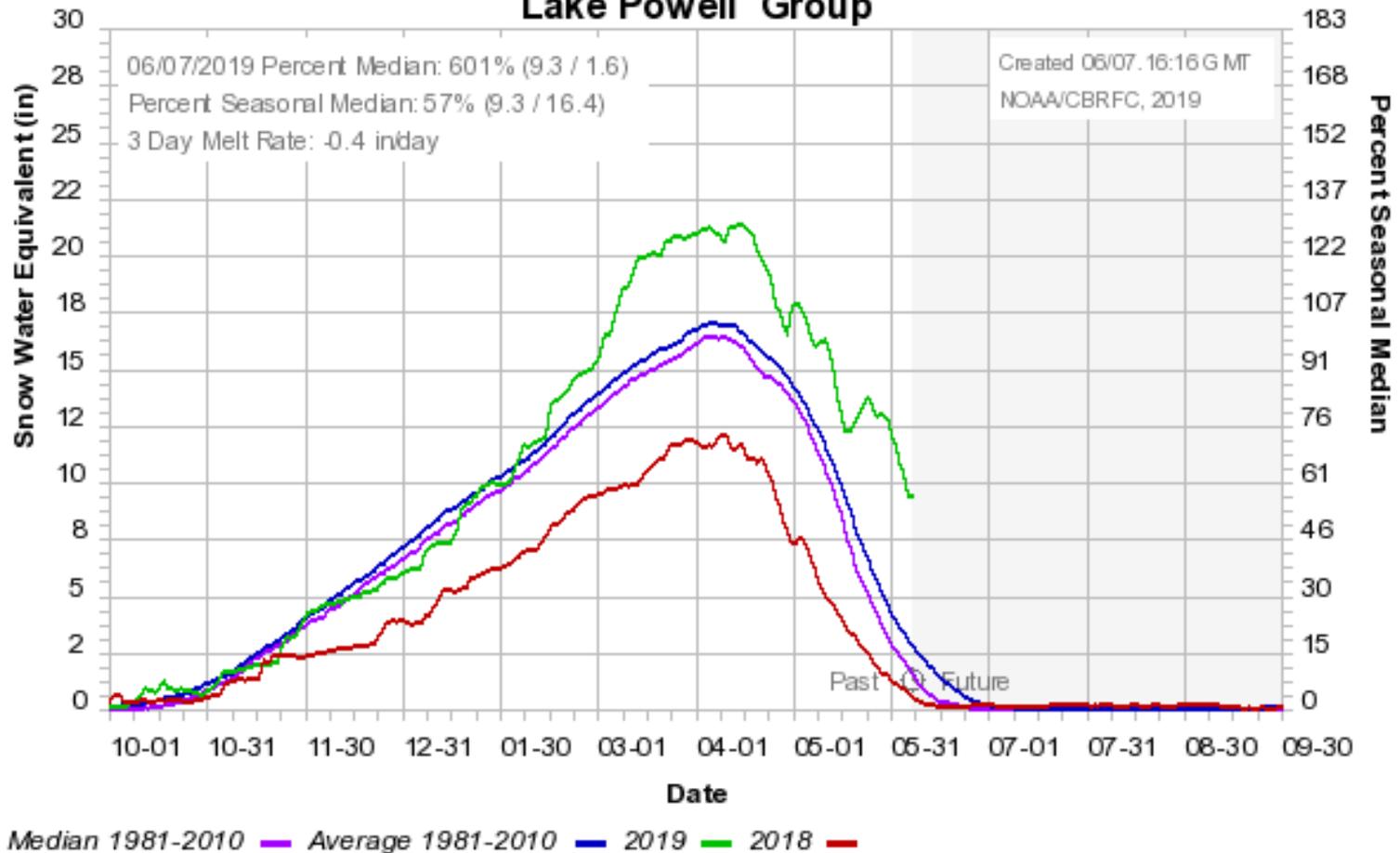
Participating / Integrated Projects

Dolores	21,364.85	21,118.76	22,923.04	23,200.48	13,875.26	20,496.48
Seedskaadee	58,587.86	75,558.54	51,886.36	31,917.51	66,662.49	56,922.55
Collbran	43,754.13	39,247.68	41,069.46	37,760.25	22,795.62	36,925.43
Rio Grande	12,767.88	37,642.42	43,432.61	45,218.30	39,524.26	35,717.10

Total Generation:	4,196,292	5,262,981	5,426,234	5,597,570	5,690,830	5,234,781
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Colorado Basin River Forecast Center Lake Powell Group



Annual Revenue Requirements

Comparison Table (Tab 5)

Values in 1,000's

Item	Unit	WAPA 169	FY 2019	Change	
		2017 Workplan	2021 Workplan	Amount	Percent
Rate Setting Period:					
Beginning year	FY	2016	2021		
Pinchpoint year	FY	2025	2029		
Number of rate setting years	Years	10	9		
Annual Revenue Requirements:					
<i>Expenses</i>					
Operation and Maintenance:					
Western	1,000	\$52,630	\$60,190	\$7,560	14%
Reclamation	1,000	\$34,535	\$35,420	\$885	3%
Total O&M	1,000	\$87,165	\$95,610	\$8,445	10%
Purchased Power 1/	1,000	\$10,280	\$5,034	(\$5,246)	-51%
Transmission	1,000	\$10,421	\$8,208	(\$2,213)	-21%
Integrated Projects requirements	1,000	\$8,610	\$6,447	(\$2,163)	-25%
Interest	1,000	\$4,706	\$5,069	\$363	8%
Other 2/	1,000	\$14,587	\$10,474	(\$4,113)	-28%
Total Expenses	1,000	\$135,769	\$130,842	(\$4,927)	-4%
<i>Principal payments</i>					
Deficits	1,000	\$0	\$0	\$0	0%
Replacements	1,000	\$30,037	\$39,841	\$9,804	33%
Original Project and Additions	1,000	\$3,937	\$3,922	(\$15)	0%
Irrigation 3/	1,000	\$14,130	\$8,521	(\$5,609)	-40%
Total principal payments	1,000	\$48,104	\$52,284	\$4,180	9%
Total Annual Revenue Requirements	1,000	\$183,873	\$183,126	(\$747)	0%
<i>(Less Offsetting Annual Revenue:)</i>					
Transmission (firm and non-firm)	1,000	\$19,640	\$21,662	\$2,022	10%
Merchant Function 4/	1,000	\$9,918	\$9,487	(\$431)	-4%
Other 5/	1,000	\$5,118	\$4,799	(\$319)	-6%
Total Offsetting Annual Revenue	1,000	\$34,676	\$35,948	\$1,272	4%
Net Annual Revenue Requirements	1,000	\$149,197	\$147,178	(\$2,019)	-1%
Energy Sales 6/	MWH	5,071,804	5,223,885	152,081	3%
Capacity Sales	kW	1,407,920	1,423,900	15,980	1%
		0	0		
Composite Rate	mills/kWh	29.42	28.17	-1.25	-4.2%



Expenses

May 2019 Update
 Values in 1,000's

Item	WAPA 169	FY 2019	Change	
	2017 Workplan	2021 Workplan	Amount	Percent
Annual Revenue Requirements:				
<u>Expenses</u>				
Operation and Maintenance:				
Western	\$52,630	\$60,190	\$7,560	14%
Reclamation	<u>\$34,535</u>	<u>\$35,420</u>	<u>\$885</u>	<u>3%</u>
Total O&M	\$87,165	\$95,610	\$8,445	10%
Purchased Power 1/	\$10,280	\$5,034	(\$5,246)	-51%
Transmission	\$10,421	\$8,208	(\$2,213)	-21%
Integrated Projects requirements	\$8,610	\$6,447	(\$2,163)	-25%
Interest	\$4,706	\$5,069	\$363	8%
Other 2/	<u>\$14,587</u>	<u>\$10,474</u>	<u>(\$4,113)</u>	<u>-28%</u>
Total Expenses	\$135,769	\$130,842	(\$4,927)	-4%





Repayment

May 2019 Update
Values in 1,000's

Item	WAPA 169	FY 2019	Change	
	2017 Workplan	2021 Workplan	Amount	Percent
<i>Principal payments</i>				
Deficits	\$0	\$0	\$0	0%
Replacements	\$30,037	\$39,841	\$9,804	33%
Original Project and Additions	\$3,937	\$3,922	(\$15)	0%
Irrigation 3/	<u>\$14,130</u>	<u>\$8,521</u>	<u>(\$5,609)</u>	<u>-40%</u>
<i>Total principal payments</i>	\$48,104	\$52,284	\$4,180	9%
Total Annual Revenue Requirements	\$183,873	\$183,126	(\$747)	0%





Offsetting Revenues

May 2019 Update

Values in 1,000's

Item	WAPA 169	FY 2019	Change	
	2017 Workplan	2021 Workplan	Amount	Percent
<i>(Less Offsetting Annual Revenue:)</i>				
Transmission (firm and non-firm)	\$19,640	\$21,662	\$2,022	10%
Merchant Function 4/	\$9,918	\$9,487	(\$431)	-4%
Other 5/	<u>\$5,118</u>	<u>\$4,799</u>	<u>(\$319)</u>	<u>-6%</u>
<i>Total Offsetting Annual Revenue</i>	\$34,676	\$35,948	\$1,272	4%
<i>Net Annual Revenue Requirements</i>	\$149,197	\$147,178	(\$2,019)	-1%





Revenue Requirements

May 2019

Update

Values in 1,000's

Item	WAPA 169	FY 2019	Change		
	2017 Workplan	2021 Workplan	Amount	Percent	
Rate Setting Period:					
Beginning year	2016	2021			
Pinchpoint year	2025	2029			
Number of rate setting years	10	9			
<i>Total Expenses</i>	\$135,769	\$130,842	(\$4,927)	-4%	
<i>Total principal payments</i>	\$48,104	\$52,284	\$4,180	9%	
Total Annual Revenue Requirements	\$183,873	\$183,126	(\$747)	0%	
<i>Less Total Offsetting Annual Revenue</i>	\$34,676	\$35,948	\$1,272	4%	
Net Annual Revenue Requirements	\$149,197	\$147,178	(\$2,019)	-1%	
Energy Sales 6/	MWH				
		5,071,804	5,223,885	152,081	3%
Capacity Sales	kW				
		1,407,920	1,423,900	15,980	1%
Composite Rate	mills/kWh				
		29.42	28.17	-1.25	-4.2%



WAPA-169 Expires 30 September, 2020

- Same billing rates since 1 October, 2009
- Memorandum of Agreement Concerning the Upper Colorado River Basin Fund (FY 2011)
- Glen Canyon Cost Reallocation (FY 2013)
- FRN Changes under WAPA-169 (FY 2016):
 - CRC – WAPA Discretion and New Table with Tiers
 - Transmission – Forward Looking Investments
 - Unreserved Use Rate Schedule



Changes - FY2019 Preliminary PRS

- Unfunded Retirement Benefits, Actuary Adjustments:
 - FERS & CSRS
 - FEGLI (Life Insurance)
 - Health Benefits

Total Unrecovered Retirement/FEGLI/Health Benefit Costs	FY14	FY15	FY16	FY17	FY18	5-yr Avg
VMF-GGCR Colorado River Storage	65,733.06	67,712.71	0.00	0.00	0.00	26,689.15
VMF-JJCR CRSP	1,034,417.37	908,189.78	1,067,283.47	875,211.70	1,326,950.06	1,042,410.48
VMF-GGCR Colorado River Storage	333,338.36	295,323.49	233,069.51	174,640.77	282,360.55	263,746.54
WFF-LLAF Amistad/Falcon	825.29	694.45	1,127.63	801.23	1,197.25	929.17
WMA-LLCO Collbran	523.06	464.43	469.84	333.85	498.85	458.01
VMF-LLCR CRSP	446,321.70	396,283.12	400,214.39	284,372.24	424,922.11	390,422.71
VMF-LLDO Dolores	523.06	464.43	563.82	400.62	598.62	510.11
WMA-LLPR Provo River	627.68	557.32	563.82	400.62	598.62	549.61
WMA-LLRG Rio Grande	523.06	464.43	563.82	400.62	598.62	510.11
VMF-LLSE Seedskaelee	485.26	478.79	563.82	400.62	598.62	505.42
Consolidated CRSP - JJCR+GGCR+LLCR	1,879,810.49	1,667,509.10	1,700,567.37	1,334,224.71	2,034,232.72	1,723,268.88



Changes - FY2019 Preliminary PRS

- \$4M per-year for Energy Management Office
 - Year 6 of Purchase Power through end of study
 - Removed
 - New projection tools for Purchase Power remove the need for this
 - Will document in upcoming Federal Register Notice



Rate Action Changes

- Transmission Rate
 - Currently – Only Forecasts Investments
 - Investments are projected through the current year
 - O&M and depreciation are based on prior year
 - Proposed Change
 - Forecast Operations & Maintenance
 - Pull data thru May and extrapolate thru fiscal year end
 - Forecast Depreciation
 - Sample – Build FY2021 rate off Projected FY2020 instead of Actual FY2019



Rate Action Changes

- Cost Recovery Charge (CRC)
 - Modify formula to include collection of revenue lost by decreasing allocations
 - Reductions to Capacity added
 - Plain Language Effort
 - Provide “Understandable” format in Customer Brochure
- Surplus Sales Rate Schedule



Rate Action Changes

- Purchase Power
 - 2 + 5 Projections (normal year)
 - 1 + 5 Final Rate (FY2021 – FY2025)
- Projections Methodology
 - Year 1 August 24-Month Study
 - Year 2-7 August Colorado River Simulation System (CRSS)



Proposal FRN Schedule (est.)

- Announce Rate Action – June 20, 2019
- Start routing - September 10, 2019
- DOE Review - October 21, 2019 (30 Days)
- Administrator Signs - January 6 - 8, 2020
- Publish Proposal FRN - January 14, 2020
- Start 90-day Customer Comment Period - January 14, 2020
- Public Information & Customer Comment Forums March 12, 2020
- End Customer Comment Period April 13, 2020



Next Steps

- Provo River Proposal FRN WAPA -189
 - In Process
 - Administrator signs in about 2-3 weeks
 - 30 day customer comment period (no forums)
- Revisit Provo River and Olmsted FY2020 Installments
- FY2020 Rates sent out by August 30, 2019
 - Transmission
 - Installments (Provo River, Olmsted, Falcon-Amistad)
 - WRP/CDP



CRSP MC Rates Team

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Tony Henriquez

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thenriquez@wapa.gov

<https://www.wapa.gov/regions/CRSP/rates/Pages/rates.aspx>

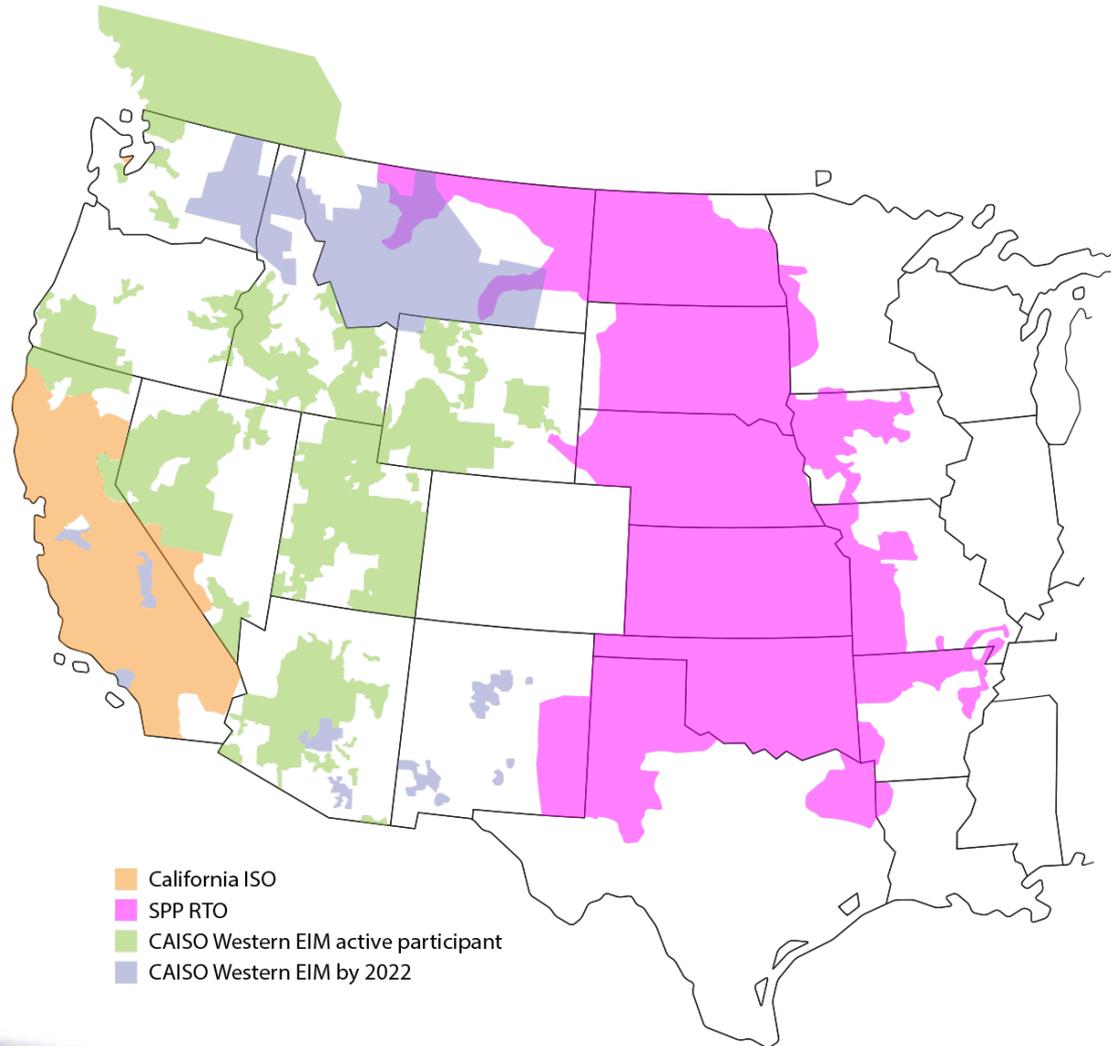


Energy Imbalance Markets in the West

June 20 | Salt Lake City, UT

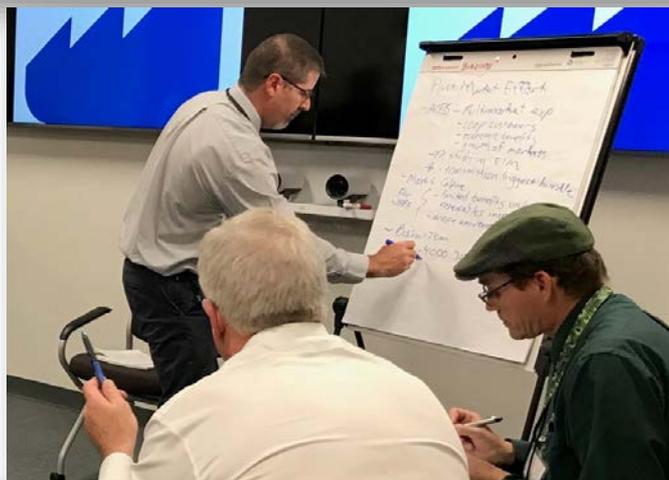
Tim Vigil
VP of Power Marketing

Markets are here

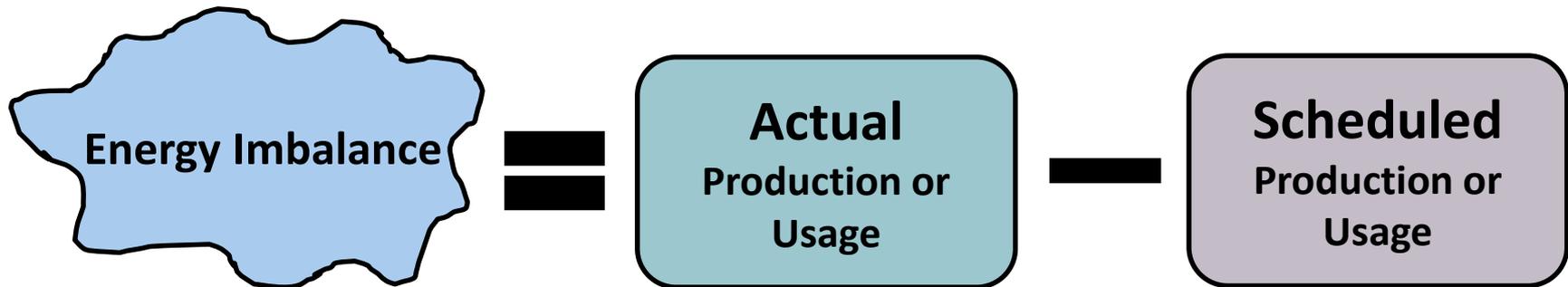


- California ISO
- SPP RTO
- CAISO Western EIM active participant
- CAISO Western EIM by 2022

Markets in the West Workshop, April 9-10



Energy Imbalance & Energy Imbalance Markets



Today: WAPA handles imbalance for its balancing authorities

- We use either hydro or bilateral agreements to handle EI
- EI calculated and priced hourly
- Region settles and bills each customer

Possible EIS Market Future: Market Operator handles imbalance

- Market Operator optimizes market resources to supply EI
- EI calculated and Locational Marginal priced every 5 minutes
- Market Operator does some or all settlement and billing

Why is WAPA interested in EIM?

Ensure reliable delivery of our hydropower while adjusting to a changing energy mix

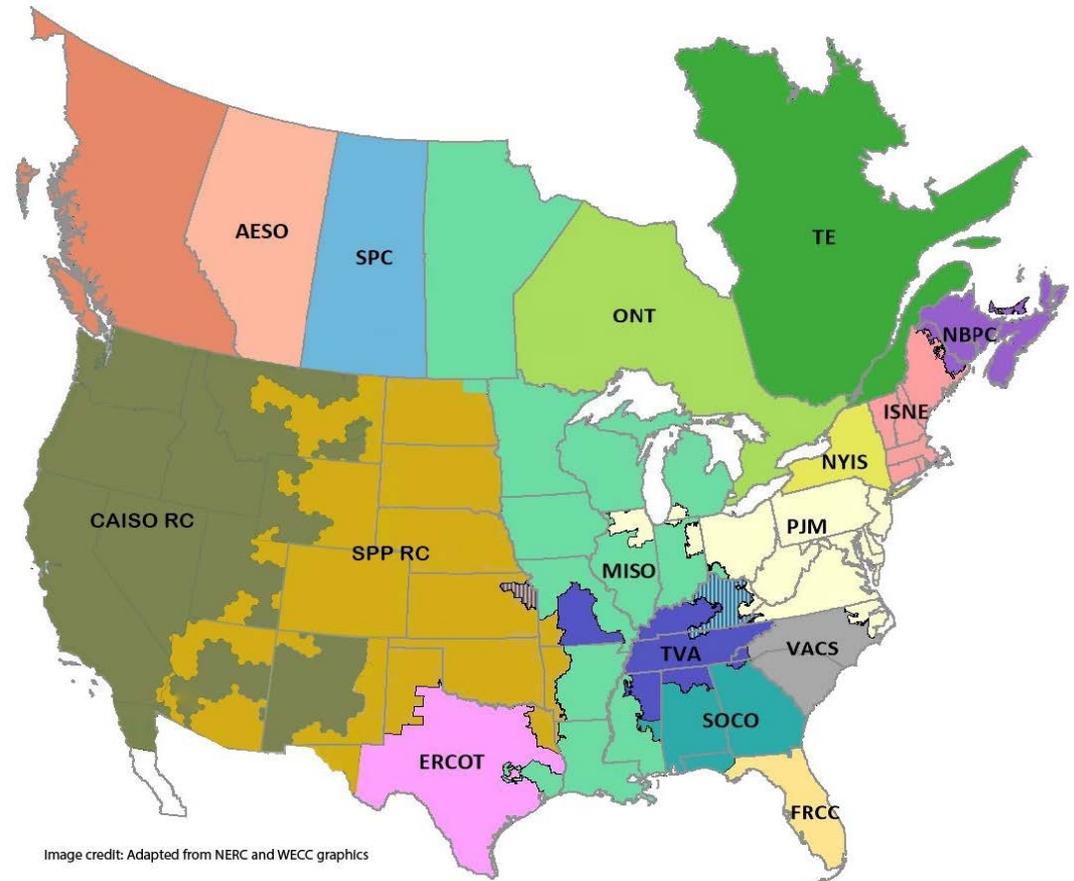
- Respond to customer feedback requesting WAPA to lead organized market discussions
- Mitigate energy imbalance resource constraints
- Facilitate integration of variable resources
- Enable participants who want to optimize their resources

Energy Imbalance Service

- WAPA reviewed CAISO's EIM in 2013
- WAPA received EIS proposal from SPP this week
 - Need to ensure reliable delivery of our hydropower in a changing energy landscape.
 - We are NOT joining a full market; we are looking at participation in an energy imbalance service.
 - Focus on longer-term solutions to meet our needs in a rapidly changing environment.
 - We will engage with stakeholders and document our decisions.
- WAPA's considering CAISO's EIM as well
 - Especially for Sierra Nevada

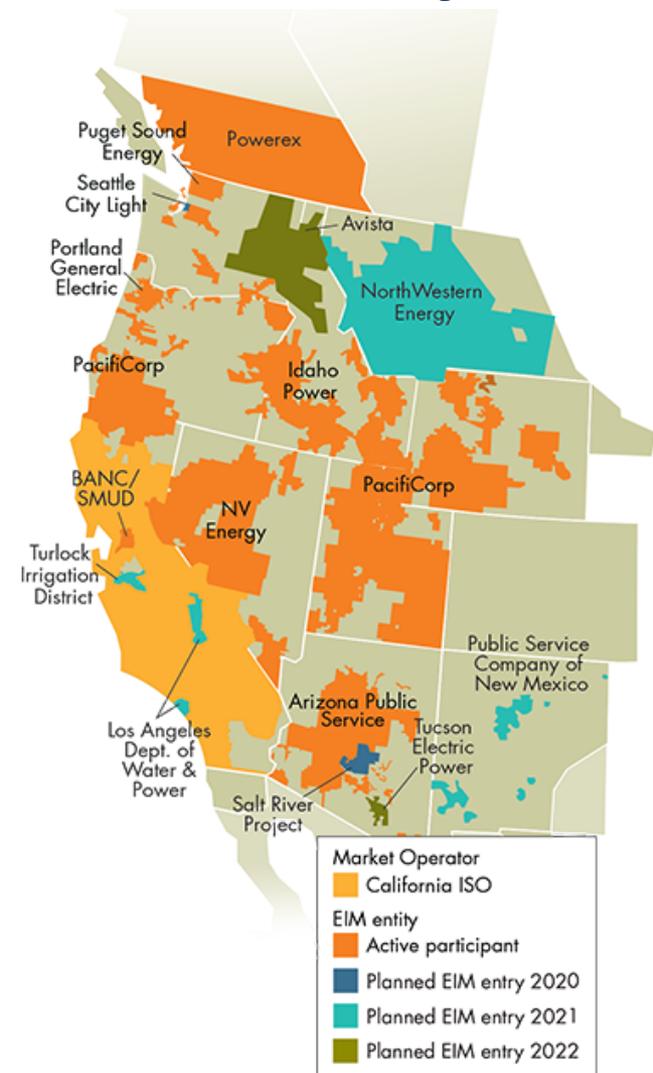
SPP Reliability Coordinator

- PEAK RC terminating RC services
- Parallel RC operations October and November
- SPP RC takes over Dec. 3, 2019
- Enables SPP to readily add market



California ISO EIM (Western EIM)

- BANC became active participant this year
- SN's sub-BA within BANC is evaluating options



SPP Western Energy Imbalance Service (WEIS)

June 17, 2019

SPP proposes Western Energy Imbalance Service Market to bring cost savings and grid modernization to the west

Southwest Power Pool (SPP) has announced to western utilities its proposal for the Western Energy Imbalance Service market (WEIS) it intends to launch in December 2020. The wholesale electricity market will balance generation and load regionally and in real time. SPP's previous energy imbalance market went live in 2007 and provided participants with \$103 million in benefits in its first year of operation.

[READ MORE](#)

SPP WEIS proposal

- Two meetings in spring 2019 on high-level design of WEIS
- SPP proposed market “go-live” Dec. 1, 2020
 - One year after RC “go-live”
- Additional market participants may be added at approximate 6-month intervals after go-live



SPP WEIS implementation cost

- \$9.5M spread over 8 years; integrated into admin fee to all participants
- 4-year commitment
- Load ratio share of entire startup cost part of commitment (including years 5-8)
- Those that commit are obligated for startup costs expended if efforts fails
- If all of WACM, PSCO and WAUW BAs commit
 - CRSP MC admin fee estimated at ~\$200k/year



Possible impacts to BA EI service

- Potential changes to Schedule 4 and 9 of OATT or BA contracts
 - EI ancillary rate changes would involve a *Federal Register* notice process and customer meeting
- Depending on implementation, this could entail a cost change of BA administration

WEIS Follow up Call

- WebEx call on June 25th, 1:00 to 3:00 MDT to discuss initial proposal for WEIS with SPP
- To receive an email invitation for the call, please contact:
 - Don Martin - Supervisor of Customer Relations
 - Phone: 501-614-3309
 - Email: DMartin@spp.org or customerrelations@SPP.org

Feedback desired

Send comments or concerns to:

Tim Vigil

VP of Power Marketing

TVigil@wapa.gov

(970) 252-3005



Glen Canyon



Western
Area Power
Administration

Regional Managers' Update

Steve Johnson, Senior VP and CRSP Manager

Ron Moulton, Senior VP and DSW Regional Manager

June 20, 2019

CRSP Annual Customer Meeting
Salt Lake City, UT



Discussion & Comments



Thank you!

