Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

FREEDOM OF INFORMATION ACT/PRIVACY PROGRAM

March 24, 2023

In reply refer to: FOIA #BPA-2023-00644-F

SENT VIA EMAIL ONLY TO: amissel@advocateswest.org

Andrew Missel, Staff Attorney
Advocates for the West
3701 SE Milwaukie Ave., Suite B
Portland, OR 97202

Dear Mr. Missel,

The Bonneville Power Administration (BPA) has received your request for agency records made under the Freedom of Information Act, 5 U.S.C. § 552 (FOIA). BPA received your records request on March 2, 2023. BPA has assigned your request a tracking number of BPA-2023-00644-F. Please use that BPA tracking number in any correspondence with the agency regarding your FOIA request.

Request
You seek, "… records … relating to presentations given by personnel of the Bonneville Power Administration ("BPA") at the 2019 Idaho Consumer-Owned Utilities Association ("ICUA") Annual Meeting/2019 BPA Annual Customers' Meeting, held in Boise, Idaho from July 10–12, 2019:

> 1. Any slides, slideshows, presentation notes, memos, or similar records related to the presentations given by BPA employees at the 2019 ICUA Annual Meeting; and
> 2. Any audio or video recordings of the presentations given by BPA employees at the 2019 ICUA Annual Meeting that are in BPA's possession.

…there were two presentations given by BPA personnel at the 2019 ICUA Annual Meeting, entitled[,]

> (1) "BPA: State of the Agency & Financial Update" and[,]
> (2) "BPA: Regional Issues, Including: Joining an EIM, 'What It Means to BPA and Its Customers' and Value of Lower Snake Projects to the [Federal Columbia River Power System (FCRPS)] and Spill Test Outcomes."

…the first presentation was given by Michelle Manary, then BPA's CFO; the second presentation was given by Scott Armentrout, then-Vice President of Environment, Fish and Wildlife, and Michelle Manary."

Acknowledgment
BPA has reviewed your request and has determined that it fulfills all of the criteria of a proper request under the FOIA and the DOE FOIA regulations at Title 10, Code of Federal Regulations, Part 1004.

Response
BPA searched for and gathered the responsive records from knowledgeable personnel in the agency's Environment Fish & Wildlife and Finance offices. That responsive information and records, comprising 76 pages, accompanies this communication with no redactions applied.

Fee
There are no fees applicable to your request for BPA records.

Certification
Your FOIA request BPA-2023-00644-F is now closed with all responsive agency records and information provided. Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the records search and release described above.

Appeal
Note that the records release certified above is final. This final decision, as well as the adequacy of the search, may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to:

Director, Office of Hearings and Appeals,
HG-1, L'Enfant Plaza
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585-1615

The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. The appeal must contain all of the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either: 1) in the district where you reside; 2) where you have your principal place of business; 3) where DOE's records are situated; or 4) in the District of Columbia.

Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows:

> Office of Government Information Services
> National Archives and Records Administration
> 8601 Adelphi Road-OGIS
> College Park, Maryland 20740-6001
> E-mail at ogis@nara.gov
> Telephone at 202-741-5770; toll free at 1-877-684-6448; facsimile at 202-741-5769

Questions about this communication may be directed to James King, FOIA Public Liaison, at jjking@bpa.gov or 503-230-7621.

Sincerely,

Candice D. Palen
Freedom of Information/Privacy Act Officer

Responsive agency information and records accompany this communication.

King,James J (BPA) - CGI-7

From: Switzer,Alayne M (BPA) - FTR-2
Sent: Wednesday, July 10, 2019 1:17 PM
To: Mesa,Aaron J (CONTR) - F-2
Subject: FW: 2019.07 ICUA presentation
Attachments: 2019.07 ICUA Michelle Manary Slides plus Scott A.pptx

FYI. This should be the final version.

Alayne

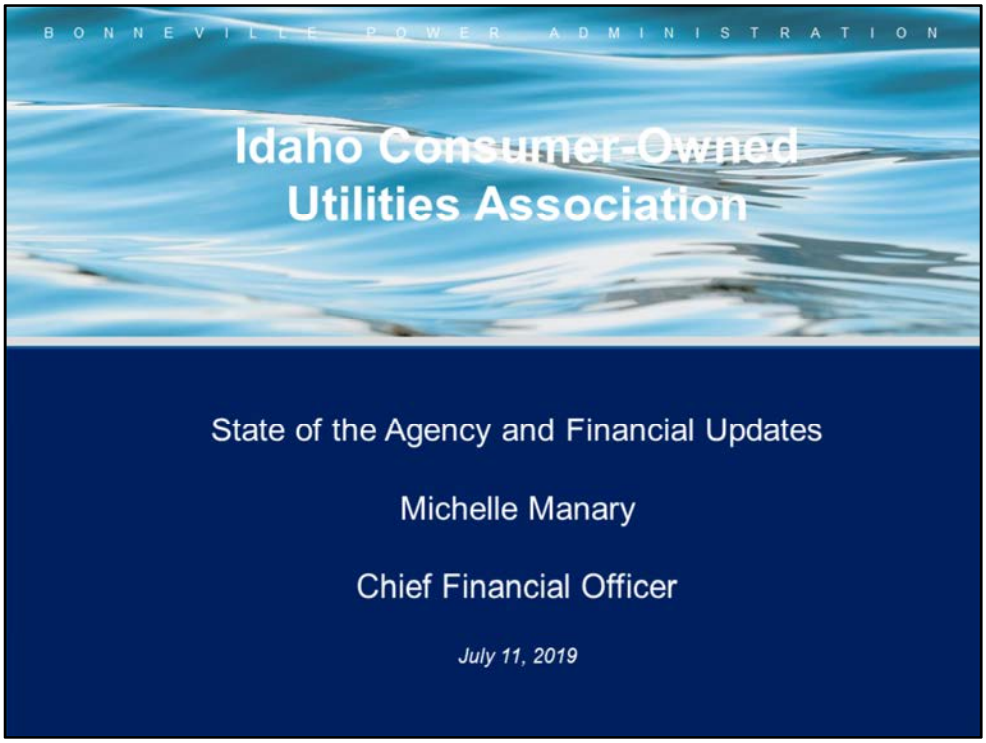
From: Helwig,Heidi Y (BPA) - DKE-7
Sent: Wednesday, July 10, 2019 1:05 PM
To: Manary,Michelle L (BPA) - F-2; Armentrout,Scott G (BPA) - E-4; Schwendiman,Celeste M (BPA) - PSE-BOISE
Cc: Pruder Scruggs,Kathryn M (BPA) - E-4; Switzer,Alayne M (BPA) - FTR-2
Subject: 2019.07 ICUA presentation

All: here is the final ICUA presentation (much thanks to Katie and Alayne!!!).

Michelle and Scott: I can put this on a thumb drive and provide you each hard copies.

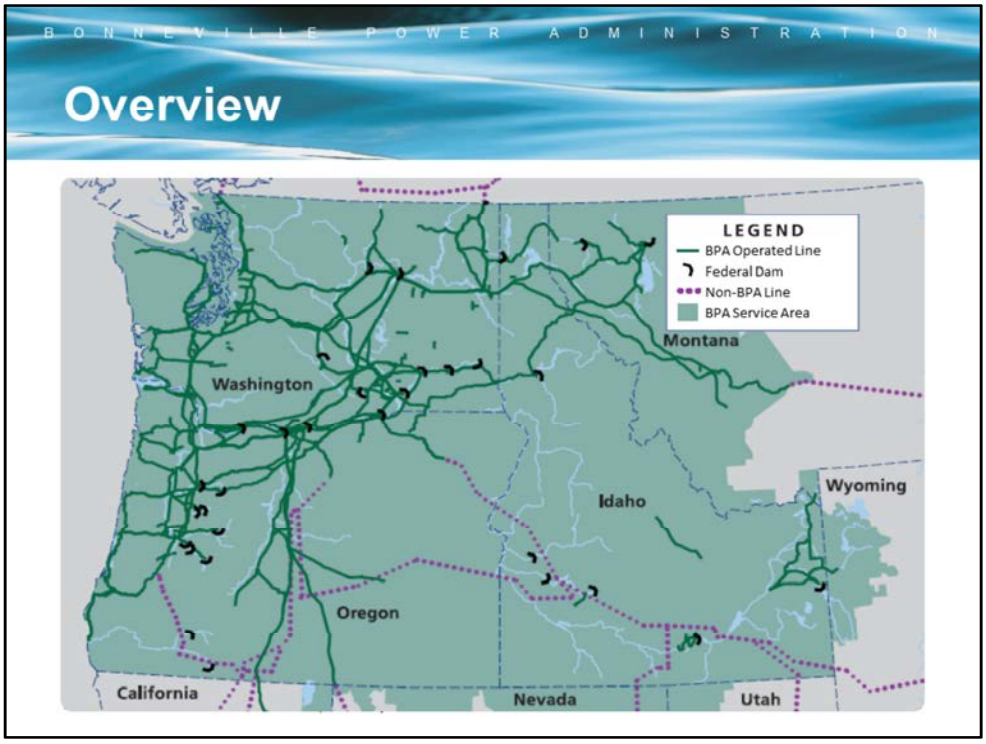
Celeste: Should I provide this to Will Hart, or will you be taking care of that? Pls let me know.

Heidi


BONNEVILLE POWER ADMINISTRATION
Idaho Consumer-Owned Utilities Association
State of the Agency and Financial Updates
Michelle Manary
Chief Financial Officer
July 11, 2019

Agenda

- Overview
- Strategic & Financial Plans



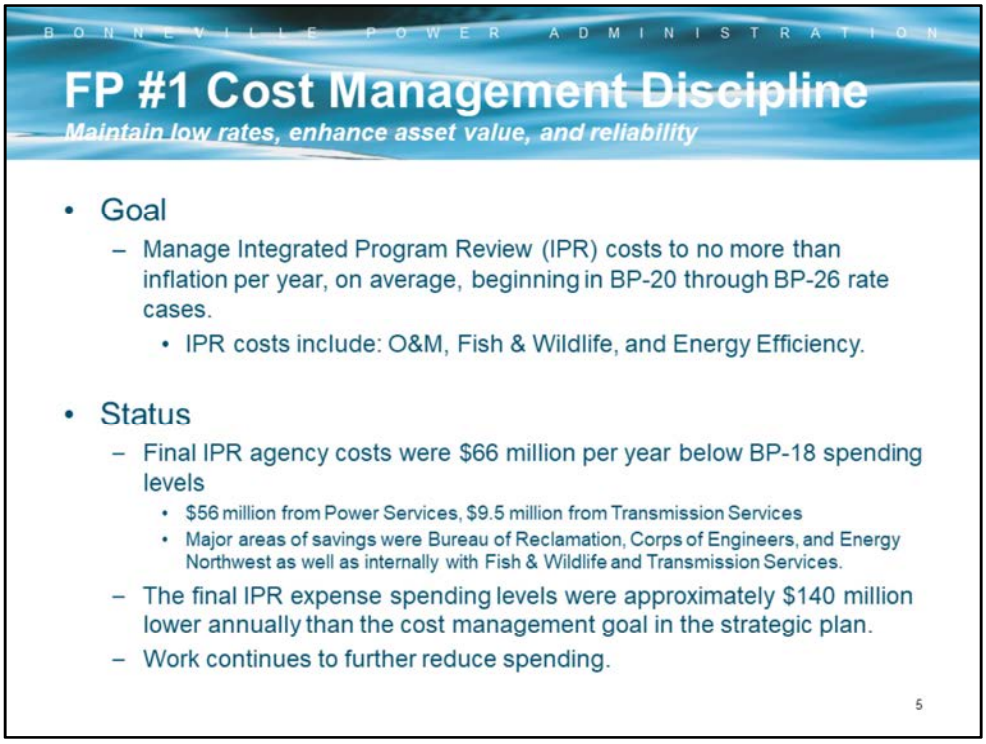
Power Services

- Provides approximately 27% of the electric power consumed within the Region
- Markets the power from 31 federally owned hydro projects, one nuclear facility and several small non-federal projects
- Primarily serves over 125 Preference Customers and several federal agencies
- Approximately $2.8 billion in revenue in FY18

Transmission Services

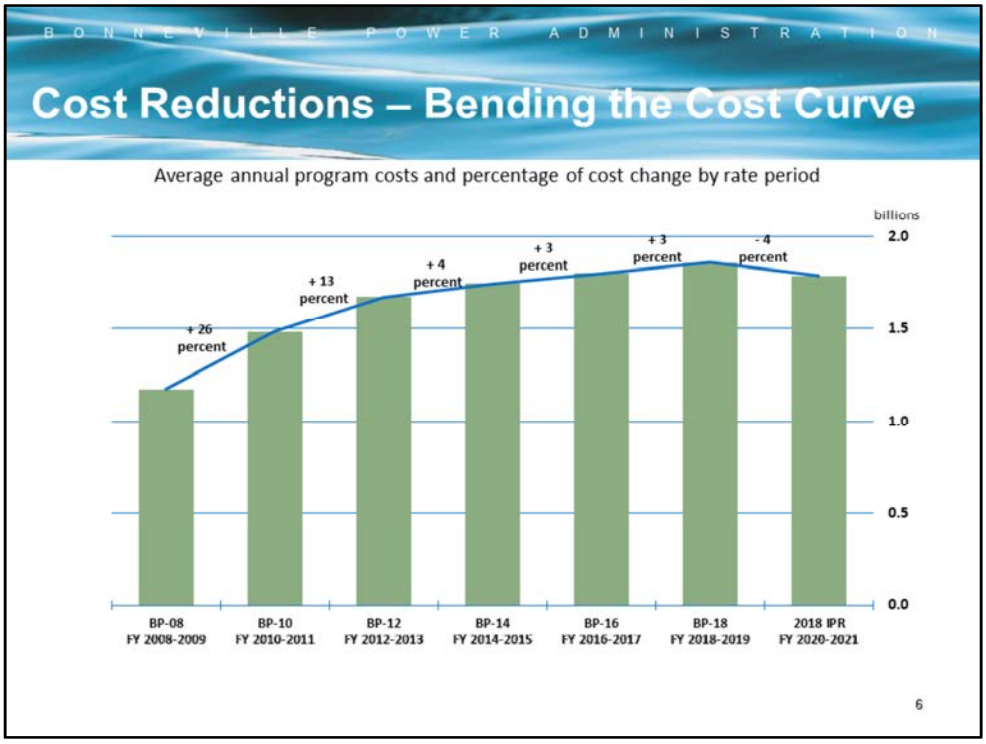
- Delivers power between resources and loads within the Region and transmits imports to and exports from the Region
- Approximately three-fourths of the bulk transmission capacity in the Region
- 15,000 circuit miles of high voltage transmission lines and 260 substations and other facilities (map includes lease purchased lines)
- Approximately $963 million in revenue in FY18


BONNEVILLE POWER ADMINISTRATION
Strategic & Financial Plan
#1 STRENGTHEN FINANCIAL HEALTH
#2 MODERNIZE ASSETS & SYSTEM OPERATIONS
#3 PROVIDE COMPETITIVE POWER PRODUCTS & SERVICES
#4 MEET TRANSMISSION CUSTOMER NEEDS EFFICIENTLY & RESPONSIVELY
Financial Health Objectives
FP #1 COST MANAGEMENT
Maintain low rates, enhance asset value and reliability
FP #2 DEBT UTILIZATION
Reduce interest expense, maintain financial flexibility
FP #3 DEBT CAPACITY
Maintain access to secure and low-cost debt financing
FP #4 LIQUIDITY
Maintain financial reserves for solvency and stability



Michelle Manary presenting

- Technically “average annual change”

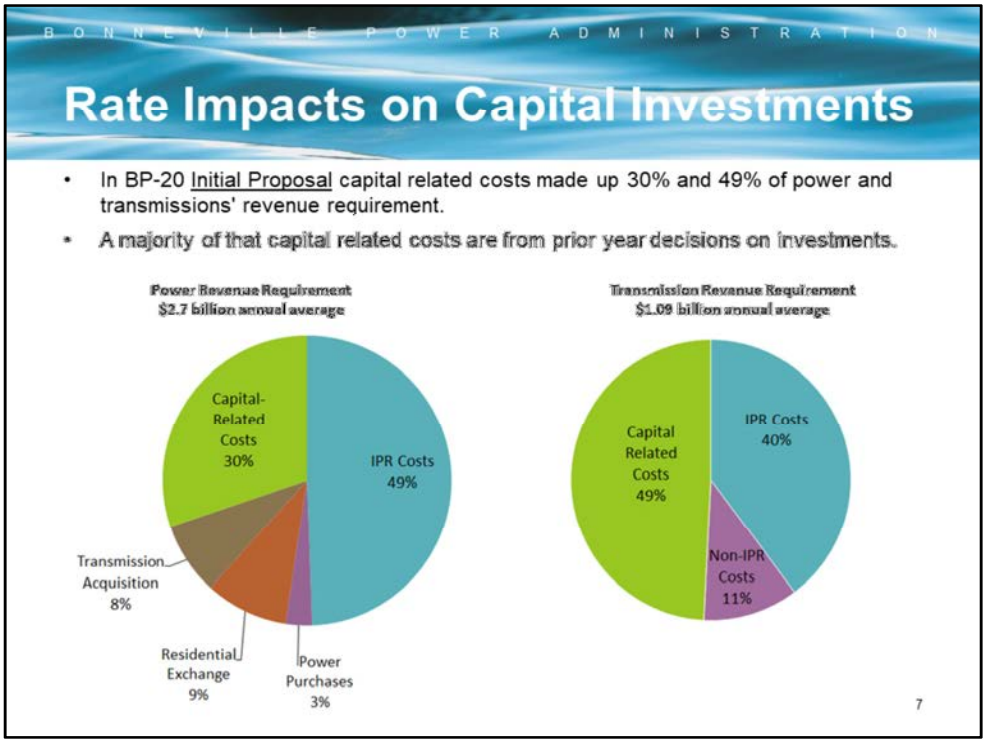


In addition to cutting costs in this fiscal year, we tackled major cost-cutting in the 2018 Integrated Program Review which we completed Oct. 11. We had set a target to hold costs flat to BP-18 spending levels to beat our strategic plan cost-management objective to hold IPR costs at or below the rate of inflation. Instead we were able to reduce annual spending levels in fiscal years 2020 and 2021 by $66 million. This equates to a 4 percent reduction which is a meaningful shift in the cost curve depicted in the chart on this slide by the blue line which is percentage change.

The major areas we found savings were with our partners at the Bureau of Reclamation, Corps of Engineers and Energy Northwest as well as internally with our fish and wildlife program and Transmission Services. The close-out report provides more detail on where we made the additional $63 million reductions from the initial publication in June.

- In the prior three rate cases, the average rate of escalation of IPR costs has been 3.3 percent.
    - Although the average increase of 3.3 percent was significantly lower compared to rate cases in fiscal years 2008-2013, BPA wanted to achieve a better cost-management target.
- The strategic plan committed to a cost-management objective of keeping IPR costs at or below the rate of inflation.
    - For the 2018 IPR, BPA set a goal to keep IPR spending levels flat and, if

possible, to find reductions from BP-18 levels.
    - The additional reductions would help to:
        - Allow BPA to afford strengthening its financial health in other areas.
        - Create additional headroom so when anomalies do occur, BPA is prepared
        - Slow long-term growth of costs to support sustainable change
        - Do what is right. If we can make changes now to lower rates now, than why wait?
- **Bottom line:** Through the dedicated work of executives, managers, and staff across our agency, in collaboration with our federal partners, and in response to customer input BPA was able to effectively bend the cost curve downward.
    - Beat target of inflation by $143 million dollars.
    - BPA's final projected costs for fiscal years 2020 and 2021 are $66 million lower per year when compared to the FY2018 – 2019 rate period



POWER:

IPR Costs		
Corps of Engineers/Bureau of Reclamation	405,173	
F&W/USF&W/Planning Council		292,141
Columbia Generating Station	290,966	
Generation Conservation		121,587
Power Non-Generation Operations		83,869
General & Administrative/Shared Services	77,955	
Renewable Generation		35,696
Operating Generation Settlement Payments	22,997	
LT Contract Gen Projects		12,979
Non-Operating Generation		1,581
Other Income, Expenses & Adjustments		(10,000)
TOTAL	**1,334,944**	49%

Capital Related Costs	
Depreciation	140,009
Amortization	381,845
Net Interest Expense	236,056

Minimum Required Net Revenue	58,235	
TOTAL	**816,145**	30%
Res Exchange	**249,757**	9%
Trans Acquisition	**219,476**	8%
Power Purchases	**79,993**	3%

TRANSMISSION:

IPR Costs

Trans Ops	166,172	
Trans Engineering	46,805	
Trans Maint including Environment	173,179	
Trans Acq & Ancillary services	10,460	
BPA Internal Costs	93,206	
Other Use of Reserves for rate relief	(55,413)	
TOTAL	**434,409**	40%

Capital Related Costs

Depreciation & Amortization	338,837	
Net Interest Expense	171,397	
Minimum Required Net Revenue	26,442	
TOTAL	**536,676**	49%
Non-IPR costs (Gen Inputs BBL)	**119,830**	11%

Revenue Requirement charts from Lennox 7/9/19

FP #2 Debt Utilization

Reduce interest expense, maintain financial flexibility

- Goal
  - Decrease debt-to-asset ratio from 90% to 75%-85% by 2028.
  - Long term goal of 60%-70%.
  - Requires the Transmission business line to increase the amount of planned debt repayment and/or revenue financing.
- Status
  - After three public workshops and customer comment periods, the Administrator's Record of Decision was issued on September 25.
  - The leverage policy will be phased in beginning with BP-20.
    - The Transmission BP-20 Initial Proposal includes approximately $23 million for either debt repayment or revenue financing.
  - The Power business line is expected to achieve the leverage policy goals without additional rate action.

Debt to Asset Ratio : (Federal debt + Nonfederal debt)/(Net Utility Plant + Nonfederal generation)

BONNEVILLE POWER ADMINISTRATION

Debt Utilization

Reduce interest expense, maintain financial flexibility

- BPA has demonstrated meaningful progress by reducing the Agency debt-to-asset ratio by five percent over the past two years.

Year-end actual debt-to-asset ratio results

	9/30/16	9/30/17	9/30/18
Agency	93%	90%	88%
Power	104%	98%	96%
Transmission	79%	79%	78%

Projected agency debt-to-asset ratio without policy actions

Based on Initial Proposal information

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FP #3 Debt Capacity

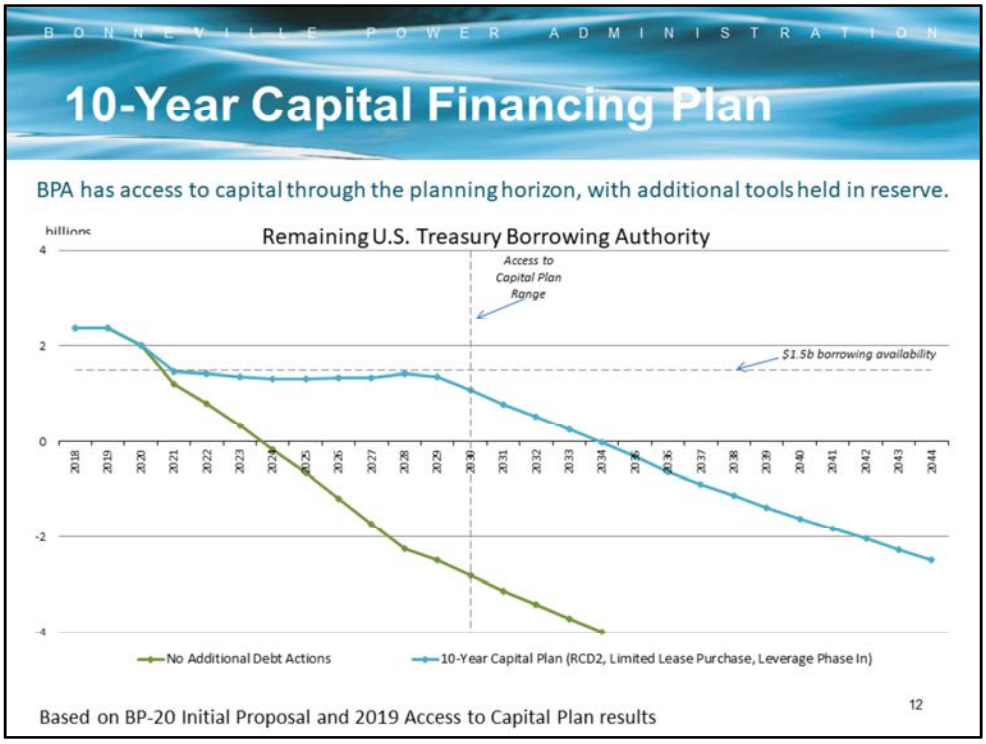
Maintain access to secure and low-cost debt financing

- Goal
  - Maintain $1.5 billion in available U.S. Treasury borrowing authority capacity on a rolling 10-year basis.
    - $750 million retained for operational liquidity will also support meeting the Treasury payment probability standard in rate setting.
    - $750 million for capital liquidity, to be able to mitigate changes in capital needs, if necessary, as a result of BPA planning decisions or factors outside of BPA's control (i.e., weather or natural disasters resulting in damage to BPA assets that require unexpected capital investments).
- Status
  - At 9/30/18, $2.2 billion was available on the $7.7 billion U.S. Treasury instrument.
  - Used an "all of the above" strategy in identifying current and future tools.
  - Worked with the region to clarify the challenge, identify, and evaluate available financing tools considering cost, availability, and risk.
  - Available financing tools will continue to be evaluated each year.

Tax exempt EN debt is currently more cost effective than our other available tools.

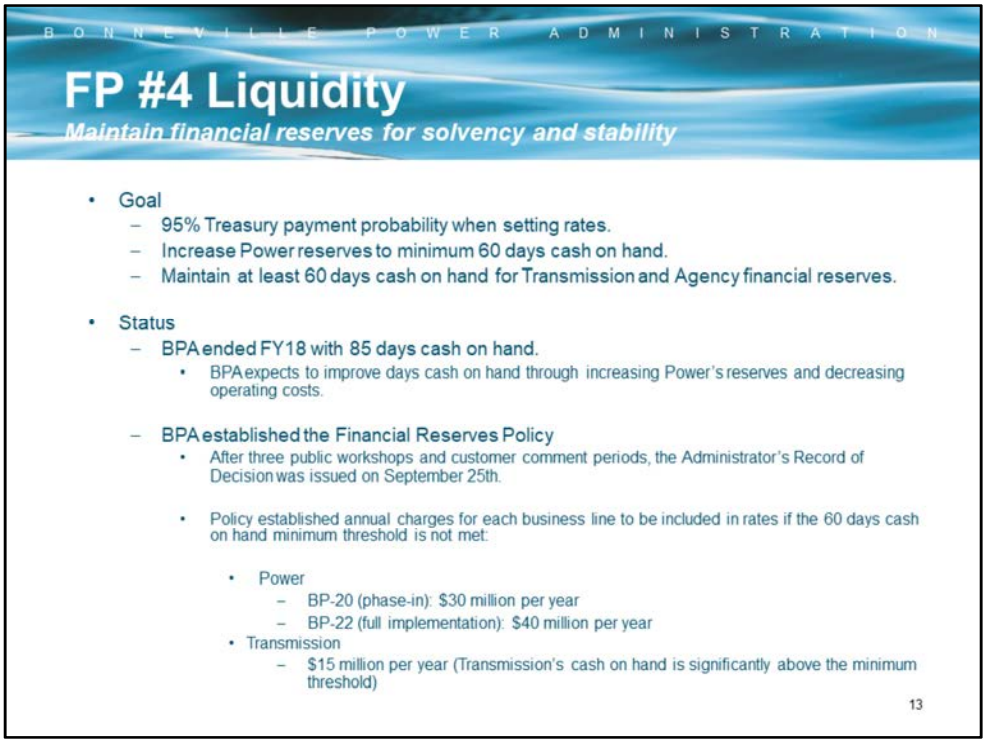
The Energy Northwest Board has passed a "motion of support" for the extension of $3.5 billion of Regional Cooperation Debt program maturing through 2044.

The first RCD program was focused on interest savings by allowing BPA to pay off higher interest rate obligations. This second RCD program will focus on increasing BPA's access to capital by paying off federal debt so that it can be re-borrowed.



This is based on BP-20 Initial Proposal. After IP, capital levels were reduced, the planned leverage contributions were decreased and the Transmission rate case was settled. Once the final proposal has been issued, BPA will be re-evaluating our available tools and re-projecting borrowing authority availability.

Source: https://finance.bud.bpa.gov/FT/FTR/presentations/FMC Presentations/Scenario Charts (BP18 IPR) ADJUSTED - Ad Hoc Changes.xlsx



QBR says 85 days – 85 has been confirmed at agency level. Forecast is for Power to hit 60 days in BP-20 – However FRP will "repurpose" reserves if the Agency is above 90 days cash on hand at the end of the fiscal year.

Summary of FY18 Reserves:

Agency Total Reserves: $839.8 million
Agency Total Reserves For Risk: $550.6 million
Agency Total Reserves Not For Risk: $289.2 million

Power Total Reserves: $191.4 million
Power Total Reserves For Risk: $12.7 million
Power Total Reserves Not For Risk: $178.7 million

Trans Total Reserves: $648.4 million
Trans Total Reserves For Risk: $537.9 million
Trans Total Reserves Not For Risk: $110.5 million

Summary

- Focusing on these long-term plans will put BPA in a position to remain a viable business partner and provider of choice in the future.

Appendix

- Strategic Plan

BONNEVILLE POWER ADMINISTRATION

Strategic Plan Goal #1

#1 STRENGTHEN FINANCIAL HEALTH

- Objective 1a: Improve cost-management discipline
- Objective 1b: Build financial resiliency
  - Financial reserves policy
  - Leverage policy
  - Debt capacity
- Objective 1c: Independent financial health assessment

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Strategic Plan Goal #2

#2 MODERNIZE ASSETS & SYSTEM OPERATIONS

- Objective 2a: Administer an industry-leading asset management program.
- Objective 2b: Modernize federal power and transmission system operations and supporting technology.
  - Grid modernization

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BONNEVILLE POWER ADMINISTRATION

Strategic Plan Goal #3

#3 PROVIDE COMPETITIVE POWER PRODUCTS & SERVICES

- Objective 3a: Increase power revenues through new market opportunities for clean capacity.
- Objective 3b: Address market and regulatory barriers to capturing the clean energy and capacity value of the Federal Columbia River Power System.
- Objective 3c: Prioritize fish and wildlife investments based on biological effectiveness and mitigation for FCRPS impacts; and manage fish and wildlife program costs at or below inflation, inclusive of new obligations and commitments.
- Objective 3d: Assure that energy efficiency and demand response investments are aligned with the long-term needs of BPA and its customers.
- Objective 3e: Modernize the Columbia River Treaty.

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Strategic Plan Goal #4

#4 MEET TRANSMISSION CUSTOMER NEEDS EFFICIENTLY & RESPONSIVELY

- Objective 4a: Address load service, congestion and new transmission service requests by using flexible, scalable, cost-effective and efficient solutions.
- Objective 4b: Develop and implement policies, pricing and procedures for regional planning that incentivize grid optimization and efficient regional resource development.
- Objective 4c: Meet current and future needs of Network Integration Transmission Service customers through clear business practices and streamlined processes.
- Objective 4d: Offer more standardized products and services by better aligning BPA's Open Access Transmission Tariff with pro forma and industry best practices.

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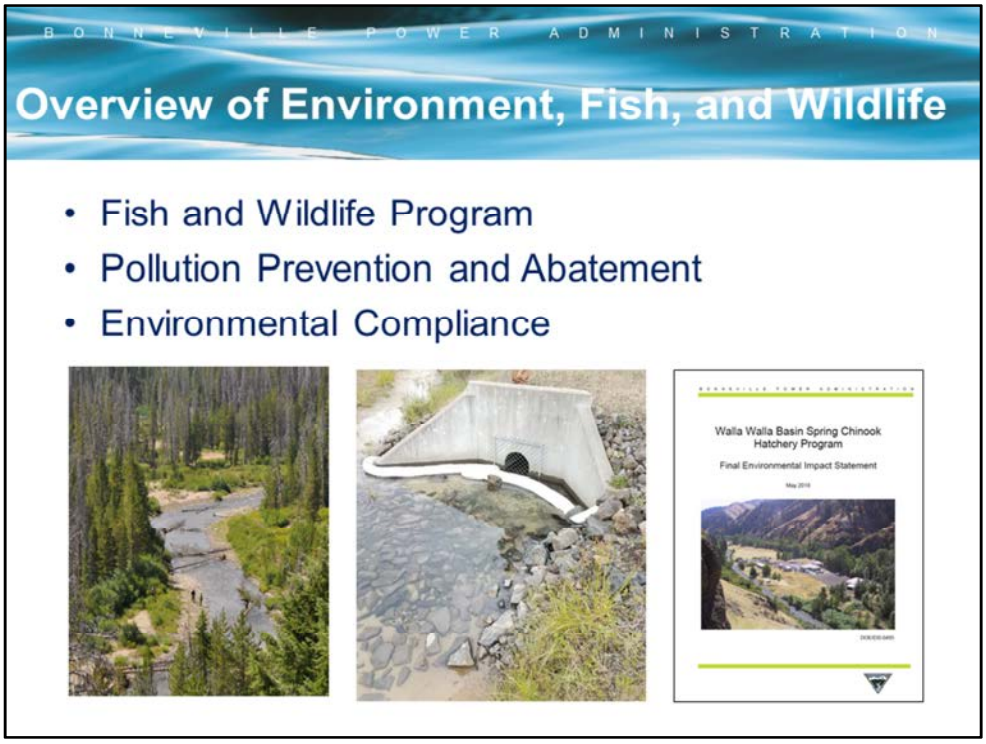
BONNEVILLE POWER ADMINISTRATION
Regional Issues
Scott Armentrout
Executive Vice President
Environment, Fish and Wildlife
Michelle Manary
Chief Financial Officer

Customer Update

- Rates
  - Power
  - Transmission
- Tariff
  - Implementing Settlement
- EIM
  - Letter to Region



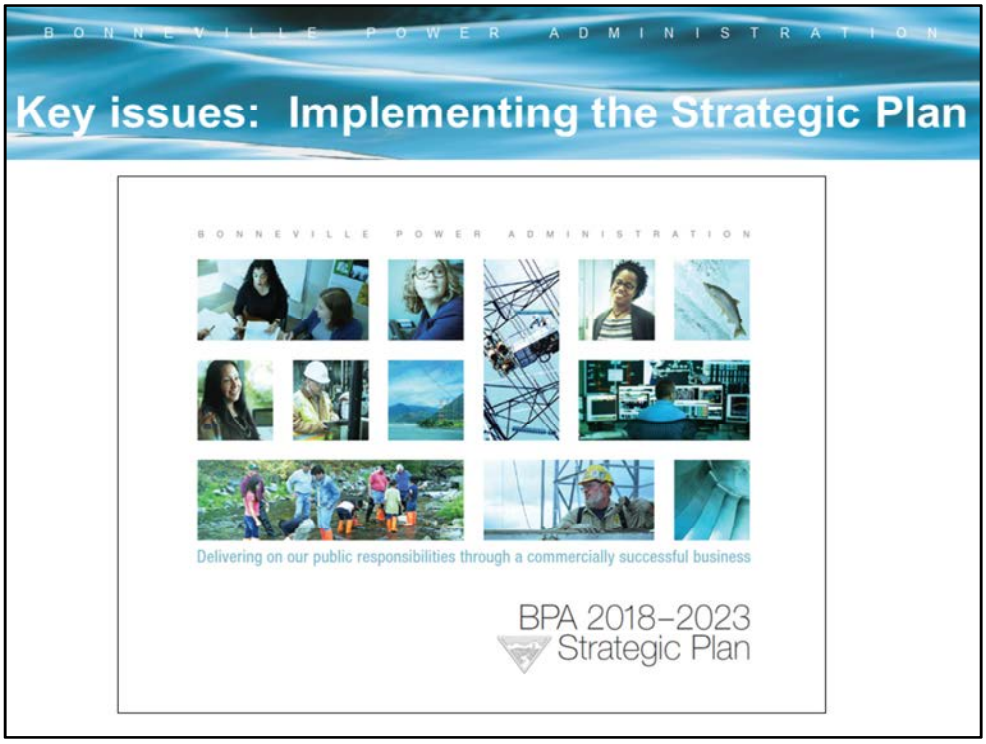
Overview of Scott's career and role of VP
Quick overview of different EFW business units.

The ***Fish and Wildlife Program*** is the group most widely known for implementing BPA's habitat and hatchery programs, and working with the Power business line implement hydro actions to enhance fish passage through the dams. They provide compliance with the Northwest Power Act, the ESA, court orders, and Bonneville's share of the federal trust and treaty responsibilities to affected Native American tribes. (Photo is of habitat work – large wood added – to the Yankee For Salmon River with the Shoshone-Bannock Tribes.

Pollution Prevention and Abatement provides environmental compliance and mitigation for the operation, maintenance, and construction of BPA's transmission system. They help with environmental permits, stormwater plans, erosion control measures, and contamination prevention at facilities like substations. (Photo is protecting surface water from an oil spill at Ostrander Substation.)

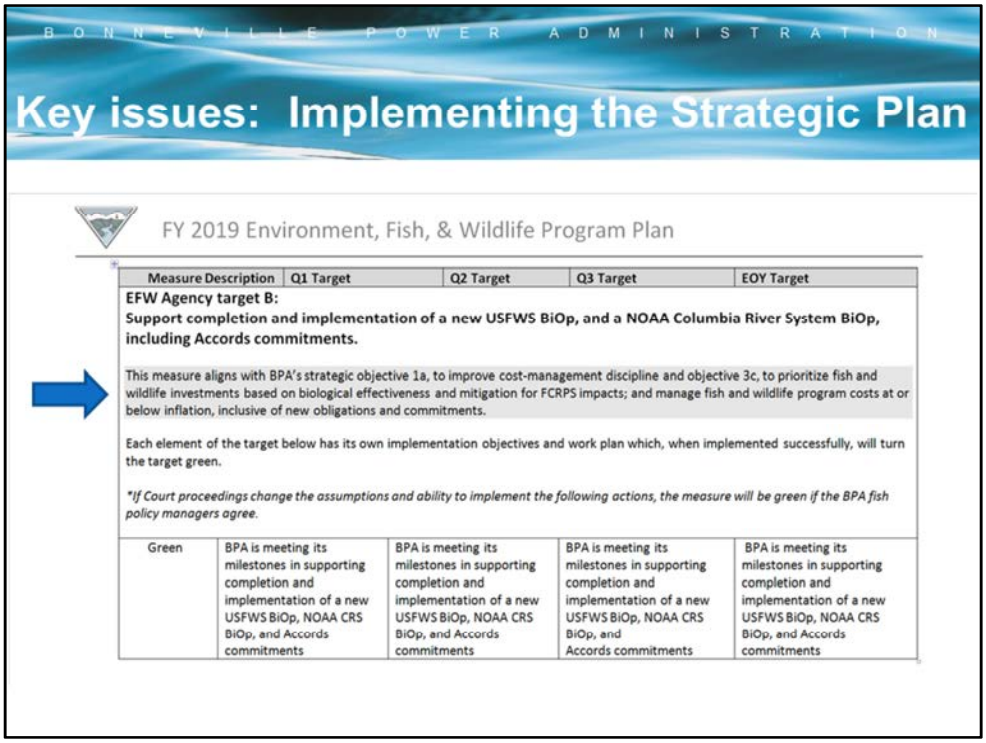
Environmental Compliance is the probably most visible office heading up BPA's efforts on the Columbia River System Operations Environmental Impact Statement – or CRSO EIS. This program ensures that all BPA activities undergo appropriate environmental analysis and compliance review in accordance with federal environmental and cultural resource laws. Pollution, Prevention and Abatement provides this function for Transmission operation and maintenance activities; Environmental Planning and Analysis provides this function for all other Transmission and Power projects, programs, and activities, including BPA's F&W Program.

First order of business was getting staff settled – Dorie Welch as deputy VP, Crystal Ball, who many of you may knew grew up in Idaho Falls, is our F&W director, and Ben Zelinsky is our senior policy advisor.

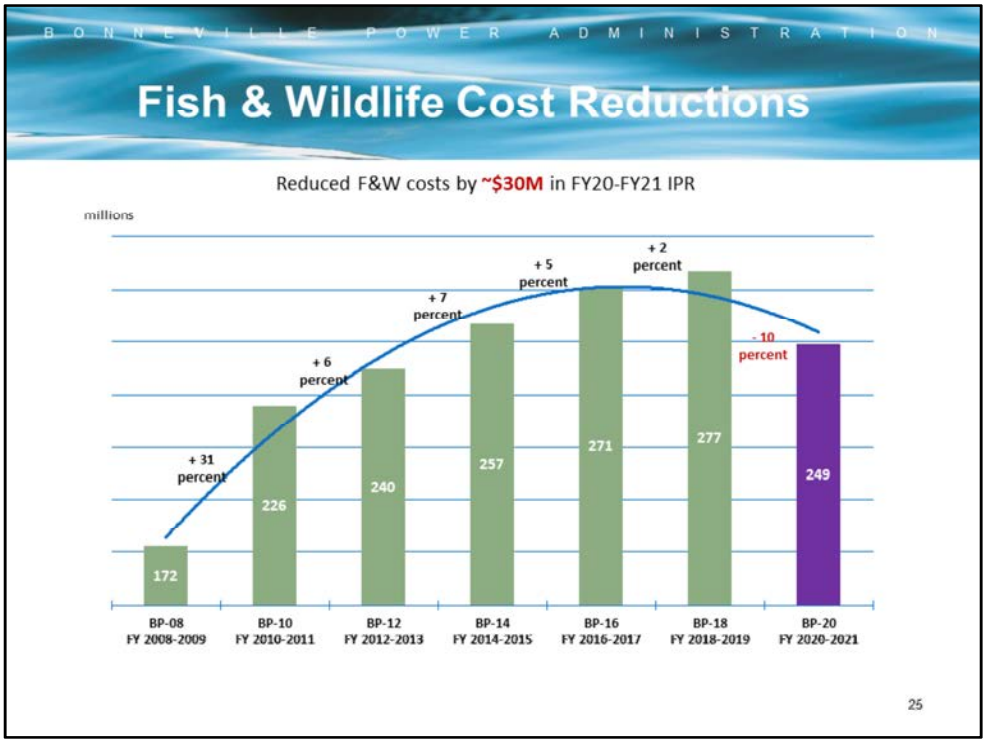


Taking a step back from Environment, Fish, and Wildlife to see the big picture, the BPA Strategic Plan serves as the reference point for everything we're going to work on in the next 5 years. As Michelle talked about, to maintain competitiveness, BPA must aggressively manage its program costs; increase revenues through new markets and invest wisely in energy efficiency to maximize the federal system's economic and environmental value.

All EFW programs and actions are directly tied to the BPA 2018 to 2023 Strategic Plan, and EFW is actively supporting the agency's financial objectives while meeting the responsibilities for environmental compliance.



This is a page from our 2019 program plan, and our 2020 plan will contain similar language. Each one of our performance objectives in the EFW operational plan is aligned with goals in the agency's strategic plan. This is an excerpt from a measure to ensure compliance with the Endangered Species Act, and you can see in the area highlighted in gray, that the measure ties into several objectives of the BPA Strategic Plan.

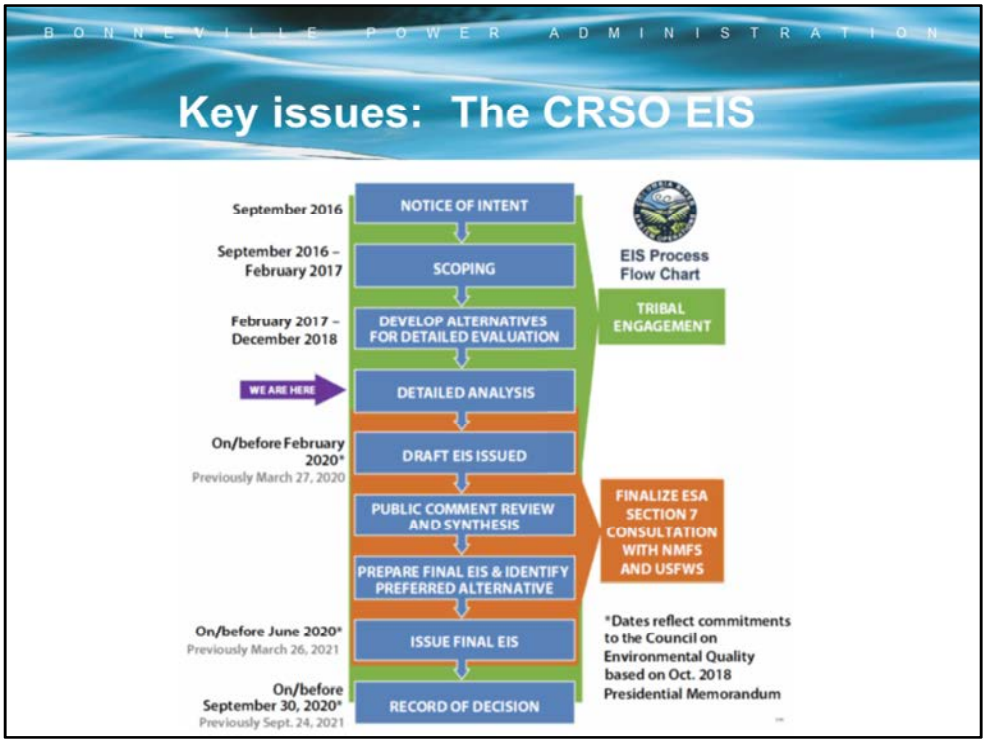


Green is: the published rate case numbers – rates that we collected, which is some ways EFW mirrors the agency trajectory.
Purple: BP20-21 reflects fish and wildlife cost reductions.

It's our public responsibility to operate a commercially viable business, and we take that obligation seriously. We are really proud of our efforts to date. Over the last few years, we have reduced our EFW costs by around $30 million a year. We are holding costs at, or below inflation. The EFW budget reflects a downward adjustment to address the spill surcharge, which recovers potential future costs associated with increased spill and decreased power.

You can see here that 2020 and 2021 program costs will be about $249 million, and we are committed to keeping that flat. We will need to offset new project costs.

Also, just want to note, we've extended Accords and we feel these are critical for coordination and getting projects done. The Accords create a sense of certainty and partnership. We have four year extensions, but this includes a check-in with Accord partners coming out of the CRSO EIS process.

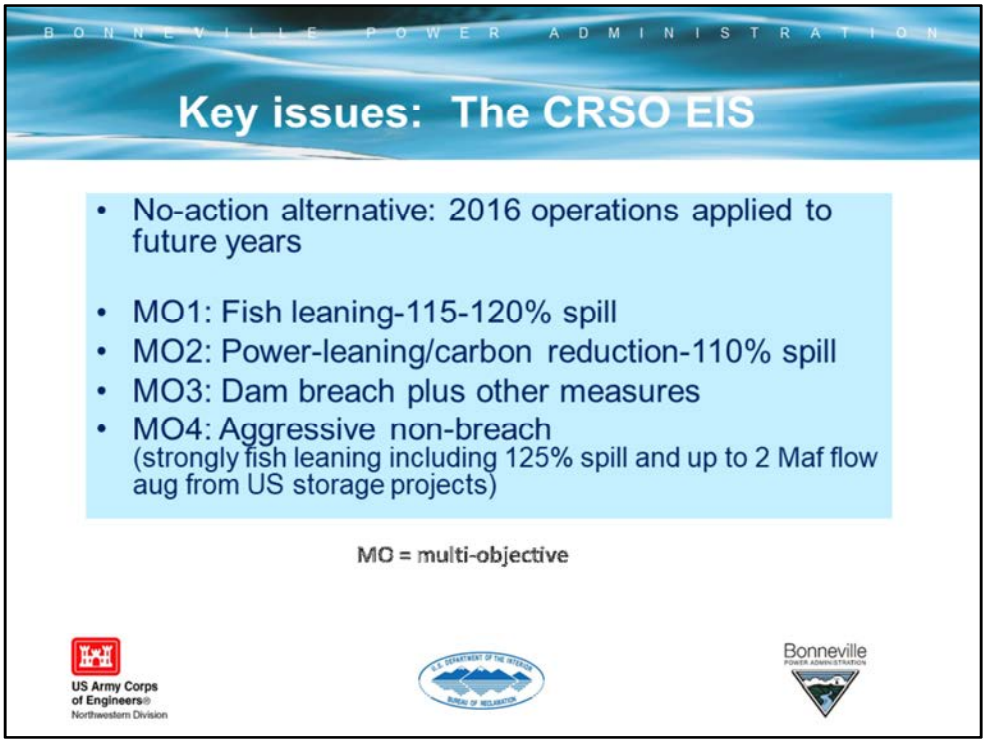


Speaking of the CRSO EIS, we are working hard with our federal partners to meet deadlines.

A quick EIS 101 -- The U.S. Army Corps of Engineers, Bureau of Reclamation and Bonneville Power Administration are midway through a multi-year effort to update the federal plan for the long-term operation, maintenance and configuration of the Columbia River System.

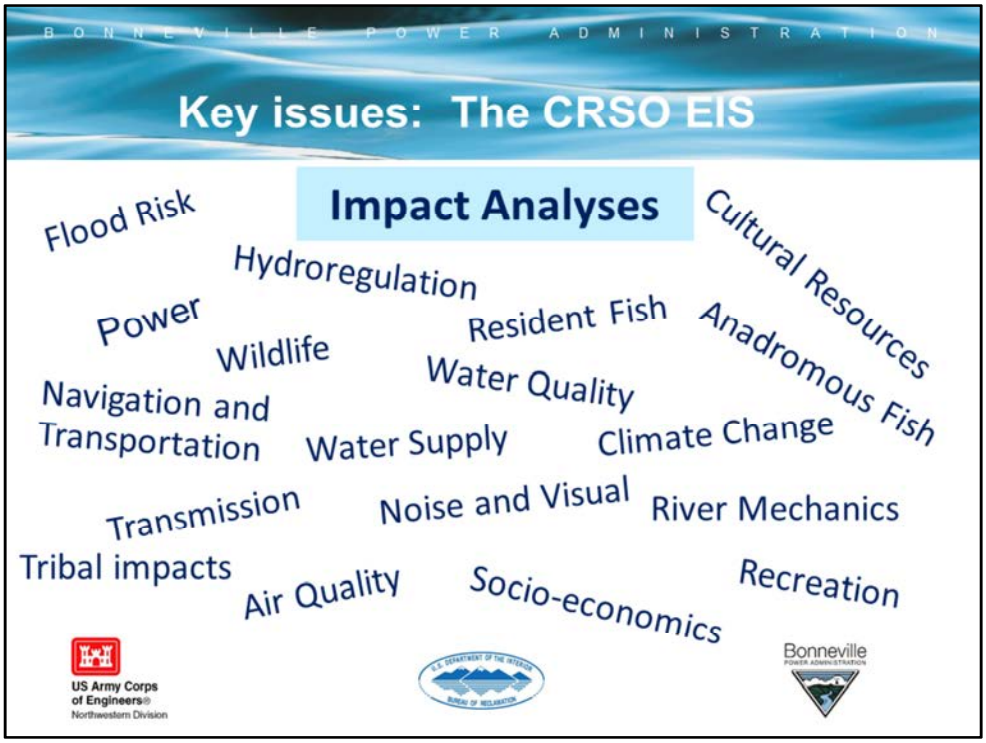
The National Environmental Policy Act requires federal agencies to consider a reasonable range of alternatives before making a decision to act on a preferred alternative.

You can see here, that we are in the analysis phase.



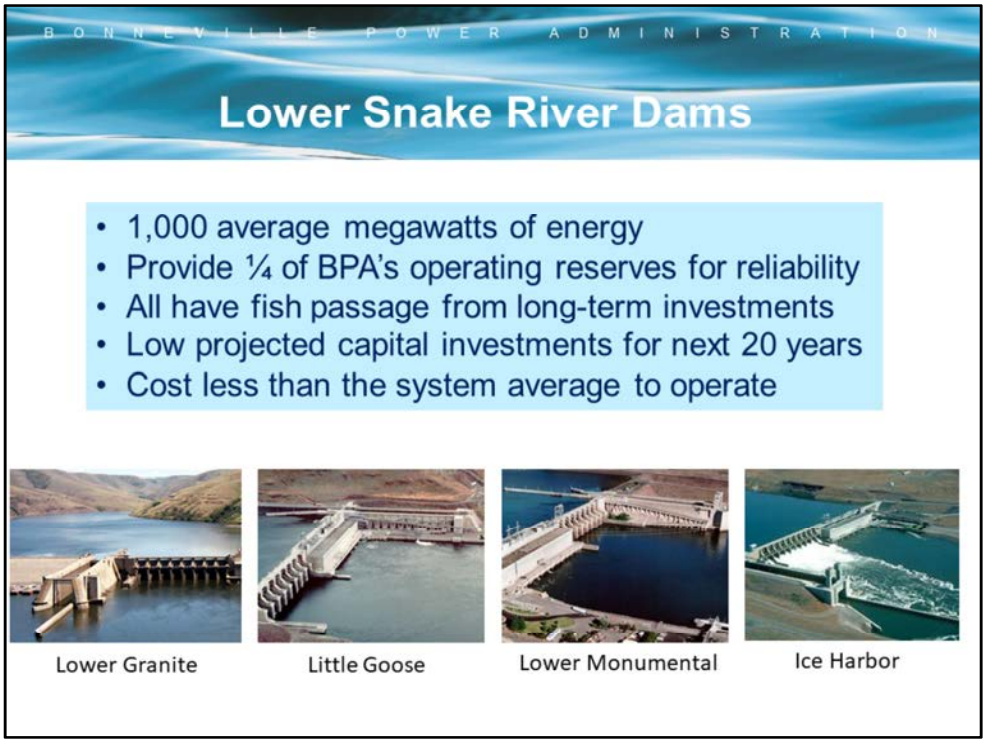
For each of the five alternatives being studied, the agencies are evaluating the costs, benefits and tradeoffs regarding the congressionally authorized purposes of the federal projects – which include flood risk management, hydropower generation, irrigation, navigation, and fish and wildlife conservation.

The alternatives represent different ways to balance the multiple purposes of the system. For example, some of the alternatives include more actions to benefit fish, while some put more emphasis on power generation and other water uses. This allows us to assess the full effects of achieving one set of objectives over another.



We are studying the potential environmental and socioeconomic impacts to numerous resources of the different alternatives that we are considering.

The final EIS will inform how the agencies balance the multiple purposes of the system while complying with all relevant environmental laws and regulations. Each co-lead agency has different requirements and objectives for the outcome of the EIS, but we are working together to select one alternative that provides the best balance, while meeting laws and regulations.



The dam breaching alternative, which was MO3, refers to the four lower Snake River dams. Breaching removes the earthen portion of a dam and additional shoreline to allow the river to bypass the concrete infrastructure. The powerhouse and other infrastructure would remain in the river, but be non-operational.

It's important to note that the federal agencies are taking an intellectually honest look at each of the alternatives and measures, from dam breaching, to those actions that favor increasing hydro system output and flexibility to address climate change.

Operating reserves: The four dams also provide up to one-quarter of BPA's operating reserves that are used to meet unexpected changes in generation or electrical demand. The agency is required to hold these reserves to ensure the reliability of the grid. Without them, the region would not be able to deliver as much energy or balance intermittent resources such as wind. In addition, the operating reserves supplied by these dams are critical for transmission system reliability.

In December, state, tribal and federal entities have reached agreement around an approximate three-year flexible spring spill operation at eight federal dams on the lower Columbia and Snake rivers. The flexible spill operation is premised on modeled salmon benefits while also managing power expenses at or below the cost of the 2018 spill operation. The agreement will cover up to three years of fish passage spill operations, which started this year. It is intended to avoid further litigation until the Columbia River System Operations Environmental Impact Statement (CRSO EIS) is completed.

- The flexible spring spill operation ended as planned on June 21. On the whole, BPA and its federal partners carried out the operation as anticipated.
- The operation was intended to provide for more power generation during certain periods of the day when power is most valuable (up to a total of 8 hours), combined with higher spill levels during other periods of the day (16 hours).
- Now that the operation has ended, BPA is evaluating the costs and whether we met one of our key goals, which was to not cost ratepayers more than the 2018 court-ordered spring spill operation. BPA expects an analysis of the costs will be available later this summer.
- The impact of the flexible spill on fish will take longer to evaluate. We expect a preliminary assessment on the impacts to juvenile survival and passage this fall.

Questions?

King,James J (BPA) - CGI-7

From: Helwig,Heidi Y (BPA) - DKS-7
Sent: Wednesday, July 3, 2019 11:57 AM
To: Manary,Michelle L (BPA) - TS-DITT-2; Armentrout,Scott G (BPA) - E-4
Cc: Renner,Marcella P (BPA) - E-4; Dunning,Christopher G (BPA) - F-2; Mesa,Aaron J (CONTR) - F-2
Subject: ICUA.pptx
Attachments: BPA Issues Letter to the Region on EIM Implementation AgreemenTalking Points.docx; ICUA.pptx; Snake River Dams and Correcting the Record.docx; Simpson Wall BPA finances.jpg

Michelle and Scott: Attached is a DRAFT PowerPoint presentation for your July 11 speaking roles at ICUA. Please freely edit as you see fit and please provide me those edits.

If you would like to meet and go over changes, I'm happy to do that—I'm also ok with your emailing me your changes if that's easier for you.

I also have attached some Talking Points that may help with some of the regional issues.

I have included the ICUA agenda and an image from Rep. Simpson's wall in DC and his justification that BPA is going broke. Many, if not all, ICUA members have received a copy of this image. For that reason, we have addressed (briefly) in this presentation our capital needs and debt. These topics were specifically requested by Bear and the board (Idaho Power).

Let me know if you have questions or have any other concerns/requests.

Thank you!

Heidi

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BPA talking points

BPA makes the business case for signing an implementation agreement as the next step to joining an energy imbalance market

June 2019

What this is

In July 2018, BPA began actively exploring becoming a member of the Western Energy Imbalance Market as part of its broader strategic plan to strengthen financial health and maintain a competitive edge in the utility landscape. BPA launched a stakeholder process at that time to determine how and under what conditions BPA could join the Western EIM operated by the California Independent System Operator.

BPA is issuing a Letter to the Region in June 2019 that will capture the business case for signing an implementation agreement with CAISO. The implementation agreement obligates BPA to spend funds specific to EIM participation. The letter also summarizes principles, proposes decisions on some specific issues and discusses the legal authority that are foundational to making this decision. BPA will open a 30-day public comment period on the letter. A Record of Decision is anticipated in September 2019.

The implementation agreement is the first of many decisions needed prior to BPA potentially joining the EIM. If the agreement is signed, then BPA will begin to spend money on EIM-specific projects identified in the Grid Modernization Roadmap as well as begin developing a detailed project plan with the CAISO to ensure the necessary systems, processes and training are in place prior to a proposed "go-live" date of March 1, 2022.

For more information, contact: Steve Kerns, 503-230-7542

Key messages

- The work by BPA to establish the processes and technology necessary for participation in the Western Energy Imbalance Market will give regional customers easier access to emerging markets. It could also reduce long-term transmission costs by potentially decreasing or delaying the need for system expansion.
- Selling surplus energy and capacity in the western markets is essential to keeping Bonneville's rates low.
- BPA must adapt its business model as energy markets evolve in order to remain competitive and continue to be a driver of economic prosperity for the Northwest.
- An independent, third-party cost-benefit analysis of BPA's potential participation in the Western EIM forecasts significant qualitative and quantitative benefits to BPA.
- While this is a significant step toward becoming a member of the Western EIM, several decision points and off-ramps exist if BPA determines participation in the EIM is detrimental to the agency, its customers or the Northwest.

Background

As BPA focuses on long-term financial health and continues its role as an economic engine in the Northwest, the utility landscape is evolving with new realities emerging. Variable energy resources are increasing across the West, creating opportunities to capture valuable flexibility and capacity services that clean hydropower can provide. Additionally, market developments are driving significant changes in transmission use for both customers and system operators. New visibility and congestion management tools are needed to help plan and operate the grid optimally.

These new tools and capabilities will help to more fully realize the value of the sub-hourly dispatch, flexibility and carbon-free hydro attributes of the Federal Columbia River Power System across an expanding energy imbalance market footprint. Much of the market drivers and technology behind the EIM are foundational to fast-evolving market opportunities like day ahead market enhancements.

In BPA's exploration of how and under what conditions it might join the Western EIM, BPA has identified the following 8 issues that need to be resolved or addressed:

- relationship of EIM to other emerging markets;
- balancing authority resource sufficiency;
- EIM settlements;
- market power;
- treatment of transmission;
- generation participation model for the FCRPS;
- governance; and
- carbon obligations in the EIM.

Since BPA began exploring the EIM, several of our bi-lateral trading partners have joined or begun the process of joining the market.

A third-party cost-benefit analysis of EIM participation by BPA suggests that dispatch benefits from the EIM participation would quickly pay for itself and result in ongoing net benefits range of $29-34 million[1]. Additionally, analysis has determined that EIM participation is a cost-effective tool for intra-hour congestion management that may defer the need for costly transmission builds.

EIM participation will result in efficient dispatch of generation to meet load across the entire EIM footprint, while providing BPA with increased visibility and discipline in the dispatch and marketing of federal power and transmission assets. This increased visibility of conditions across the grid will enhance reliability. As a member of the EIM, BPA would be able to effectively participate in the development of future markets that may appropriately compensate flexible resources for the services they provide.

[1] The $29-33.5M annual net benefit is based on stakeholder feedback which led us to consider alternate prices in the NW (PACW, PSEI, & PGE) in an attempt to more accurately simulate BPA's participation, where the previous $43M annual net benefit analysis used DGAP_BPAT prices.

The Western EIM is a voluntary market where each entity can choose whether or not to bid in resources. BPA can also voluntarily exit the market if market rules change and result in a negative impact to BPA.

Through its monthly EIM stakeholder meetings, BPA has received feedback on the public process moving forward. To that end, BPA is adding an additional opportunity beyond the implementation agreement for public comment with a close out letter in October 2021. This letter would represent the final and binding decision to join the EIM, with a proposed "go-live" date of March 1, 2022.

Questions and answers

GENERAL EIM

1. **What is the EIM? Where can I learn more?**

   An energy imbalance market is a voluntary market that provides a sub-hourly economic dispatch of participating resources for balancing supply and demand every 5 minutes. This market is security-constrained, meaning transmission and reliability constraints would be honored. The Western Energy Imbalance Market (EIM) is operated by the California Independent System Operator (CAISO). It is important to note that the Western EIM is not a regional transmission operator. BPA would preserve its autonomy and retain authority over transmission planning, day-ahead marketing, and transmission system and balancing authority operations if it were to join the EIM. For more information please see: BPA's Grid Mod internal website and CAISO's www.westerneim.com

2. **Does the EIM value both energy and capacity?**

   No, the EIM is an energy only market. The EIM compensates resources for the real-time energy and ramping capability they provide, which BPA views as just one piece of a well-designed electricity market. A well-designed electricity market is built on a strong foundation of resource adequacy, has features that optimize intra-hour energy balancing, and explicitly compensates capacity resources for providing capabilities that are essential for system reliability. Additional mechanisms are required to compensate Bonneville for the flexible capability, carbon-free federal power it chooses to provide. For example, the federal system can ramp up or down quickly to make up for unscheduled changes in solar and wind generation, but there is a cost assocated with holding capacity aside to provide this real-time balance of power supply.

   BPA will continue to work with CAISO and stakeholders to enhance regional resource adequacy by ensuring that flexible resources are appropriately compensated for the services that they provide.

3. **Are there market functions being considered that will provide capacity compensation ?**

   Yes, and Bonneville has taken an active role in the CAISO's ongoing effort to develop a day-ahead flexible ramping product. Specially, the Flexible Ramping Product as part of the Day-Ahead Market Enhancements (DAME) which would be used to manage uncertainty that occurs between the CAISO's day-ahead and fifteen-minute markets. Further, the Implementation Agreement articulates an expectation that the CAISO will consider implementing a bid range transfer system that would allow for bilateral arrangements that value the hydro system's flexibility.

PROCESS

4. What are the principles guiding BPA's decision-making process relative to the question of joining the Western EIM?

BPA will be guided by four key principles throughout its process to making a final determination with a close out letter in October 2021 on whether to join the Western EIM:

- Consistency with statutory, regulatory and contractual obligations
- Maintain reliability of system
- Voluntary participation
- Sound business rational

5. What is the scope of the summer decision on the implementation agreement? What does it represent as a commitment to join the EIM?

If BPA signs the EIM implementation agreement, it would obligate BPA to begin spending on EIM implementation projects with the CAISO and signal BPA's intent to join the EIM as long as BPA's EIM principles continue to be met. However, it does not bind BPA to join the EIM. The CAISO system integration costs are roughly $1.9 million across 6 equal payments for CAISO to develop the systems and processes necessary for BPA to participate in the market. BPA would also begin on the EIM projects on the Grid Mod Roadmap.

6. Will there be another public process before decides to BPA goes live in 2022?

A second 30-day public comment process will be held in late 2021 in the form of a Close Out Letter that will allow for customers and stakeholders to comment on whether the entirety of the EIM-related decisions meet BPA's EIM principles. In addition, there will be additional public process associated with additional policy decisions discussed in the letter, and there will be specific rate and term and conditions associated with EIM participation that will be part of the BP-22 and TC-22 processes.

7. What, if any, role is there for FERC for the agreement?

CAISO will submit the implementation agreement to FERC for review and approval – this is a standard CAISO process. BPA may submit comments in support of CAISO's filing.

8. What is an EIM implementation agreement? What issues will be resolved in the signing of an implementation agreement?

This agreement outlines the terms of our partnership to prepare for BPA's participation in the Western Energy Imbalance Market. The agreement also outlines scheduled milestones and associated payments to the CAISO for costs of related system changes, software licenses and other configuration activities.

Also, in Recital 14 of BPA's draft EIM Implementation Agreement, BPA has identified 8 EIM Implementation Principles and Participation Principles. These are:

1. A statement that BPA's statutory, regulatory, and contractual requirements will not be violated with BPA's participation;
2. A statement verifying the voluntary nature of market participation;

3. Affirmation that Reliablity and Operation of the Federal Power and Transmission systems will be maintained;
4. Federal generation participation will be accomplished through the use of 3 aggregations;
5. A request to CAISO for automation support;
6. An acknowledgement of BPA's greenhouse gas attributes as an Asset Controlling Supplier;
7. A request prior to implementation for CAISO to consider base schedule submission timeframe changes; and,
8. A request prior to implementation for CAISO to consider several EIM enhancements.

9. What is BPA's decision process between now and EIM go-live? Where will specific issues be resolved?

Stakeholder engagement will continue until EIM go-live. Specific issues will continue to be addressed by the EIM core team and AE's as we currently do today. After BPA signs the implementation agreement, BPA will initiate a policy implementation decisions phase in which we will address issues and alternatives and seek customer and stakeholder feedback in pre-rate case workshops and pre-terms and conditions case workshops in preparation for the necessary BP-22 Rate Case and TC-22 Tariff Case.

10. What are the additional decision points or off-ramps that exist for BPA after it signs the implementation agreement with the Western EIM? Are there any potential 'deal-breakers' that may impact eventual participation?

At this point BPA has not identified any "deal breakers" that would prevent BPA from joining the EIM. However, BPA will continue to monitor the CAISO's public initiative process and advocate accordingly to protect the value of the federal hydro system and transmission system. Additionally, BPA expects that the CAISO will complete the Day-Ahead Market Enhancements (DAME) policy initiative and implement the Flexible Ramping Product before BPA goes live in the EIM.

11. How will BPA deliver the value of joining an EIM to customers?

If BPA signs the EIM implementation agreement this summer, BPA's participation would give power and transmission customers the opportunity to participate in the market with their own generation. Owners of independent power plants located in the BPA's balancing authority area would also be eligible to participate in the market. The EIM through price signals and market dispatches could incent effective resources to be dispatched (incremental or decremental) to manage the congestion in the most cost effective manner possible, while simultaneously ensuring each EIM participating balancing authority area remains balanced. Since any effective and economic EIM Participating Resources can potentially fulfill the market dispatches, the EIM has the potential of reducing the burden on BPA transmission customers and reduce the likelihood of curtailments or scheduling restrictions.

GRID MOD

12. What does it mean for any new BPA expenditures for the grid modernization initiative? Will customers have an opportunity to have detail and provide input on those initiatives and their costs?

The IPR and QBR for Grid Modernization included expense funding for the EIM projects on the Grid Modernization Roadmap if BPA signs the implementation agreement this summer. Customers can get additional information on Grid Modernization expeditures and project updates from the QBR or Bonneville's external Grid Modernization website.

COST BENEFIT ANALYSIS

13. Are these costs going into the current rate case?

The expense costs associated with EIM are part of the IPR for Grid Modernization which includes starting up several projects related to joining the EIM. Costs associated with joining the EIM and Grid Modernization beyond the current rate period will be part of the BP-22 Rate Case.

14. Does BPA believe there is enough value from joining the EIM given the results of the preliminary costs and benefits analysis?

Yes. Both the quantitative benefits to BPA of $29-34M annual net benefit and the qualitative benefits that will allow for greater visibility and congestion management of the grid, provide significant value to BPA and form the foundation of the business value that EIM can bring to BPA.

15. Has BPA done an analysis of the costs and benefits of the EIM to date based on actual operations?

Yes. BPA utilized the operational years 2016, 2017 and 2018 to determine the cost benefit analysis of $29-34M annual net benefit. The analysis projected bidding in only the available spin capacity at the Big-10 projects[2].

16. Are there additional benefits of joining the EIM such as opening doors for BPA to participate other emerging market discussions?

Yes. There are potential opportunities for emerging market participation if BPA decides to join the EIM. The CAISO initiative process is looking at possible enhancements and expansion of its markets such as the Expansion of the Day-Ahead Market to EIM (EDAM). EDAM is expected to expand the enhanced day-ahead market to some or all EIM entity balancing authority areas. EDAM is currently in the pre-CAISO policy initiative conceptual phase with an anticipated kick-off of the CAISO policy initiative expected for late summer. BPA is currently not involved in any discussions regarding EDAM with the CAISO or other EIM entities.

[2] Big 10 projects include: Grand Coulee, Chief Joseph, Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, John Day, The Dalles, and Bonneville dams.

17. What are the major assumptions in the current cost and benefits analysis?

The current cost benefit analysis is conservative and assumed the following based on the operational years 2016-2018:

	E3 Study
Time frame	• 2016-2018
Flexibility	• Varies over all hours • Historical spinning capability remaining after BA Regulation Requirement is met.
Prices	• Alternative NW price nodes (PSEI, PACW, PGE)
Dispatch Granularity	• Four stage o Daily diurnal o Hourly o 15-min o 5-min
Benefits Sources	• Within-day shaping of energy • Volatility of 5-min prices • Price differentials across daily diurnal, hourly, 15-min, and 5-min markets
Success Rate	• 75% - 90%
Volatility Assumption	• Volatility of 15-min prices and 5-min prices reduced by 50% from their hourly averages
Transmission Availability/Cost	• Verified EIM sales were within transmission portfolio expectations
Transmission Benefits	• Qualitative and Illustrative

18. Will BPA or its customers receive any benefit or reduced costs in terms of the preparation needed for participation in the EIM by virtue of the decision to take reliability coordinator (RC) services from CAISO?

The CAISO fee of about $1.9M to join the EIM is based on a specified formula identified in CAISO's tariff which is calculated using each balancing authority areas load and there is no savings related to CAISO providing RC services. However, there is some integration work that will be accomplished as part of the RC integration that will not have to be done for EIM participation.

POWER & RESOURCE ADEQUACY

19. How does joining the EIM impact the real-time market?

Joining the EIM may have little impact on the real-time market. BPA currently participates in CAISO's day-ahead and hour ahead markets as well as bilateral trading with counterparties throughout the region. Joining the EIM will provide BPA with another opportunity to market its clean flexible hydro resources.

20. What is the collaboration plan and coordination structure planned for federal partners to stay organized as BPA enters the EIM?

Coordination and communication during the EIM implementation phase will be critical if BPA signs the EIM implementation agreement with the CAISO this summer. BPA will lead this effort, and the "Three Agency Coordination Plan" will continue to be used to facilitate this work. BPA will continue to have weekly Monday check-ins with the Bureau of Reclamation and the U.S. Army Corps of Engineers and continue with the monthly technical 3-Agency EIM meetings.

One of the additional EIM-related work streams is improving the coordination between BPA and the hydro projects on how generator units should be loaded for 1-3 future hours. This information will inform the operations for each of the Big-10 projects that would participate in the market.

21. Will FCRPS Biological Opinion spill be impacted by EIM participation?

No. BPA's power marketing services and activities and power demand changes would be conducted consistent with the 2019 NOAA Fisheries CRS Biological Opinion and would be within existing operating constraints and normal operating limits of FCRPS projects.

22. How does BPA plan on changing generation dispatch to USACE and USBR Operating Projects for EIM participation?

The short answer is that BPA intends to change the generation dispatch to realize the value of the flexibility that is available. BPA will likely start with only bidding surplus spinning capability into the EIM, and, after BPA and the project operators gain experience, consider bidding additional non-spinning flexibility at a later time. Also, it is expected that there would be no changes to GDACS with EIM Participation.

23. What is the Pacific Northwest electricity industry doing to ensure resource adequacy is preserved given this focus on electricity markets?

BPA will continue to engage with Pacific Northwest utilities through the Northwest Power Pool on regional resource adequacy initiatives.

TRANSMISSION

24. Does the Interchange Rights Holder methodology assume transmission is free?

No. Transmission rights are paid for through the purchase of BPA point to point transmission.This methodology specifies that purchased point to point transmission may be donated by BPA power services and other transmission rights holders for use in EIM dispatches rather than for another purpose.

CARBON

25. How will BPA meet California Air Resources Boards (CARBs) EIM carbon compliance requirements?

BPA's policy proposal on carbon in the EIM is to opt out of selling directly into California via the EIM unless Congress provides statutory expenditure authorization for BPA to directly purchase allowances under California and other state carbon programs. BPA does not believe this precludes its participation in the EIM.

- Energy generated in or imported into California is subject to California's greenhouse gas (GHG) regulations.
- If BPA were to participate in the EIM, any carbon attributed to imports into California would incur a compliance obligation
- BPA currently cannot purchase carbon allowances
  - Carbon allowances are considered a state tax by the U.S. DOE, BPA, and other federal agencies.
  - Federal agencies have sovereign immunity from state taxes and cannot pay them without specific Congressional authorization.
  - Absent Congressional authorization to purchase allowances, BPA would not be able to directly deliver EIM energy into California.
  - Analysis suggests that this would decrease the annual net benefit by $4.4M.

26. What if OR and WA adopt carbon legislation similar to CARBs?

If it is determined that purchasing allowances in OR or WA is a state tax (and not a fee), BPA would be precluded from directly delivering EIM energy into these states as well. This would increase the devaluation of the EIM participation. BPA is closely watching both of these efforts.

GOVERNANCE

27. What is BPA's assessment of CAISO EIM Governance?

BPA has determined that the current EIM governance structure does not contain any "showstoppers" to joining the EIM. However, BPA would like to see some improvements to the current governance structure, including:

a. Expand the EIM Governing Body's primary authority;

b. Improve the durability of the current EIM governance structure;

c. Allow for ability to adapt to expanded market functions; and

d. A broader role for public power in the EIM governance structure.

BPA is supporting these improvements in a current stakeholder process that the CAISO has initiated.

28. In its consideration of EIM participation, is BPA considering the current CAISO EIM Governance model or is BPA assuming some changes as fundamental to its decision of whether to join?

BPA is considering participating in the EIM as it is currently governed by the independent EIM Governing Body and the Board of Governors of the California ISO. However, BPA supports the recent initiation of a review of EIM governance.

BPA believes the review of EIM governance is well timed given the EIM's expansion in both geography and in membership, particularly with the addition of public power members and, potentially, at least one federal power marketing administration. With future market evolution discussions taking shape, Bonneville believes it is important that the ISO demonstrate that regional market expansion is transparently and fairly administered.

BPA views the improved durability and independence of the EIM governance structure as fundamental to the stability and expansion of the market. Strengthening the durability of the EIM Governing Body will help to allay regional concerns that the EIM will be directed primarily by California-centric interests.

29. What steps could CAISO take that might allay BPA's concerns regarding governance?

BPA favors the expansion of the EIM Governing Body's primary authority to encompass any market rule change that is driven primarily by factors specific to the EIM balancing authorities. BPA believes that the EIM Governing Body's primary authority should extend to all generally applicable real-time market rules regardless of the driver for the change, except for those changes that have no material effect on the EIM or EIM Balancing Authority Areas.

BPA recommends expanding the role of the EIM Governing Body, with advisory input from stakeholders, to develop and recommend items for the ISO's annual Policy Initiatives Roadmap that would fall within its primary authority.

30. What is the CAISO's process for looking at changes to Governance going forward?

The current EIM charter calls for initiating a review of EIM governance by 2020. The CAISO and EIM Governing Body began that review in December 2018. They are currently considering public comments on the proposed review process.

The CAISO proposes to develop a stakeholder committee whose role would be facilitating the ongoing EIM governance review. This "EIM Governance Review Committee" would develop through an iterative public stakeholder process a set of proposed revisions to the current EIM governance structure in light of experience to date and changes to the EIM since its inception. The Committee would accomplish this by developing a series of issue papers and straw proposals for public stakeholder comment, culminating in a draft final proposal for consideration by the EIM Governing Body and the CAISO Board of Governors. The CAISO expects the review to take 8 to 12 months once the GRC is formed.

RATES (CUSTOMER IMPACTS OF EIM)

31. What would BPA's joining the EIM mean for me as a Load Following customer? Block? IPP? Slice/Block?

If BPA signs the EIM Implementation agreement this summer, these questions will be explored through internal teams and external customer and stakeholder engagement in pre-rate case workshops and pre-terms and conditions case workshops. The decisions on how to

implement those policies will be made during the post-ROD policy process, the Rate Case, and Terms and Conditions tariff process.

32. Does joining the EIM change BPA's relationship with its preference customers?

No. If BPA joins the EIM, this would not change the statutory protections and relationship our preference customers are entitled to.

TARIFF

33. BPA undertook a huge effort in 2018 to be able to update its Open Access Transmission Tariff. What changes to the tariff need to take place during the TC-22 case to enable participation in an EIM?

When a balancing authority joins the EIM, it must adopt applicable tariff language. BPA will adopt these necessary changes through the TC-22 proceeding after exploring options with customers and stakeholders in the pre-terms and conditions workshops. Beyond participation in the EIM, many commercial changes are fundamental to the grid modernization effort and will be reflected in our tariff and business practices.

IMPLEMENTATION

34. How will the EIM impact BPA staffing levels?

BPA does not currently plan to change its overall staffing levels. There may be some areas of BPA that see an increase in staffing, but it will be offset by reductions elsewhere.

35. What work do BPA and its customers need to do between signing the EIM implementation agreement and the proposed go-live date of March 1, 2022?

The needed work to be completed by customers will be identified in the next phase of the EIM process if BPA signs the EIM implementation agreement. If BPA signs the agreement this summer, BPA would begin work on the EIM projects identified on the Grid Modernization Roadmap and begin developing a detailed project management plan with the CAISO to identify the milestones and dates for each deliverable in order to go live on March 1, 2022.

36. How will BPA get all this work done?

In order to accommodate the additional work and complexity of BPA's business, BPA added an extra year to the typical implementation timeline to join the EIM. BPA may also have to prioritize its workload, which may mean reducing or stopping certain work in order to accomplish EIM work.

37. What are the next steps?

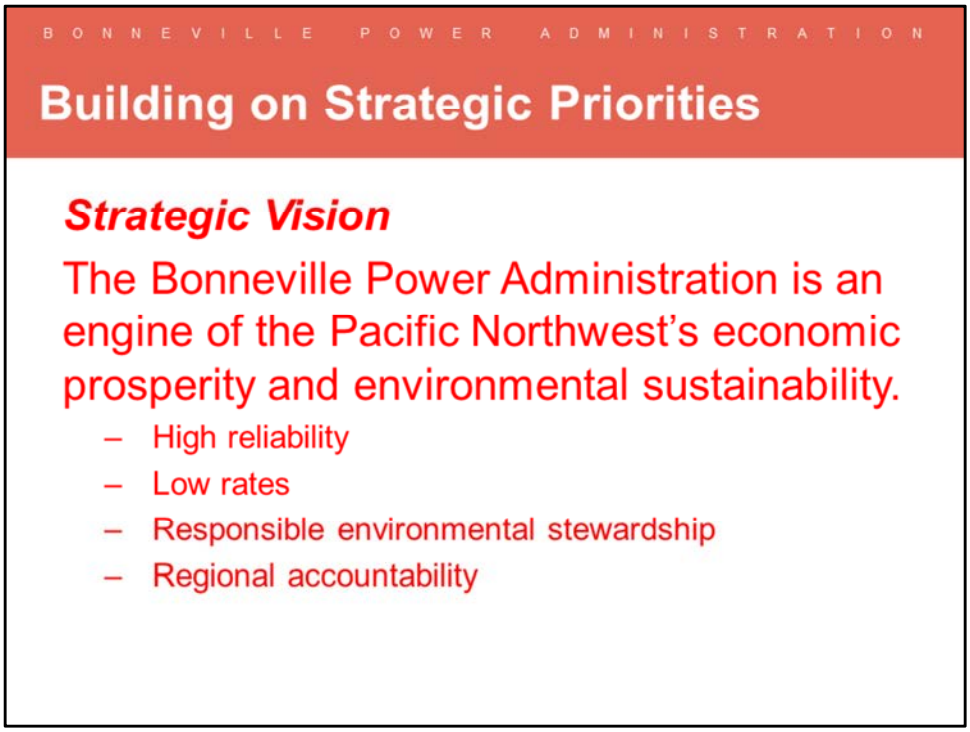
Next steps include Policy Implementation decisions phase which will roll into the pre-rate case workshops and pre-terms and conditions workshops in preparation for the necessary BP-22 Rate Case and TC-22 Tariff Case. This work would start immediately if BPA signs the EIM implementation agreement.

ICUA

State of the Agency and Financial Updates

Michelle Manary
Chief Financial Officer

July 11, 2019



Brief Introductory Overview of BPA as a Power Marketing Agency in the region and it's mission/vision

BONNEVILLE POWER ADMINISTRATION

BPA's four strategic goals

Strengthen Financial Health

- Financial Reserves Review Update
  - July 16: Share findings from comprehensive review
  - July 30: Discuss proposed solutions

BONNEVILLE POWER ADMINISTRATION

Modernize Assets

- Capital improvements
  - $200 million needed now
  - Expected to grow to about $300 million over next decade
  - John Day Dam, McNary Dam, Grand Coulee Dam

Modernize Assets

- Grid Modernization
  - Modernize assets, systems and operations
  - Maximize the value of the federal power and transmission systems
  - Increased automation, improved accuracy and enhanced visibility
  - Support a more reliable, efficient and effective system while reducing future costs and creating new market opportunities

Debt to Asset Ratio

- The proportion of BPA's revenue-generating assets that are financed through debt.

	Debt-to-asset ratio (%)	
	Sept. 30, 2017	Sept. 30, 2018
Agency	90	88
Power	98	96
Transmission	79	78

- Moody's top 50 utility average is 54 percent.

Provide competitive power products

- BP-20 Record of Decision
  - No base power rate increase
  - Weighted average transmission rate increase of 3.6%
  - Cost management objective to keep program costs at or below rate of inflation
  - Exceeded objective by decreasing final projected program costs by $66 million per year, mostly due to cost reductions in Power Services
  - Financial Reserves Policy surcharge could increase effective power rates by as much as 1.5%

BONNEVILLE POWER ADMINISTRATION

Meet transmission customer needs

- TC-20 tariff settlement agreement
  - All of BPA's long-term transmission customers have agreed to transition their existing contracts to the new tariff on Oct. 1, 2019.
  - The new tariff's terms and conditions are foundational for the achievement of BPA's strategic goals and its ability to deliver value to customers and the Northwest.
  - The new tariff will enable BPA to more quickly adapt to future market opportunities, including an energy imbalance market.
- Transmission assets
  - Build vs. upgrade vs. non-wires considerations

BONNEVILLE POWER ADMINISTRATION

Regional Issues

Scott Armentrout
Executive Vice President
Environment, Fish and Wildlife

Michelle Manary
Chief Financial Officer

BONNEVILLE POWER ADMINISTRATION

Energy imbalance market

- Letter to region issued in June on signing an implementation agreement with Western EIM
- BPA adapting its business model
- Easier access to emerging markets
- Reduced long-term transmission costs
- Sale of surplus is essential for lower rates
- Final record of decision on implementation agreement anticipated in September

BONNEVILLE POWER ADMINISTRATION

Lower Snake River Dams

- 1,000 aMW of carbon-free renewable energy
- Critical support for high-voltage transmission system reilability
- Long-term investments = improved fish passage
- Lower generation costs contribute to lower rates

BONNEVILLE POWER ADMINISTRATION

NOAA Fisheries BiOp & Flex Spill

- New biological opinion for the federal Columbia River system includes analysis of flexible spill operation.
- BPA implemented the alternative spring spill operation at federal dams in April.
- The flex spill operation is the result of a unique agreement between states, tribes and federal agencies.

BONNEVILLE POWER ADMINISTRATION

Columbia River System Operations

- BPA, Corps of Engineers and Bureau of Reclamation analyzing EIS alternatives.
- Preferred alternative will be proposed action for consultation with NOAA Fisheries and USFWS.
- Agencies will operate under current BiOp until records of decision signed September 2020.
- CRSO EIS schedule synced with NOAA Fisheries and USFWS consultations.

Questions?

BPA TRANSMISSION DEBT

2000
$2.7 B

2018
$5.58 B
85% LEVERAGED

HYPOTHETICAL

$308
DEBT SAVINGS

$545/Y
UNHINGED/RESTRUCTERED
LOWER PAYMENT
$536/Y

$250
RATE REDUCTIONS FOR PREFERENCE CUSTOMERS

ANNUAL BPA SAVINGS
$$208$

$658
BPA TRANSMISSION BALANCE DEBT PAID

$250
BPA EX. SAVINGS

$200
PBT SAVINGS

CAPPED
BPA ANNUAL FISH PAYMENT

$150
FISH SAVINGS

WWPS

BPA RESET

NW POWER PLANNING ACT 2.0

BPA RESPONSIBILITY
FUNDED

NW POWER AND CONSERVATION COUNCIL

NW STATE AND TRIBAL FISH AND WILDLIFE COUNCIL

NORTHWEST TRIBES

STATE WILDLIFE (OR/WA/ID/MT)

BPA
BPA Administrator

NW ENERGY COUNCIL

NW ENERGY PLANNING, CONSERVATION AND GRID OPTIMIZATION AGENCY
NEPGOA Administrator

1) BPA- MAINTAINS CURRENT TRANSMISSION

TRANSMISSION SALE ?

WPUDA

AVISTA

2) PRIVATIZE WITH SALE TO PRIVATE ENTITY

PACIFICORP

DEPARTMENT OF ENERGY (DOE)

CORPS (ACE)

FOR INTERNAL USE ONLY

BPA talking points

Lower Snake River dams: correcting the record

June 2019

What this is

Citizens, media, public utility commissioners and others in the Northwest have recently been targeted with talking points regarding lower Snake River dams and aspects of BPA's operations that don't provide a full perspective. In keeping with the federal action agencies' commitment to correcting the record, we are providing these facts.

While correcting the record**,** BPA needs to provide a qualifier that the Columbia River System Operations (CRSO) Environmental Impact Statement (EIS), currently underway by the U.S. Army Corps of Engineers, the Bureau of Reclamation and BPA, will identify a long-term strategy for the operation, configuration and maintenance of the Columbia River System. This includes developing and evaluating alternatives that best balance the multiple purposes of the 14 Columbia River System projects. The range of alternatives under evaluation includes breaching the lower Snake River dams. Therefore, the following material reflects past analysis with the intent of providing some information about the four lower Snake River dams, while not pre-determining any outcome of the ongoing EIS.

Key messages and storyline

- The four lower Snake River dams play an important role in powering the Northwest with approximately 1,000 average megawatts of carbon-free renewable energy and providing critical support for the high-voltage transmission system. The average annual output of these resources is roughly equal to the electricity consumed by the businesses, industries and households of Seattle over the course of one year.

- Together, these dams have the capacity to sustain 2,700 to 3,100 megawatts of peaking power for up to 120 hours a month during the fall, winter and spring months. This is one of the carbon-free power resources that helps power Northwest households and industries during multi-day cold snaps in the winter.

- Even though these dams were built with fish passage, the region's recent long-term investments in dam structures and updated operations have improved passage for better salmon survival.

- The following material reflects past analysis with the intent of providing information about the four lower Snake River dams, while not pre-determining any outcome of the ongoing Columbia River System Operation EIS.

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Questions and answers

1. How are the four lower Snake River dams impacting BPA's operations and rates?

The lower Snake River dams are some of the most reliable and lowest-cost electricity sources of the 31 federal dams from which BPA markets power. Because the cost to generate at each of the four dams is low, the revenues from the sale of the energy they produce are higher than other, higher-cost generation sources. While it is true that BPA's rates increased a little over 3 percent a year during the last decade, the list of cost pressures the agency is facing does not include the lower Snake River dams.

BPA is addressing the cost pressures it does have, and in fact, it's anticipated that there will be no power rate increase for fiscal years 2020 and 2021. However, there is uncertainty as to whether the Financial Reserves Policy surcharge will trigger. The analysis of whether a surcharge will be implemented will take place in November and could cause the effective power rate increase to be up to 1.5% year – well below the rate of inflation. Additionally, the price of power from BPA supplied utilities is lower than the national average, in large part because of affordable, clean and reliable hydropower.

2. What is the energy capacity situation in the Northwest and is it true that there is a 16% surplus of energy?

The claim that there is a 16% energy surplus implies that the region has more energy than it needs. First, the 16% energy surplus applies to the entire region (primarily consisting of Washington, Oregon, Idaho and Western Montana). BPA serves about 30 percent of the region's energy needs and is currently forecasting a 1% surplus in generation under critical water conditions from the federal system serving that 30% in 2020. From 2021 onward there is no forecast surplus. Regionally, the power surplus is forecast to drop significantly over the next several years with a forecasted surplus of 1% in 2026.

Under regional dialogue contracts, BPA sells Northwest preference customers the entire forecast federal system power produced under critical water, and therefore has little to no forecast surplus. While the region at times can produce more energy than needed to meet immediate demands, there are also times when BPA and other Northwest utilities must purchase power from outside the region in order to meet our obligations**.**

Whether or not there is surplus power available depends on a combination of factors: the amount of power being consumed, which peaks at certain times of the day and certain times of the year; and the availability of water and generating resources. Hydropower production, for example, increases during high water years, but we have to be prepared for extremely low water years as well, and for unexpected seasonal variations in water availability. Looking forward, even after achieving the Council's energy efficiency targets, the Northwest Power and Conservation Council forecasts that the regional power supply will be inadequate in the early 2020s. This projected shortage is primarily due to the planned retirement of coal plants that serve the region.

As a federal agency, BPA is a nonprofit that sells power to its Northwest preference customers at cost. The power system allows the Northwest and Southwest to take advantage of each other's seasonal weather differences and differences in power supply. If BPA produces more energy than needed to meet Northwest preference customer demands, the agency can sell this surplus throughout the West. These sales are good for the region: they defray BPA's costs for Northwest consumers and reduce fossil fuel generation up and down the West Coast. The revenues from surplus power sales help keep BPA's power rates lower than they would have been otherwise.

3. How does current wind production compare to the average production of the four lower Snake River dams?

Wind and hydropower are difficult to compare. Hydropower is a capacity resource – meaning it's always available and it can be easily ramped up or down as needed. Wind power, on the other hand, is variable. Its generation pattern follows the availability of wind regardless of consumer need or utility obligations. For reliability purposes, power planners must ensure the region has sufficient capacity resources, like hydro, to meet peak demands. Because of the variable generation pattern of wind, it is not a resource that can be relied upon at all times. The system also needs resources that can quickly (within seconds) ramp up to fill behind (or balance) wind generators when wind doesn't blow as expected. The lower Snake River dams provide these critical services along with the rest of the hydropower system. Reducing the capacity of the hydro system not only reduces the capacity resources available to serve load, but it reduces the ability of system operators to fill in behind variable resources.

4. How does "oversupply" in the regional system impact BPA operations and energy pricing?

Oversupply refers to limited periods, often in the spring, when the supply of power exceeds consumer demand and is so abundant, it can't be sold. Bonneville works with other utilities and generators to manage the total generation on its transmission system to ensure its reliability as is required by law.

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5. What is the forecast load growth for the region?

First, BPA's loads and resources study expects regional load to remain fairly stable with a 1% percent increase over the next 10 years. However, energy load growth in the region is only part of the story. While energy efficiency gains and other factors have kept the demand for electricity fairly flat, the increase in planned and expected coal plant retirements across the West will shift more of that energy and capacity burden to hydro and natural gas resources – two of the leading

generation sources that can be ramped up and down quickly. So even if regional load remains steady, the shift in generation resources will require a robust and responsive hydro system.

6. How has the growth of regional wind and solar projects impacted "oversupply?"

Oversupply occurs when there is too much power flowing onto the system when consumers don't need it. As the region increases the number of wind and solar projects that increases the factors that lead to additional oversupply. In this region to date this has been an intermittent time occurrence hitting mostly at night during high river flows. With more solar generation, the risk of day time oversupply increases. More importantly, a bigger and growing issue is the "undersupply" of reliable electricity when the region needs it during increasingly hot summers or during unexpected severely cold winters.

7. What impact has oversupply had on the four lower Snake River dams in terms of BPA's resources?

Oversupply depresses power prices only for very short periods. Lower natural gas prices have recently been a primary driver of lower wholesale market power prices.

Out of the 31 dams in the federal system, the four lower Snake River dams are some of the cheapest to operate and therefore provide some of the greatest value for BPA ratepayers. In fact, the cost of power from these dams, ranging from $10 to $14 per megawatt-hour, makes them some of the most affordable power resources in the federal power system.

8. During times of oversupply, does BPA compensate wind generators to take energy off the grid?

It's true that sometimes there can be too much of a good thing – like excess renewable power flowing from hydro, solar and wind all at once. This does not happen very often, but when it does it's usually springtime when water levels are highest.

In high water situations when there is more hydraulic flow than accessible hydraulic storage, BPA works with wind generators to take wind energy off the grid to decrease the amount of spill which increases gas levels in the river. BPA then reimburses them for certain lost opportunity costs, such as for production tax credits they would have earned for generating power.

9. What are the peak power demand benefits of the four lower Snake River dams and how does spill and low flows impact those benefits?

The lower Snake River dams reliably provide critical services for the region. First, they produce about 1,000 average megawatts of electricity each year. That's nearly enough to meet the demands of the 800,000 households over the course of a year. The dams are critical in providing peak power generation most of the year.
Second, the four dams also provide up to one-quarter of BPA's operating reserves that are used to meet unexpected changes in generation or electrical demand. The agency is required to hold

these reserves to ensure the reliability of the grid. Without them, the region would not be able to deliver as much energy or balance intermittent resources such as wind.

In addition, as Bonneville presented in its Integrated Program Review in 2018, over the next 20 years, the lower Snake River dams have a relatively low projected capital investment when compared to other federal hydro projects in the Columbia and Snake River basins.
one average megawatt is enough to power 796.36 Northwest homes for a year.

10. Are the four lower Snake River dams used to meet within-hour load variability?

The lower Snake River dams play a vital role as part of an integrated system to balance within-hour load variability. Hydro offers flexibility to meet the just-in-time needs of intermittent renewable generation and reliably integrate these resources onto the grid, and at low cost.

11. What is the ability of the four lower Snake River dams to contribute power to peak demand in December through February, the coldest months, and again in July and August, the hottest months?

The lower Snake River dams are a key part of the Northwest's power resource mix throughout the year. Variable generation, like wind, can't be relied on to generate at the precise time the region needs power. On the other hand, the four lower Snake River dams provide sustainable capacity during winter and summer peaking periods, ranging from 800 to 1,200 average megawatts. For example, during a cold spell in 2017, the lower Snake River dams at times generated nearly 1,300 megawatts to contribute to Northwest energy needs. That's enough energy to power nearly 1 million average-sized homes.

12. How important are the four lower Snake River dams to grid stability/reliability?

The four lower Snake River dams help keep the power and transmission systems in balance. Because of the seasonal variation in power flow, during the summer months in particular, the additional generation available from the lower Columbia and Snake rivers provides improved voltage stability (the driving force that causes a current to flow in an electric circuit) and more reliable transmission grid performance.

In addition, the operating reserves supplied by these dams (see #9) are critical for transmission system reliability.

13. How does the power produced at the four lower Snake River dams impact BPA's energy production costs?

Out of the 31 dams in the federal system, the lower Snake River dams are some of the cheapest to operate and therefore provide some of the greatest value for BPA ratepayers. All four together cost less than the system average to operate. The cost of power from these dams, which ranges from $10 to $14 a megawatt-hour, makes them some of the most affordable power resources in the federal power system.

14. Has the $16 billion investment in fish and wildlife recovery efforts paid off?

There are significantly more salmon and steelhead returning to the Columbia River Basin today than when Bonneville began investing in protecting, mitigating and enhancing habitat affected by development and construction of the FCRPS dams under the Northwest Power Act. Some stocks of salmon and steelhead are responding better than others to mitigation actions. However, there are many more environmental conditions impacting fish populations than operation of the dams. Nonetheless, Bonneville's mitigation activities are supporting wild and hatchery fish, which are returning to many of our rivers and streams where they haven't been seen in decades. Some stocks of wild fish are increasing, and in 2014 the Columbia Basin had the greatest return of fish since 1938.

15. Have habitat restoration projects worked?

BPA delivers on its public responsibilities through a commercially successful business. Bonneville's fish and wildlife costs include not just compliance with the Endangered Species Act, but also mitigation under the Northwest Power Act. BPA implements biologically sound and cost-effective measures to restore habitat, protect land and water, improve passage at the dams and operate state-of-the-art salmon and steelhead hatcheries. Bonneville's fish and wildlife program has opened up miles of stream habitat and restored acres of riparian habitat. In some cases fish sightings are reported within hours after habitat restoration projects are complete.

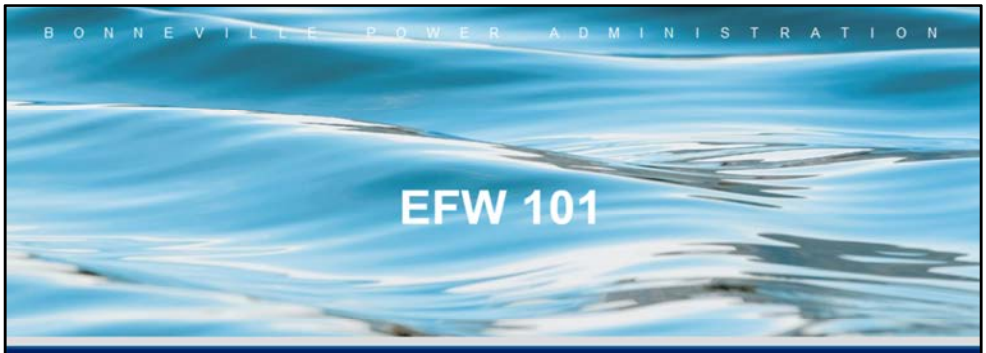
Columbia Basin and Snake River salmon and steelhead are returning to many of our rivers and streams where they haven't been seen in decades. Some stocks of wild fish are increasing, and in 2014 the Columbia Basin had the greatest return of fish since 1938.

16. What is being done to address water temperature in the Snake River?

It is difficult to speak in detail to this question. However, we continue to evaluate impacts to water temperature from a wide variety of hydro system actions as part of the Columbia River System Operations EIS analysis under the National Environmental Policy Act.

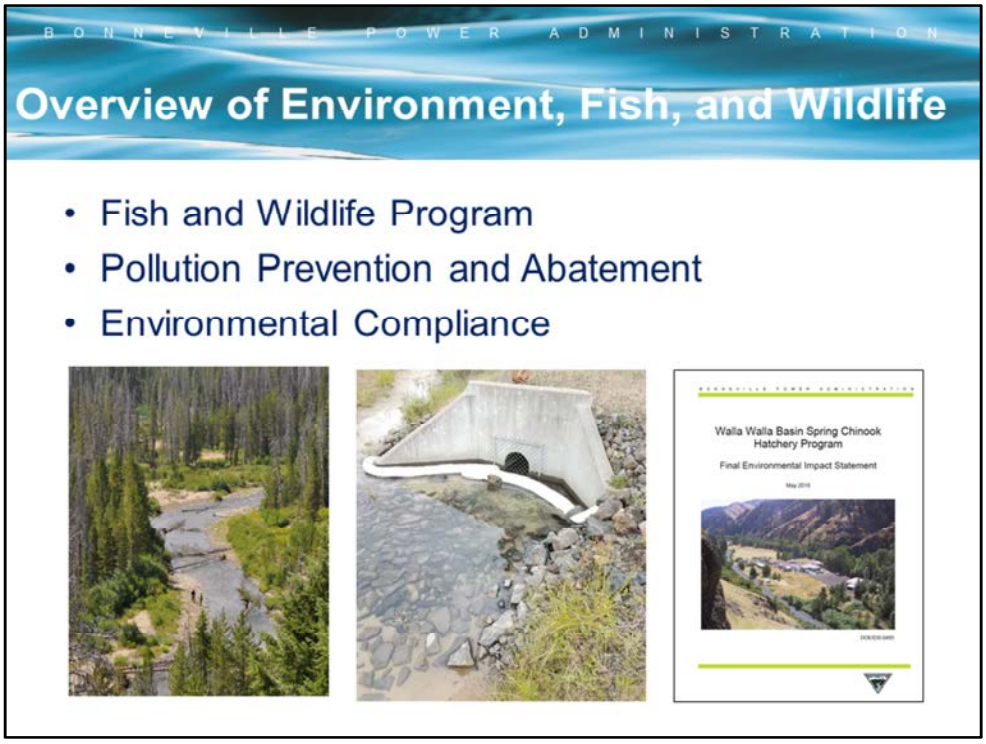
Operationally, we already conduct cold water releases. Specifically, we work with our federal partners to implement cold water releases from Dworshak Dam for cooling in the Snake River. Pumps have also been installed to provide additional cool water into fish ladders at Lower Granite and Little Goose dams.

Our on-the-ground habitat work in the Columbia and Snake rivers is also designed to address changing climate conditions and anticipate what fish and wildlife populations will need to survive under those conditions.



EFW 101

Scott Armentrout
Executive Vice President
Environment, Fish and Wildlife

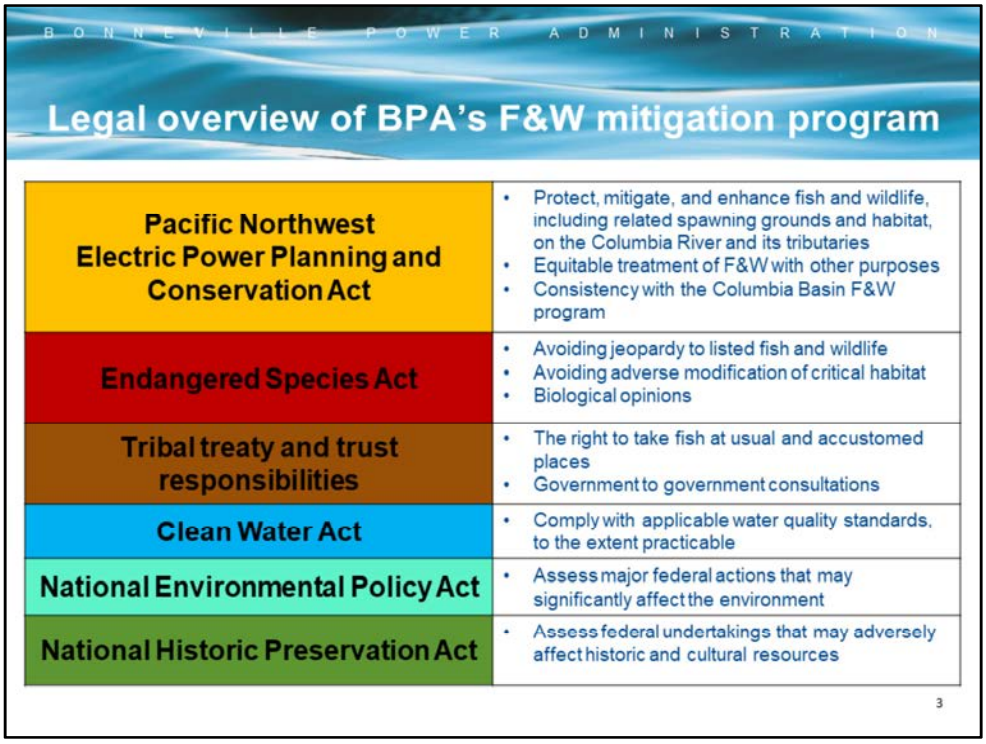


The ***Fish and Wildlife Program*** is the group most widely known for implementing BPA's habitat and hatchery programs, and working with the Power business line implement hydro actions to enhance fish passage through the dams. They provide compliance with the Northwest Power Act, the ESA, court orders, and Bonneville's share of the federal trust and treaty responsibilities to affected Native American tribes. (Photo is of habitat work – large wood added – to the Yankee For Salmon River with the Shoshone-Bannock Tribes.

Pollution Prevention and Abatement provides environmental compliance and mitigation for the operation, maintenance, and construction of BPA's transmission system. They help with environmental permits, stormwater plans, erosion control measures, and contamination prevention at facilities like substations. (Photo is protecting surface water from an oil spill at Ostrander Substation.)

Environmental Compliance is the probably most visible office heading up BPA's efforts on the Columbia River System Operations Environmental Impact Statement – or CRSO EIS. This program ensures that all BPA activities undergo appropriate environmental analysis and compliance review in accordance with federal environmental and cultural resource laws. Pollution, Prevention and Abatement provides this function for Transmission operation and maintenance activities; Environmental Planning and Analysis provides this function for all other Transmission and Power projects, programs, and activities, including BPA's F&W Program.

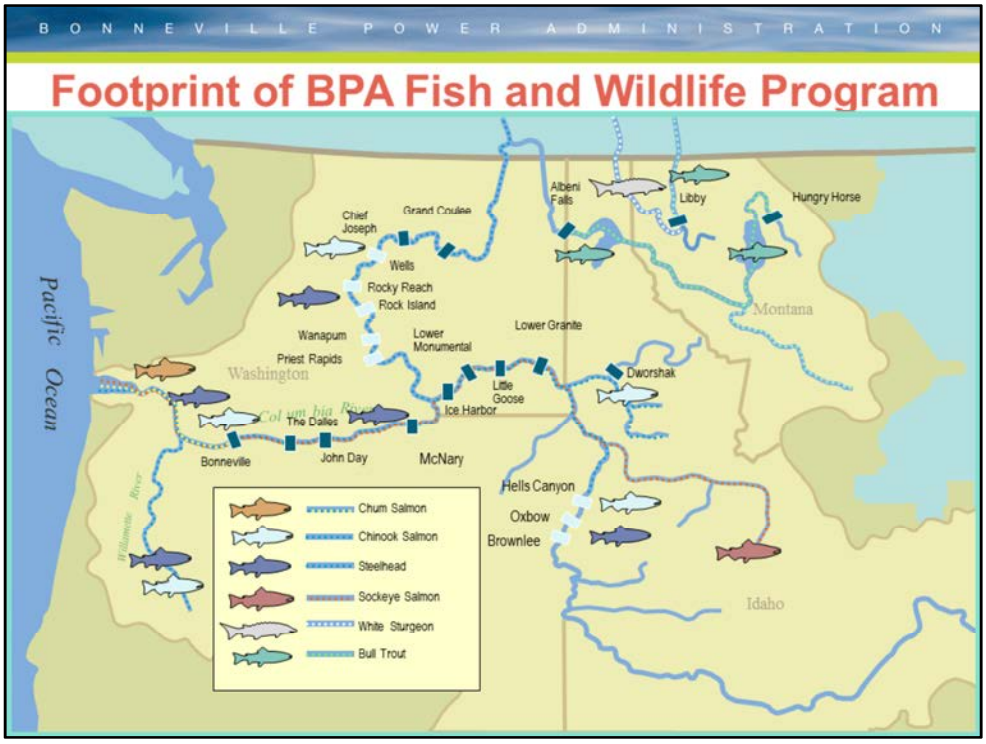
First order of business was getting staff settled – Dorie Welch as deputy VP, Crystal Ball, who many of you may knew grew up in Idaho Falls, is our F&W director, and Ben Zelinsky is our senior policy advisor.



I think this concept sometimes gets lost in the discussion about our Fish and Wildlife Program…. Environmental compliance is the law.

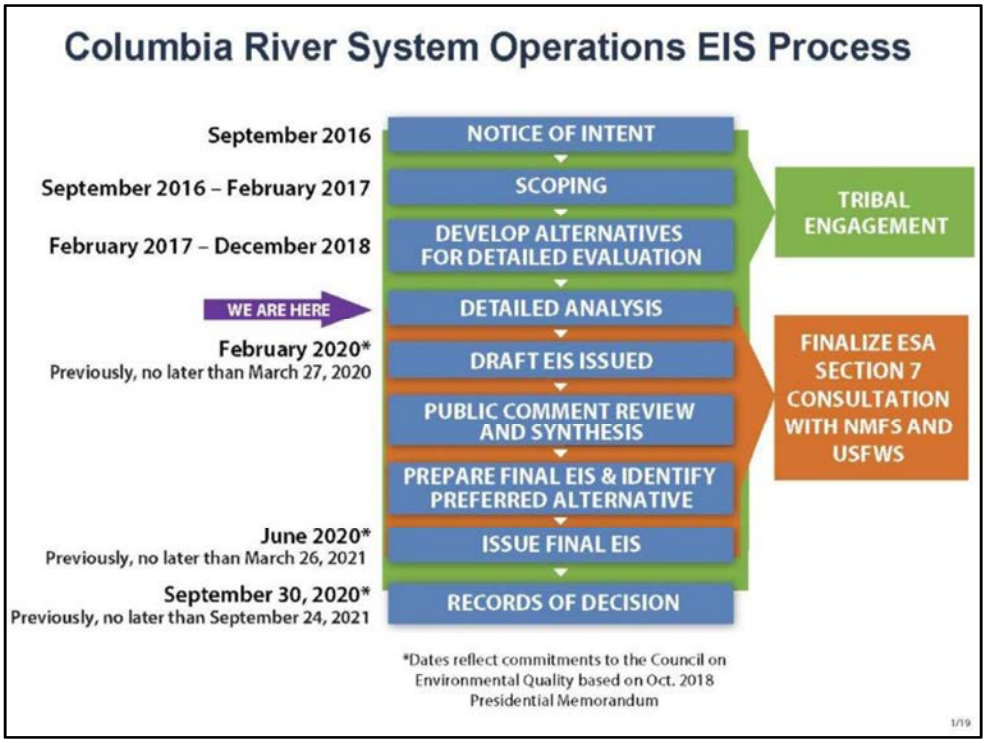
Providing quality stewardship for our region's natural and cultural resources is a worthwhile goal in its own right, it is also legally required and part of BPA's fundamental mission. Environmental compliance is a BPA-wide requirement. By law any federal action, including Power, Transmission, and the BPA Fish and Wildlife Program decisions are subject to environmental review.

In fact, the Northwest Power Act established BPA's fish and wildlife mitigation mandate in 1980, and it has become as a "third leg of the stool," of BPA's mission, along with Power and Transmission.



(Dorie)
BPA manages a world class fish and wildlife program. We implement across four states: Oregon, Washington, Idaho, Montana.

BPA strongly emphasizes the achievement of biological objectives in the least costly manner and encourages projects with an ecosystem-based approach so both fish and wildlife are integrated simultaneously with habitat protection and improvement projects.



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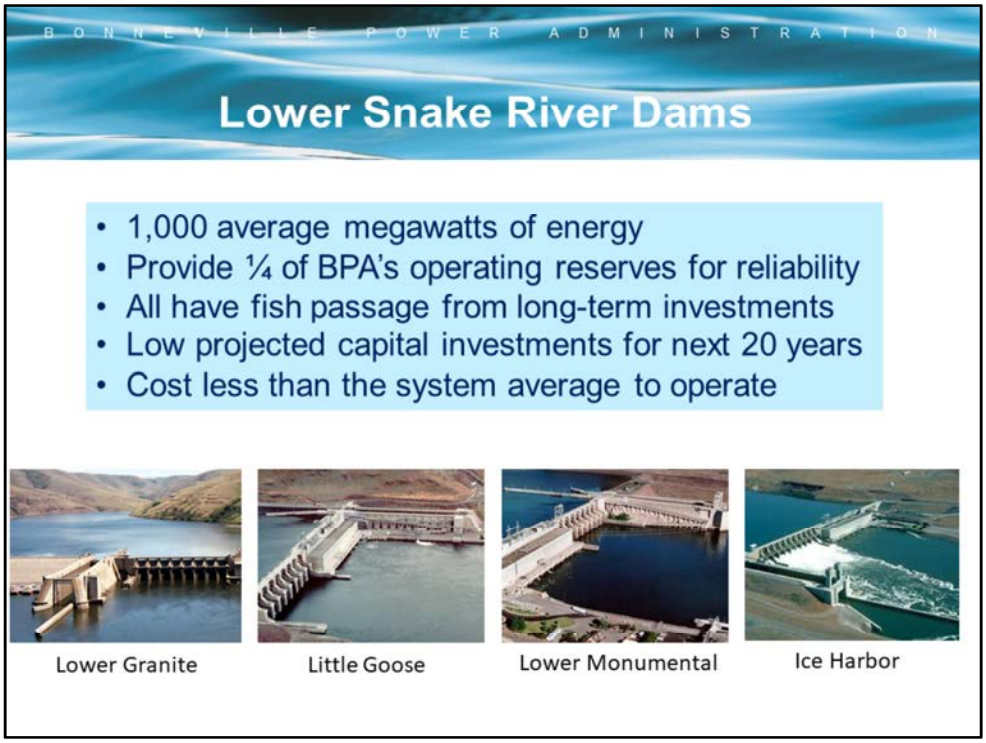
The region (and BPA) are experiencing a confluence of multiple, large, and complex environmental policy issues, which include the Columbia River System Operation Environmental Impact, two new biological opinions, the Columbia River Treaty, Clean Water Act, and Fish Accords. The draft environmental impact statement is due about a year from now. The final document will likely guide system operations for decades. We are living in interesting times.



The dam breaching alternative, which was MO3, refers to the four lower Snake River dams. Breaching removes the earthen portion of a dam and additional shoreline to allow the river to bypass the concrete infrastructure. The powerhouse and other infrastructure would remain in the river, but be non-operational.

It's important to note that the federal agencies are taking an intellectually honest look at each of the alternatives and measures, from dam breaching, to those actions that favor increasing hydro system output and flexibility to address climate change.

Operating reserves: The four dams also provide up to one-quarter of BPA's operating reserves that are used to meet unexpected changes in generation or electrical demand. The agency is required to hold these reserves to ensure the reliability of the grid. Without them, the region would not be able to deliver as much energy or balance intermittent resources such as wind. In addition, the operating reserves supplied by these dams are critical for transmission system reliability.

In December, state, tribal and federal entities have reached agreement around an approximate three-year flexible spring spill operation at eight federal dams on the lower Columbia and Snake rivers. The flexible spill operation is premised on modeled salmon benefits while also managing power expenses at or below the cost of the 2018 spill operation. The agreement will cover up to three years of fish passage spill operations, which started this year. It is intended to avoid further litigation until the Columbia River System Operations Environmental Impact Statement (CRSO EIS) is completed.

- The flexible spring spill operation ended as planned on June 21. On the whole, BPA and its federal partners carried out the operation as anticipated.
- The operation was intended to provide for more power generation during certain periods of the day when power is most valuable (up to a total of 8 hours), combined with higher spill levels during other periods of the day (16 hours).
- Now that the operation has ended, BPA is evaluating the costs and whether we met one of our key goals, which was to not cost ratepayers more than the 2018 court-ordered spring spill operation. BPA expects an analysis of the costs will be available later this summer.
- The impact of the flexible spill on fish will take longer to evaluate. We expect a preliminary assessment on the impacts to juvenile survival and passage this fall.

Questions?