Black Canyon Dam:

- FY 2022. Continue station service arc flash mitigation and Units 1 & 2 life safety modernization.
- FY 2023. Continue station service arc flash mitigation and Units 1 & 2 life safety modernization. Begin trash rake installation.
- FY 2024. Continue station service arc flash mitigation and Units 1 & 2 life safety modernization.

Anderson Ranch Dam:

- FY 2022. No planned capital projects.
- FY 2023. No planned capital projects.
- FY 2024. No planned capital projects.

Roza Dam:

- FY 2022. Completed switchyard rehabilitation and breaker upgrade.
- FY 2023. No planned capital projects.
- FY 2024. No planned capital projects.

Minidoka Dam:

- FY 2022. Complete microwave system backbone modernization and switchyard modernization.
- FY 2023. No planned capital projects.
- FY 2024. No planned capital projects.

Fish & Wildlife Projects – Capital

Overview

Bonneville continues to develop budgets for the suite of fish and wildlife mitigation projects originally adopted in FY 2007 based on recommendations from the NPCC. Bonneville reaffirmed and expanded many project-specific commitments in subsequent agreements and processes, including BiOps and 2022 Fish Accord extensions, and since then, virtually all these projects received independent science review through the NPCC and its project review processes. Bonneville's funding decisions embrace many of the management objectives and priorities in the NPCC's Program and continue to integrate ESA compliance as described in the NOAA Fisheries' and USFWS's FCRPS BiOps. Coordination continues among Bonneville, NPCC, Federal resource management agencies, states, tribes, and others to support the projects that satisfy Bonneville's mitigation responsibilities.

Fish & Wildlife Projects

($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$16,119	$43,000	$41,335

Bonneville intends to continue implementing the types of capital projects listed below. These projects are based upon the best available science and are regionally important in that they provide high priority mitigation and protection actions for fish and wildlife populations affected by the construction and operation of the FCRPS dams. Projects and facilities listed below deliver direct, on-the-ground benefits to both ESA listed and non-listed fish and wildlife throughout the Columbia River Basin and have been evaluated and coordinated with the Council, state, Federal and tribal fish and wildlife resource managers, local governments, watershed and environmental groups, and other interested parties. Specifically, as capital construction projects, hatchery facilities typically go through the NPCC's three-step process, which includes development of a master plan, environmental compliance, ESA consultation, value-engineering analysis, and review by the ISRP.

The three types of fish and wildlife projects that Bonneville capitalizes are as follows:

1) Fish passage structures – Structures funded with capital that enhance fish access to habitat in the Columbia River Basin including but not limited to wells, ladders, screens, pumping, culverts, diversion (irrigation) consolidation, piping to reduce water loss, irrigation efficiencies (drip irrigation), lining of ditches (seepage reduction), removal of objects impeding fish passage or pushup dams, and construction-related habitat restoration.
2) Hatchery facility construction – Projects and activities relating to the construction, improvement, and replacement of fish hatcheries, including related satellite facilities (acclimation ponds and collection weirs). This may also include construction-related habitat restoration.
3) Land acquisition and stewardship – Land acquisition projects that protect, enhance, and maintain fish and wildlife habitat and provide credit to Bonneville, such as acres for wildlife or instream miles for resident fish, to fulfill the legal obligation of Bonneville to mitigate the impacts from construction and operation of the FCRPS.

New projects included in this budget include the following.

Colville Tribes Resident Fish Hatchery Expansion:

Constructed to produce 50,000 pounds of trout annually, this facility is unable to meet all its annual spring stocking goals for Buffalo, North Twin, South Twin, and Rufus Woods lakes as identified in the 2020 Fisheries Management Plan. To meet annual stocking goals for these four lakes, the hatchery began contracting with a commercial net pen operator in 2010 to rear a component of the hatchery's Rainbow Trout in net pens located in Lake Rufus Woods. Poor net pen water quality conditions have consistently contributed to annual mortality rates between 33-50 percent. The Confederated Tribes of the Colville Reservation is exploring the feasibility of expanding on-site hatchery rearing vessels to increase on-site production and reduce net pen rearing. The expansion would allow the hatchery to utilize clean, cool, pathogen-free water and intended to increase trout survival, helping meet stocking objectives identified in the management plan. In 2021, the Colville Tribe hired a licensed engineering firm to complete a conceptual design and construction cost estimates for a facility capable of producing 25,000 triploid rainbow trout at a maximum size of 2 pounds each. The documents produced will provide the Colville Tribes Fish and Wildlife Department with a plan and construction cost estimate that will assist in determining if the project should continue to the next phase. Design for the project has not begun and the expected start date is yet to be determined.

Chief Joseph Hatchery Water Quality Project:

The Chief Joseph Hatchery was a 2008 Accord commitment with the Confederated Tribes of the Colville Reservation; construction began in fiscal year 2010, with fish production starting in 2013. The Chief Joseph Hatchery operates to restore and enhance depleted runs of spring and summer/fall salmon Chinook salmon for release into the Columbia and Okanogan rivers. Current infrastructure/operational constraints are preventing the hatchery from achieving full production of 2.9 million Chinook smolts; Bonneville and Colville Tribal staff are developing a coordinated approach and plan to address water temperature and production issues at the hatchery. Design for the project has not begun and expected start date yet to be determined.

Umatilla Hatchery Facility:

The NPCC in 1990 recommended that Bonneville construct the Umatilla Hatchery, just east of the town of Irrigon, Oregon, to mitigate for the loss of salmon and steelhead habitat and migration blockage resulting from the CRS dams. Umatilla River anadromous fish had been largely extirpated in the early 1900s by irrigation dams, prior to construction of the CSR dams. Current hatchery production includes 810,000 spring Chinook, 600,000 fall Chinook, 500,000 coho, and 150,000 summer steelhead. Construction of the Umatilla Hatchery was completed in 1991 at a cost of $14 million. Bonneville funds the Oregon Department of Fish and Wildlife (ODFW) to operate the hatchery and the Confederated Tribes of the Umatilla Indian Reservation to operate acclimation facilities supporting the hatchery. The available water supply at the hatchery never met expected production levels, and water supply has continued to deteriorate over time. To preserve and improve fish production at the hatchery, Bonneville is exploring options to address the water supply issue and is in the early evaluation phase. It appears costs will exceed the statutory threshold of $2.5 million and have an estimated life of 15 years or more, thus triggering the need to obtain expenditure authority from Congress, prior to commencing construction, as required by 16 U.S.C. 839b(h)(10)(B), as amended by Section 307 of the FY 2012 Consolidated Appropriations Act, P.L. 112–74 125 STAT. 877. (Dec. 23, 2011). Congress originally authorized Bonneville expenditure authority for construction of the Umatilla Hatchery under P.L. 98-360, 98 STAT. 403, 415 (July 16, 1984).).

UmaBirch Conservation Easement Project:

Fish and wildlife mitigation and ecology restoration is proposed for the UmaBirch Conservation Easement. The easement includes 774 acres for fish and wildlife mitigation and ecological restoration. Bonneville is currently working with the Confederated Tribes of the Umatilla Reservation to design a stream and floodplain restoration in the area. The majority of the instream and floodplain improvements would occur at

the confluence of the Umatilla River and Birch Creek (Project Area 2) to benefit multiple life stages of salmonids and lamprey. Actions likely would include added complexity for 1 mile of the Umatilla River and 0.3 miles of Birch Creek; removal of 1.3 miles of agricultural berms and removal of 0.3 miles of Corps levee; reconnection of tens of acres (exact acreage TBD) of floodplain rearing habitat; and the restoration of over 100 acres of riparian vegetation. The project would help implement the proposed action consulted upon in the 2020 BiOp and the project sponsor, the Confederated Tribes of the Umatilla Indian Reservation, has designated the project a high priority due to linkages with the Umatilla Habitat Program Objectives and Umatilla River Vision. This project requires the environmental compliance process be complete, which may impact implementation timeframes; the project is currently expected to start construction in FY 2024.

New construction-related habitat restoration projects that require capital funds in FY 2023 include the following:

Svensen Island:

The Svensen Island Restoration Project would reconnect the 320-acre island, east of Astoria, Oregon, directly to the mainstream Columbia River to increase ecological function and provide refuge and rearing capacity for out-migrating juvenile salmon and steelhead. Specifically, the project would remove and lower approximately 1.5 miles of existing levee and remove approximately 100 pile dikes on the northern side of the island to provide unobstructed access to 40 acres of re-connected and newly excavated floodplain and tributary habitats for salmonids and lamprey. The Columbia Restoration Group is leading the project, in partnership with the Columbia Land Trust. This estuary project ranks high on the list of priorities in the estuary and will help to meet the proposed action consulted upon in the 2020 BiOp. This project requires the environmental compliance process be complete, which may impact implementation timeframes; the project is currently expected to start construction in FY 2023.

Catherine Creek/Hall Ranch:

This project is intended to improve off-channel rearing habitat complexity for Chinook, steelhead, and bull trout by restoring dynamic channel geomorphology and habitat-forming processes in Catherine Creek and Milk Creek. It would improve floodplain connectivity through removal and relocation of 1 mile of Washington State Route 203 and re-connecting 50 acres of the historic Catherine Creek floodplain and channel network. The Request is for a project-funding match of $3,294,616 from Bonneville against additional project investment from other Federal and state partners, for a total projected project cost of $5,994,616. This project has multiple coordination points and requires the environmental compliance process be complete, which may impact implementation timeframes; the project is currently expected to start construction in FY 2023.

The Further Consolidated Appropriations Act, 2019 (Public Law 116-94) provided expenditure authority for the following project:

Steigerwald Project:

The Steigerwald Floodplain Restoration Project is a collaborative project that will reconfigure the Port of Camas-Washougal's (Port's) existing Columbia River levee system to reduce flood risk, reconnect 960 acres of Columbia River floodplain, and increase ecological function at the Steigerwald Lake National Wildlife Refuge. Specifically, the project will construct 1.6 miles of setback levee, completely remove 2.2 miles of existing levee, provide unobstructed access to floodplain and tributary habitats for salmonids and lamprey, and greatly reduce flood risk to the Port's Industrial Park and City of Washougal's wastewater treatment plant, which serves 15,000 residents. Bonneville is working with the lower Columbia Estuary Partnership, which is leading the project. The project will provide seven survival benefit units (~15 percent of the Action Agencies' total goal in the estuary). Other partners include the Port, USFWS, Washington State Department of Transportation, City of Washougal, and several private landowners. Capital construction began in FY 2020 and will last three years.

The Consolidated Appropriations Act, 2016 (Public Law 114-113) provided expenditure authority for the following projects:

Shoshone Paiute Trout Hatchery:

The Shoshone Paiute Tribes of the Duck Valley Reservation, Idaho, have proposed that Bonneville fund the purchase or construction of a trout hatchery. The Tribes would own and operate the hatchery to produce trout to stock the Duck Valley Reservation reservoirs. The hatchery would meet contemporary aquaculture standards and achieve fish production goals. The Tribes believe they can reduce Federal reservoir stocking costs, some of which Bonneville currently pays on an annual basis. Design for the project has not begun and the expected start date is yet to be determined.

The FY 2014 Omnibus Appropriations Act (Public Law No. 113-76) provided expenditure authority for the following projects:

John Day Reprogramming and Construction:

The Columbia River Inter-Tribal Fish Commission (CRITFC) has proposed this project to balance the upriver and downriver salmon hatchery production mitigating for the effects of John Day and The Dalles dams within the Zone 6 area in the mainstream Columbia River, from the base of McNary Dam downstream to The Dalles Dam. The Tribes, Corps, and Bonneville have proposed to site the project at Prosser Hatchery. Bonneville would fund the construction of four circular tanks utilizing water reuse systems and the Corps would take over the operations and maintenance for the new infrastructure, which accommodates the reprogramming of hatchery fish. The project began design in FY 2022.

Columbia River Basin White Sturgeon Hatchery:

This project, proposed by the CRITFC, would mitigate for the decline of the white sturgeon population caused by consistently poor recruitment upstream of Bonneville Dam. Bonneville would fund the construction of a new facility, or the acquisition of an existing facility, to produce 15,000-30,000 yearling white sturgeon per year. The final project may include the collection, holding and spawning of broodstock, the rearing of wild-spawned juveniles, and the acclimation of juveniles prior to release. The site of the Yakama Nation's existing Marion Drain Sturgeon Hatchery near Toppenish, Washington, has been proposed as a location. The project team is working on additional analyses to respond to Council comments and to begin the environmental review process. Design for the project has not begun and the expected start date has yet to be determined.

Kelt Reconditioning and Reproductive Success Evaluation Research:

CRITFC is proposing a facility to recondition female steelhead (kelts) after they have spawned. The fish will be held and fed until they have re-matured and then be released into the Snake River where they will contribute to the spawning run. The capital portion of the project is expected to be constructed in the Snake River Basin, at the Nez Perce Tribal Hatchery in Idaho. Pursuant to the 2008 FCRPS BiOp and Supplemental FCRPS BiOps issued in 2010 and 2014, and consistent with the proposed action consulted upon in the 2020 CRS BiOp, Bonneville will implement the kelt reconditioning plan to improve the productivity of Snake River basin B-run steelhead populations that are listed for protection under the ESA. NOAA's analysis of prospective actions indicates that a combination of transportation, kelt reconditioning, and in-stream passage improvements (e.g., spill-flow modifications) could increase kelt returns enough to achieve a targeted 6 percent increase in the number of returning Snake River B-run steelhead spawners to Lower Granite Dam. Construction is expected to start in FY 2023.

Ongoing projects (expenditure authority previously received):

Klickitat Production Expansion:

In 2008, the Klickitat River Master Plan was submitted by the Yakama Nation, reviewed by the ISRP, recommended with comments by the NPCC, and conditionally approved by Bonneville. The plan's original

goals were to protect and increase naturally producing populations of spring Chinook and steelhead, localize brood collection of harvest stocks (fall Chinook and coho), while protecting the biological integrity and the genetic diversity of indigenous fish stocks in the sub-basin. A component of the master plan was implemented in 2009, including the completion of upgrades to Lyle Falls Fishway and Castile Falls Fishway, and the construction of a new bridge at the Klickitat Hatchery. In July 2009, a new Klickitat Hatchery Complex EIS was initiated to examine options for the development and operation of new production and supplementation facilities, acclimation alternatives, and additional upgrades to the existing hatchery facility. The Yakama Nation issued a revised master plan in July, 2012, that provided updates to its fish management plans. Bonneville suspended the NEPA process while the Yakama Nation refined its proposal in response to site and budgetary limitations and comments on the draft EIS.

Since that time, the National Marine Fisheries Service (NMFS) has completed its Mitchell Act EIS and BiOp, helping inform its funding responsibilities in the sub-basin. Bonneville negotiated a new scope of work with the Yakama Nation, and a revised Master Plan was submitted to the NPCC in 2017 and approved in 2018. The new scope of work targets design and construction activities for the expansion of the current spring Chinook program only, from 600,000 to 800,000 smolt, and converting to a wild broodstock collection program, as well as general water supply and water abatement upgrades. Construction will occur after Bonneville completes its environmental compliance and alongside a three-way operations and maintenance agreement which affirms that NMFS will remain responsible for providing funding post-construction. Project design was initiated in summer of 2021.

Mid-Columbia Coho Restoration:

This Yakama Accord project is intended to re-establish naturally reproducing coho salmon populations in the Wenatchee River and Methow River sub-basins at biologically sustainable levels that also provide significant harvests. This program will construct a facility on the Wenatchee River for holding and spawning broodstock, incubating eggs, and rearing juveniles. Additional semi-natural ponds will also be constructed in the Wenatchee and Methow sub-basins for acclimating smolts prior to their release. The phased approach, including associated facilities, incorporates development of a mid-Columbia hatchery broodstock, local adaptation to tributaries in the Wenatchee and Methow Basins, and habitat restoration that will benefit coho as well as ESA-listed spring Chinook, steelhead, and bull trout.

Potential non-construction capital wildlife and resident fish habitat acquisitions (including conservation easements) eligible for capitalization are:

- Albeni Falls Wildlife Mitigation
- Willamette Wildlife Habitat Acquisitions
- Libby and Hungry Horse Reservoirs Resident Fish Acquisitions
- Southern Idaho Habitat Acquisitions

Power Services – Capital: Activities, Milestones and Explanation of Changes ($K)

FY 2023 Estimate	FY 2024 Estimate	Explanation of Changes FY 2024 vs FY 2023 Estimate
Power Services – Capital $324,260	**$311,335**	**$-12,925/-4.0%**
Associated Projects $281,260	**$270,000**	**$-11,260/-4.0%**
Milestones: Complete control room fire protection upgrades at Bonneville Dam. Complete emergency gantry crane replacement, SQ board replacement and trash rack crane replacement at John Day Dam. Complete fish unit breaker replacement and gate repair pit upgrades at The Dalles Dam. Complete spillway gate rehabilitation at Detroit, intake gantry crane at Dexter and Oil Water Separator at Foster. Complete powerhouse gantry crane rehabilitation at Libby Dam. Complete intake gantry crane rehabilitation at Chief Joseph Dam. Complete RO valve upgrade at Dworshak Dam. Complete tailrace gantry crane 4 replacement at McNary Dam. Complete intake gantry crane controls upgrade at Ice Harbor Dam. Complete powerhouse roof replacement at Little Goose Dam. Complete iso-phase bus and housing upgrade at Lower Granite Dam. Complete iso-phase bus upgrades at Lower Monumental Dam. Complete P1-P6 coaster gate replacement at Keys Pump Generating Plant.	Milestones: Complete emergency gantry crane rehabilitation at The Dalles Dam. Complete butterfly valves and spillway gates at Cougar Dam. Complete main unit transformers installation at Albeni Falls Dam. Complete DC boards and breakers system replacement at Libby Dam. Complete Unit 5 rotor frame and bracket repair at Little Goose Dam. Complete DC system and LV switchgear upgrade, trashrake crane and rake upgrade and main unit 2 blade sleeve upgrade and rehabilitation at Lower Granite Dam. Complete trash rake crane and rake upgrades at Lower Monumental Dam. Complete LPH/RPH bridge crane replacement and station service compressed air system replacement at Grand Coulee Dam. Complete hollow jet valve replacement at Palisades Dam. Complete station service turbine rehab at McNary. Complete DC boards and breakers system replacement at Libby. Complete system control console replacement at Libby.	The decrease reflects additional work efforts while continuing to align with Bonneville's strategic asset management plans.

FY 2023 Estimate	FY 2024 Estimate	Explanation of Changes FY 2024 vs FY 2023 Estimate
Complete SCADA replacement and main unit transformer fire protection system replacement at Hungry Horse Dam. Complete switchyard modernization at Palisades Dam. Complete switchyard rehabilitation and breaker upgrade at Roza Dam. Complete microwave system backbone modernization at Minidoka Dam.		
Fish & Wildlife $43,000	**$41,335**	**$-1,665/-3.9%**
Milestones: Continue implementation of the Program, BiOps and applicable Fish Accord extensions.	Milestones: Continue implementation of the Program, BiOps and applicable Fish Accord extensions.	Fish & Wildlife will continue long-term, planned effort to reshape funding necessary to implement the BiOps, applicable Fish Accord extensions, Columbia River Basin fish and wildlife activities.

Transmission Services – Capital

Funding Schedule by Activity

Funding ($K)

Transmission Services - Capital	FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate	FY 2024 vs FY 2023 $	FY 2024 vs FY 2023 %
Main Grid	$ 8,611	$ 6,219	$ 38,285	$ 32,066	515.6%
Area & Customer Services	$ 47,768	$ 71,520	$ 38,285	$ (33,235)	-46.5%
Upgrades & Additions	$ 81,931	$ 113,430	$ 151,074	$ 37,644	33.2%
System Replacements	$ 316,041	$ 305,991	$ 366,197	$ 60,206	19.7%
Projects Funded in Advance	$ 34,771	$ 61,166	$ 45,924	$ (15,242)	-24.9%
Environmental Capital	$ 7,978				
Total, Transmission Services - Capital	**$ 497,100**	**$ 558,327**	**$ 639,764**	**$ 81,437**	**14.6%**

Outyears ($K)

Transmission Services - Capital	FY 2024 Estimate	FY 2025 Estimate	FY 2026 Estimate	FY 2027 Estimate	FY 2028 Estimate
Main Grid	$ 38,285	$ 38,521	$ 40,318	$ 35,963	$ 27,669
Area & Customer Services	$ 38,285	$ 44,024	$ 39,625	$ 45,183	$ 51,657
Upgrades & Additions	$ 151,074	$ 146,503	$ 100,826	$ 54,415	$ 58,084
System Replacements	$ 366,197	$ 351,960	$ 375,128	$ 401,618	$ 408,621
Projects Funded in Advance	$ 45,924	$ 55,007	$ 53,073	$ 53,907	$ 54,751
Revenue Financing					
Total, Transmission Services - Capital	**$ 639,764**	**$ 636,016**	**$ 608,970**	**$ 591,087**	**$ 600,783**

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Transmission Services – Capital

Overview

Transmission Services is responsible for about 75 percent of the Pacific Northwest's high-voltage transmission. Transmission Services provides funding for all additions and upgrades ("expand" investments), and replacements ("sustain" investments) to the Bonneville transmission system, resulting in reliable service to Northwest generators and transmission customers. The Bonneville transmission system also facilitates the delivery of power under sales and exchange agreements to and from the Pacific Northwest Region. The Transmission Services Capital Program is structured with a balanced focus on expand and sustain investments.

In addition to replacing aging and obsolete equipment, Transmission Services continues to make significant infrastructure improvements and additions to the system to assure continued reliable transmission in the Northwest. These improvements and additions will help the Bonneville transmission system continue to comply with national reliability standards and remove constraints that limit economic trade or the ability to maintain the system. Some of the proposed Transmission Services projects may be funded through Bonneville lease-purchase agreements. The lease-purchases obligate Bonneville to make expenditures to acquire the use of the related facilities and are identified on an as-needed basis. Bonneville may also make related expenditures to facilitate lease-purchase opportunities.

Strategic Asset Management

Transmission Services' efforts are coordinated through Bonneville's Strategic Asset Management Plan (SAMP) development. Based on strategic goals, Transmission Services implements integrated, detailed asset plans to guide the following activities:

1. Improvements to system adequacy, reliability, and availability. These projects address multiple challenges, such as integration of renewable energy, the need to relieve a number of congested transmission paths, the challenge to keep up with growing energy demands, and the need to meet changing regulatory and customer requirements.
2. An open access policy in support of competitive markets for load and generation.
3. Replacement of aging assets, which is vital to the reliability of the existing transmission system. To that end, Transmission Services has developed specific long-term strategies for the following asset categories:
    a. Substations AC
    b. Power system control/system telecommunications
    c. Wood lines
    d. Steel lines
    e. Rights-of-way (ROW), (land rights, access roads, and vegetation management)
    f. System protection and control
    g. Control centers
    h. Non-electric facilities

The following external factors present the strongest impact to overall achievement of Transmission Services' strategic goals:

- Continually changing economic and institutional conditions
- Competitive dynamics
- Ongoing regulatory and technology changes in the electric industry
- Siting issues

The following text discusses "Expand" or expansion investments first, following by "Sustain" or replacement investments.

Expand Investments

Expand (or expansion) investments continue to make significant infrastructure improvements and additions to the Bonneville transmission system to assure reliable transmission operations in the Northwest and fall into two categories:

1. Internally driven expansion requests, which are derived from system engineering studies, technology innovation research, system operations and maintenance functions, and system event analysis.
2. Externally driven expansion Investment requests, which are derived from governmental initiatives and regulations, consumer demand, and the integration of customer load service and generation needs.

These investments are further categorized into:

1. **Main Grid** – System investments affecting the major interties or internal paths and flowgates that transfer bulk power across the system.
2. **Area & Customer Service** – System investments related to geographical load service areas.
3. **Upgrades & Additions** – Upgrades are system investments that replace existing assets to increase capacity, reliability, or functionality, while additions are net new assets added to the system.
4. **Projects Funded in Advance (PFIA)** – System investments that are requested, and funded in advance, by customers.

Congressionally-approved Production Tax Credits (PTC) for renewable energy were enacted in 2005, and were to phase out beginning in 2023. The Inflation Reduction Act (IRA), enacted by President Biden on August 16, 2022, substantially changes and expands existing Federal income tax benefits for renewable energy, including extending the Wind PTC through 2033. The incentives created by these credits, along with Renewable Portfolio Standards (RPS) mandates implemented by the states of Oregon, Washington, and California, have spurred a large number of renewable projects interconnection requests to the Bonneville transmission system grid. As of September 30, 2022, Bonneville had interconnected between 8,000 and 8,583 MW of renewable qualified generation projects. Bonneville has more than 60,000 MW in additional renewable (wind, solar, biomass, geothermal, etc.) interconnection requests still remaining in the study queue. Solar project interconnection requests are currently making up the majority of the new requests in Bonneville's queue. The current projections are possibly 11,000 MW of renewable generation projects interconnected by 2026. Much of the remaining generation project transmission demand is the result of the RPS and other legislation enacted by Oregon and Washington that require retail utilities to acquire more than 8,000 MW of renewable energy in the Northwest by 2025, some of which will connect to Bonneville. Exports of power from the Northwest to California are currently limited by California laws to 2,000-2,500 MW. If California chooses to allow more exports from the Northwest, the exports will be limited to about 6,000 MW by the ratings of the physical infrastructure between the Northwest and California. Bonneville could possibly expect another 1,000 to 2,000 MW to connect to our system in that event. Also in the Bonneville transmission interconnection request queue is approximately 2,500 MW of natural gas-fired generation. Efficiency improvements to the FCRPS hydro units that qualify as renewable are also proposed between 2023 and 2024.

In June 2008, Bonneville's first Network Open Season (NOS) received 153 requests from 28 customers for 6,410 MW of new service, about three-fourths for wind energy integration. Bonneville subsequently offered 1,782 MW of new transmission service on its existing system. Bonneville identified four new Main Grid capital projects from the 2008 NOS: (1) McNary-John Day 500 kV transmission line (part of West of McNary Reinforcements Group 1); (2) Big Eddy-Knight 500 kV transmission line and substation (part of West of McNary Reinforcements Group 2); (3) Central Ferry- Lower Monumental 500 kV Reinforcement (formerly Little Goose

Area Reinforcement); and (4) I-5 Corridor 500 kV Reinforcement. Construction of the McNary-John Day 500 kV transmission line is complete and Bonneville has completed construction of the Big Eddy-Knight project and the Central Ferry-Lower Monumental 500 kV Reinforcement project. On May 18, 2017, Bonneville announced its decision to not build the I-5 Corridor Reinforcement Project. Bonneville continues to work with constituents and stakeholders to study more cost-effective options to mitigate the current limitations along this path. Public meetings began in July 2017 to address alternatives to building. An update to Bonneville's Available Transfer Capability (ATC) methodology increased the available transmission service on the Westside paths by a few hundred megawatts. Other alternatives, such as energy storage devices, are still being evaluated.

Bonneville's 2009, 2010, 2013, 2016, 2019, 2020, 2021 and 2022 study processes for new Transmission Service Requests (TSR) total 38,397 MW, including approximately 12,600 MW of wind project interconnection and 12,800 MW of solar project interconnection. The 2010 study process identified the Montana to Washington project, for which environmental review was begun, however, the original requests to support this project have been subsequently withdrawn and so all work on the project was terminated. Subsequent TSRs also require this project, and Bonneville is now undertaking preliminary engineering activities on it again to move wind generation in Montana to the Northwest. The 2016 and 2019 study processes re-identified the Montana-to-Washington and Garrison-to-Ashe projects to move new wind generation in Montana to the Northwest. Requests to support the Garrison-to-Ashe project have subsequently been withdrawn as that project was terminated.

The 2013 study process identified upgrades to the Monroe-Novelty Hill 230-kV transmission line which were re-identified for additional new requests in the 2016 study process. The 2016 study process identified network upgrades in Central Oregon, Walla Walla, Washington, and across the Raver-Paul flowgate. The 2019 study process identified additional reinforcements across the Raver-Paul flowgate, the same Central Oregon and Walla Walla projects, and some significant impacts to third parties, specifically Portland General Electric and Puget Sound Energy. The 2020 study process identified an additional Schultz-Raver Series Capacitor project. The 2021 study process identified major reinforcements to transfer more power to the loads on the Olympic peninsula. The 2022 study identified massive upgrades in central Oregon and the southern Oregon coast, along with moderate reinforcements of both the Cross Cascades North and Cross Cascades South paths, as well as more modest upgrades of the Raver-Paul, South of Allston, and South of Knight paths. Efforts are currently underway to provide required studies capacity to requesting customers.

Sustain Investments

Sustain investments are made to maintain the health of the existing infrastructure to assure reliable transmission in the Pacific Northwest. These investments enable continued compliance with national reliability standards, replace aging and obsolete equipment, and remove constraints that limit economic trade or the ability to maintain the transmission system.

In 2009, Bonneville Transmission Services began implementing best practice frameworks that provide a standardized structure and approach to asset management. As a result, Transmission Services' asset management strategies, derived from the agency's strategic plan, drive Bonneville's asset plans, which determine its capital and expense investment priorities. Sustain investments are forecasted, prioritized within asset programs, and optimized across the asset base for asset planning and approval. Bonneville now bundles both sustain and expand capital projects in an effort to improve execution and to lower risks and costs. Transmission Services' capital program does remain somewhat fluid and subject to changes as the complexity of the transmission system produces unexpected needs resulting from equipment failure, climate/weather incidents, changes in performance and/or operation of connected systems, outage schedules and conflicts, updated regulations, customer interconnection requests, etc. For these and other reasons, specificity with sustain investments in the transmission system is somewhat limited.

Transmission Services' sustain program asset programs include:

1. Steel Lines – Transmission lines with steel structures including footings, insulators assemblies, vibration dampers, grounding systems, conductor, ground wire.
2. Wood Lines – Transmission lines with wood structures including cross arm systems, insulator assemblies, vibration dampers, grounding systems, conductor, ground wire.
3. Rights-of-Way – Real property including land parcels, easements, use right, access roads.
4. AC Substations – Substations managing AC current including transformers, reactors, shunt capacitors, power circuit breakers, circuit switchers, series capacitors, disconnect switches.
5. Power System Controls and System Telecommunications – Control and communication equipment including SCADA, transfer trips, fiber, communications, SONET, Telephone, RAS.
6. System Protection and Control – Control equipment including relays, control houses, meters.
7. DC Substations – Celilo DC converter station, static VAR compensators, DC control systems.
8. Control Centers – Various control equipment and software.
9. Tools and Equipment Acquisition Program (TEAP) –Tools, equipment, fleet.
10. Facilities – Non-electric facilities including warehouses, operational structures, hangar, and maintenance centers.

In 2019, Transmission Services began an effort to determine the "Criticality, Health and Risk" (CHR) of major assets within the system. While all assets have not been analyzed through this effort as of yet, most of the major substations and lines have been assessed. The resulting information (the CHR score) is used to prioritize work on the system for all sustain work. Expand work is also routed to the sustain asset managers to determine if there is any sustain work that should be bundled with the expand work based upon the CHR score. The bundling of expand and sustain work began in 2014 to increase efficiencies of the crews on site and minimize the overlap of projects on the same site.

Given the recent disasters in California involving transmission and distribution lines being identified as the root cause of many wildfires, Bonneville has begun assessing its transmission facilities for wildfire risks. This is an ongoing effort that began three years ago and continues to mature. During the dry hot summer periods Bonneville has proactively de-energized transmission lines to mitigate the risk of fire hazards to our customers and the region. Bonneville is continually looking to upgrade its forecasting and wildfire risk analysis tools and capabilities, as well as identify and implement other preventive steps to mitigate the risk of wildfires.

Notwithstanding that the capital program for Transmission Services is subject to change, Bonneville has identified several general areas where capital investments will occur.

Bonneville will continue to fund fiber optic communications facilities needed to meet Bonneville's projected operational needs. To the extent that these investments create temporary periods of excess fiber optic capacity, such fiber capacity can be made available to telecommunications providers and to non-profits to meet public benefit internet access needs for rural areas and other needs in Bonneville's service area. Bonneville's investments in fiber optics, including the role of the private sector in building fiber optic networks, is consistent with the "Fiber Optic Cable Plan" submitted to Congress on May 24, 2000, accompanying the FY 2000 Energy and Water Development Appropriations Act. In accordance with this plan, when possible, Bonneville will establish partnerships with fiber optic facility and service providers to meet its needs.

In December 2004, Congress passed and the President signed the Commercial Spectrum Enhancement Act (CSEA, Title II of P.L. 108-494), creating the Spectrum Relocation Fund (SRF) to streamline the relocation of Federal systems from certain spectrum bands to accommodate commercial use by facilitating reimbursement of relocation costs to affected agencies. The Federal Communications Commission (FCC) has auctioned licenses for reallocated Federal spectrum, which will facilitate the provision of Advanced Wireless Services (AWS) to consumers. Funds were made available to agencies in FY 2007 for relocation of communications systems

operating on the affected spectrum. These funds are mandatory and will remain available until expended, and agencies will return to the SRF any amounts received in excess of actual relocation costs. The estimated Bonneville cost of this relocation was $48.7 million. The project was completed in November 2013 with a cost of approximately $40 million and the operational system performance was being observed during FY 2014 and early FY 2015 to determine that it has achieved comparable capability as defined under the CSEA. Bonneville determined in December 2014 that comparable capability had been achieved.

Bonneville began participating in a new spectrum relocation effort in FY 2015. The NTIA has approved and, in July 2014, web-posted Federal agency relocation plans, including the Bonneville relocation plan. The FCC held an auction of this spectrum on November 13, 2014. Bonneville received an additional $5.2 million from the SRF on July 29, 2015, to fully pay for this new relocation effort, including, as in the prior relocation, the purchase and installation of new digital radio equipment.

As part of the Homeland Security Presidential Directives, Bonneville has completed a physical security assessment of all critical facilities and is implementing security enhancements at these facilities. These security enhancements increase controlled access to Bonneville's facilities and provide video surveillance and monitoring capabilities.

Accomplishments

Transmission Services – Capital expenditures over the past fiscal year resulted in the following:

- Both BP-22 Draft ROD and Terms and Conditions (TC-22) were issued in June 2021 and the final ROD was issued in late July.
- Integrated 6524.66 MW of renewable energy through September 2022 on Bonneville's transmission system.
- Completed the addition of a 500 kV transformer for wind hubs at John Day and Central Ferry Subs.
- Completed the Bonneville-Hood River line upgrade.
- Completed the Lane-Wend -1: rebuild Lane to Walt section.
- Completed the Mone line relay replacement and re-termination of Bays 4 and 5 project.
- Completed the replacement of Raver Reactor Banks 3 and 4.
- Completed the security enhancements at BELL substation and maintenance yards
- Completed the addition of a new 230kV transformer, breaker and disconnects at Longview substation.
- Completed 5 Grid Mod projects, with 12 in construction, 1 in design, 2 Approved, 1 in draft and 11 in scoping and under development.
- Completed Morrow Flats UEC Phase 2 L0389.
- Completed Holcomb Naselle 1 line rebuild.
- Completed Ostrander and Malin substation security enhancements.
- Completed the PSANI project capital work in the Seattle area.
- Completed replacement of dilapidated control houses at Holcomb and Kerr. Richland, Warren and Wendson are under construction and Kitsap, Pendleton, Troy, Cosmopolis, and NaSelle will be the next group started.
- Completed the installation of new reactor at Fairview Substation
- Completed the installation of new transformers at Anaconda and Dixon and retired Silver Bow Substation. Sold Anaconda Substation and related facilities to Northwestern Energy.
- Added new 4th bay at Morrow Flats. New reactor to be installed in spring 2023 along with another reactor at Jones Canyon.
- Completed 230kV breaker replacement and addition at Tacoma Substation.
- Completed L0389 phase 2 for UEC new Industrial load.

- Completed four Grid Mod Metering installations through FY 2022. Anticipate completing six more by FY 2025.
- Completed Sonet Ring for Bell Boundary.
- Completed Holcomb Naselle Wood Line rebuild.
- Completed Avangrids Montague Solar and Wind interconnection.
- Completed addition of a single 500kV transformer at Slatt for wind projects.
- Began design of Big Eddy-Ostrander-1 2.5" steel conductor replacement.

Explanation of Changes

Bonneville's Budget includes $639.7 million in FY 2024 for Transmission Services capital needs, which is a 14.6 percent increase from the FY 2023 forecasted level. The FY 2024 Budget increases the levels for Main Grid ($32.0 million), Upgrades & Additions ($37.6 million), and System Replacements ($60.2 million), but decreases the levels for Area & Customer Services ($33.2 million) and PFIA ($15.2 million).

The following pages discuss budget specifics under the five Transmission Services subcategories noted above: Main Grid, Area & Customer Services, Upgrades & Additions, System Replacements, and Projects Funded in Advance.

Main Grid

Overview

Bonneville's strategic objectives for Main Grid projects are to assure compliance with the NERC and WECC reliability criteria, provide voltage support, provide a reliable transmission system for open access, and provide for relief of transmission system congestion. During this budgeting period, projects are planned that will provide transmission reinforcement and voltage support to major load areas that are primarily west of the Cascade Mountains.

Main Grid
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$8,611	$ 6,219	$38,285

Continued investments in Main Grid assets include the following projects. Some of these projects require that the environmental compliance process be complete, which may impact implementation timeframes.

Schultz-Wautoma 500KV Series Capacitors:

- FY 2022. Begin construction.
- FY 2023. Continue construction.
- FY 2024. Complete construction.

Montana-Washington:

- FY 2022. Begin design of TSEP Montana to Washington Project.
- FY 2023. Complete design, begin construction.
- FY 2024. Continue construction.

Continue Planning Studies *(all years):*

- Identify infrastructure additions.
- Identify projects driven by NERC and WECC reliability criteria.
- Identify system reactive needs to mitigate unacceptable low or high voltage problems and other system additions.
- Relieve transmission system congestion and integrate new generation facilities.

Area & Customer Service

Overview

Bonneville's strategic objective for Area and Customer Service projects is to assure that Bonneville meets reliability standards and contractual obligations to its load service areas.

Area & Customer Service
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$47,768	$71,520	$38,285

Continued investments in Area & Customer Service assets include the following projects. Some of these projects require that the environmental compliance process be complete, which may impact implementation timeframes.

Midway Grandview Line Upgrade:

- FY 2022. Project is complete.
- FY 2023. No planned capital projects.
- FY 2024. No planned capital projects.

Whistling Ridge 230kV Ring Buss Substation:

- FY 2023 Begin Scoping
- FY 2024 Begin Design

Big Eddy Breaker Additions

- FY 2022. No planned capital projects.
- FY 2023. No planned capital projects.
- FY 2024 No planned capital projects.

Midway –Ashe Double Circuit 230kV Line:

- FY 2022. Finalize design and begin construction.
- FY 2023. Continue construction.
- FY 2024. Continue construction.

Carlton Substation Upgrade:

- FY 2022. Begin construction.
- FY 2023. Complete construction.
- FY 2024. No planned capital projects.

Conkelley Substation Retirement:

- FY 2022. Begin construction.
- FY 2023. Continue construction.
- FY 2024. Continue construction.

South Tri-Cities Reinforcement:

- FY 2022. Begin design.
- FY 2023. Begin construction.
- FY 2024. Continue construction.

LaPine Substation Upgrade TSEP – 2016:

- FY 2022. Begin design.
- FY 2023. Begin construction.
- FY 2024. Continue construction.

Longview Transformer Addition:

- FY 2022. Continue construction.
- FY 2023. Complete construction.
- FY2024. No new capital projects planned.

Continuous Activities (*all years*):

- Continue preliminary engineering and design for miscellaneous facilities required to meet contractual obligations and maintain reliable service for Bonneville's service area.

Upgrades & Additions

Overview

Bonneville's strategic objectives for Upgrades & Additions are to replace older 60 Hertz (Hz) communications and controls with newer technology, including fiber optics, to maintain or enhance the capabilities of the transmission system, to implement special remedial action control schemes to accommodate new generation and mitigate immediate operational and market-constrained paths, and to support communications and remedial action schemes, among other proposals.

Upgrades & Additions
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$81,931	$113,430	$151,074

During this Budget period, Bonneville will complete design, material acquisition, construction, and activation of several fiber optics facilities to provide bandwidth capacity and high-speed data transfers to eventually replace microwave analog radios, which are technologically obsolete and nearing the end of their useful life. Temporarily, in some areas, excess fiber capacity is being offered for a term to telecommunications providers or to public entities such as public utilities, schools, libraries, and hospitals, providing them access to high-speed telecommunication services as a public benefit.

Continued investments in Upgrades & Additions assets include the following projects. Some of these projects require that the environmental compliance process be complete, which may impact implementation timeframes.

VHF Radio System Upgrade:

- FY 2021. Complete construction.
- FY 2022. No planned capital projects.
- FY 2023. No planned capital projects.
- FY 2024. No planned capital projects.

Vancouver Control Center (VCC):

- FY 2022. Complete design.
- FY 2023. Begin demolition of North Ampere building.
- FY 2024. Begin construction of VCC building.

500 kV Spares at Wind Integration Substations:

- FY 2022. Continue construction
- FY 2023. Continue construction.
- FY 2024. Complete construction.

Ross Station Service Upgrade:

- FY 2022: Finish design.
- FY 2023: Begin and complete construction

Continuous Activities (*all years*):

- Upgrading two miles of fiber between Bonneville Power House and Bonneville Control House.

- Planning, design, material acquisition, and construction of special remedial action control schemes required for interconnecting new generation projects and mitigating immediate constrained paths.
- Planning, design, material acquisition, and construction of various system additions and upgrades necessary to maintain a reliable system for Bonneville's service area.
- Construction of secondary fiber related projects and digital radio system upgrades to improve the operational telecommunication system.
- Material procurement and construction to upgrade the main fiber optic backbone system (#KC and #NC systems).

System Replacements

Overview

Bonneville's strategic objectives for the Sustain Program are to replace high-risk, obsolete, and maintenance-intensive facilities and equipment and to reduce the chance of equipment failure by: (1) replacing high voltage transformers and power circuit breakers which are at or near the end of their useful life; (2) replacing risky, outdated and obsolete control and communications equipment and systems, including mandated replacements due to legislation; and (3) replacing all other existing high-risk equipment and facilities affecting the safety and reliability of the transmission system. Transmission Services uses a total economic cost model to determine priorities for replacement.

System Replacements
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$316,041	$305,991	$366,197

Continued investments in System Replacements assets include the following.

Non-Electric Replacements:

- Continue non-electric replacements as necessary.
- Continue the design, material acquisition, and construction for the access road program capital component and the Land Rights program capital component in support of the Lines and ROW Programs.
- Continue design and construction of capital improvements for identified existing facilities.
- Continue replacement of tools, equipment, and vehicle fleet.
- Replaced a Bonneville fixed-wing aircraft with a new helicopter in April, 2022 utilizing General Services Administration (GSA) exchange sale authority.
- Replace four helicopters with four new helicopters utilizing GSA exchange sale authority in FY 2023.
- Replace a fixed-wing aircraft with a new fixed-wing aircraft utilizing GSA exchange sale authority in FY 2024, with procurement starting in FY 2023.

Electric Replacements:

- Continue replacement of system protection and control equipment and other substation and line facilities as needed to maintain reliability using reliability centered maintenance criteria. Such replacements include relays, annunciators, oscillographs, metering, and various types of communication related equipment replacing and migrating analog to digital technology and SCADA equipment.
- Begin replacement of Big Eddy-Ostrander-1 2.5" steel in FY 2023.
- Continue replacement of under-rated and high maintenance substation equipment.
- Continue replacing insulators and refurbishing foundations on 500 kV Lines.
- Continue replacement of older generations of digital equipment that is obsolete.
- Continue replacing critical, operational tools and business systems at the Dittmer and Munro Control Centers.
- Continue replacing deteriorating wood pole transmission line structures, spacer dampers, and insulators.

Projects Funded in Advance

Overview

The PFIA subcategory includes those facilities and/or equipment where Bonneville retains control or ownership but which are funded or financed by a third party, revenue, or with reserves, either in total or in part.

Projects Funded in Advance
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$ 34,771	$61,166	$45,924

Continued investments in PFIA assets include the following projects. Some of these projects require that the environmental compliance process be complete, which may impact implementation timeframes.

Umatilla Electrical Cooperative - Phase 2:

- FY 2022. No planned capital projects.
- FY 2023. No planned capital projects.
- FY 2024. No planned capital projects.

Bakeoven Wind Project:

- FY 2022. Begin project construction.
- FY 2023. Continue construction.
- FY 2024. Continue construction.

Quenett Creek Load Service Project:

- FY 2022. Start design.
- FY 2023. Begin construction.
- FY 2024. Continue construction at Big Eddy.

PacifiCorps' Ponderosa Project Vitesse:

- FY 2022. No planned capital projects.
- FY 2023. Project completion.
- FY 2024. No planned capital projects.

Midway-Ashe Line Project:

- FY 2022. In design.
- FY 2023. Begin construction.
- FY 2024. Continue construction.

Avangrid Montague 1 Wind Project:

- FY 2022. Complete construction.
- FY 2023. No planned capital projects.
- FY 2024. No planned capital projects.

Morrow Solar Project:

- FY 2022. Project deferred for one year.
- FY 2023. Begin design.

- FY 2024. Begin construction.

NextEra's Ella Butte Wind Project:

- FY 2022. No planned capital projects.
- FY 2023. Begin design.
- FY 2024. Begin construction.

Morrow Flat 230kV Shunt Reactor:

- FY 2022. Begin design.
- FY 2023. Start construction.
- FY 2024. Complete construction.

Jones Canyon 230kV Shunt Reactor:

- FY 2022. Begin design.
- FY 2023. Begin construction.
- FY 2024. Complete construction.

Spar Canyon 230kV Reactor Addition:

- FY 2022. Begin design.
- FY 2023. Begin construction.
- FY 2024. Complete construction.

Whistling Ridge 230 kV Ring Bus Project:

- FY 2022. No planned capital projects.
- FY 2023. Begin Scoping and design.
- FY 2024. Complete design and begin construction.

Badger Canyon 1:

- FY 2022. Begin design.
- FY 2023. Begin construction.
- FY 2024. Continue construction.

Badger Canyon 2:

- FY 2022. Begin design.
- FY 2023. Complete design and begin construction.
- FY 2024. Continue construction.

Invenergy Crider Valley Wind:

- FY 2022. Begin design.
- FY 2023. Begin construction.
- FY 2024. Continue construction.

Boyd Ridge Substation:

- FY 2022. Not started due to shortage of TE staff.
- FY 2023. Begin design.
- FY 2024. Complete design and begin construction.

McNary 230KV section bay addition:

- FY 2022. Begin design.
- FY 2023. Complete design and start construction.
- FY 2024. Continue construction.

Continuous Activity (*all years*):

- Continue to integrate various new generation and line/load projects into Bonneville transmission grid based on requests placed and processed in accordance with transmission tariff.

- Continue planning studies to identify system impacts and needs regarding proposed new generation projects.
- Engineer and begin construction of several large wind generation interconnection substations.

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Transmission Services – Capital: Activities, Milestones and Explanation of Changes ($K)

FY 2023 Estimate	FY 2024 Estimate	Explanation of Changes FY 2024 vs FY 2023 Estimate
Transmission Services – Capital $558,327	**$639,764**	**$81,437/14.6%**
Main Grid $6,219	**$38,285**	**$32,066/515.6%**
Milestones: • Continue construction of Schultz-Wautoma 500KV series capacitors. • Begin design of TSEP Montana-to-Washington Project.	Milestones: • Complete construction of Schultz-Wautoma 500kv series capacitors. • Complete design and begin construction TSEP Montana-to-Washington Project.	The increase reflects additional funding needs for investment in the transmission system assets.
Area & Customer Service $71,520	**$38,285**	**$-33,235/-46.5%**
Milestones: Finalize design and begin construction of Midway-Ashe double circuit 230kV line. Complete construction of Carlton Substation Upgrade. Begin construction of Conkelly Substation retirement. Begin design of south Tri-Cities reinforcement. Continue construction of Longview transformer addition.	Milestones: Continue construction of Midway-Ashe double circuit 230kV line. Begin construction of south Tri-Cities reinforcement.	The decrease in the costs reflects a reshaping of funding needs for investment in the transmission system assets.
Upgrades & Additions $113,430	**$151,074**	**$37,644/33.2%**
Milestones: Complete design and complete demolition of North Ampere building. Complete construction of 500kV Spares at wind integration substations. Finish design and start construction of Ross Station Service upgrade.	Milestones: Continue construction of Vancouver Control Center. Complete construction of Ross Station service upgrade.	The increase reflects additional funding needs for investment in the transmission system assets.
Systems Replacements $305,991	**$366,197**	**$60,206/19.7%**

Transmission Services – Capital: Activities, Milestones and Explanation of Changes ($K)

FY 2023 Estimate	FY 2024 Estimate	Explanation of Changes FY 2024 vs FY 2023 Estimate
Milestones: Replaced a Bonneville fixed-wing aircraft with a new helicopter in April, 2022 utilizing GSA exchange sale authority. Continue non-electric replacements as necessary. Continue the design, material acquisition, and construction for the access road program capital component and the land rights program capital component in support of the lines and ROW programs. Continue design and construction of capital improvements for identified existing facilities. Continue replacement of tools, equipment, and vehicle fleet. Continue replacement of system protection and control equipment and other substation and line facilities as needed to maintain reliability using reliability centered maintenance criteria. Such replacements include relays, annunciators, oscillographs, metering, and various types of communication related equipment replacing and migrating analog to digital technology and SCADA equipment. Replace four helicopters with four new helicopters utilizing GSA exchange sale authority in FY 2023.	Milestones: Continue replacement of under-rated and high maintenance substation equipment. Continue replacing insulators and refurbishing foundations on 500 kV Lines. Continue replacement of older generations of digital equipment that is obsolete. Replace a fixed wing aircraft with a new fixed wing aircraft utilizing GSA exchange sale authority in FY 2024, with procurement starting in FY 2023. Continue replacing critical, operational tools and business systems at the Dittmer and Munro Control Centers. Continue replacing deteriorating wood pole transmission line structures, spacer dampers, and insulators.	The increase reflects additional funding needs for investment in the transmission system assets.
Projects Funded in Advanced $61,166	**$45,924**	**$-15,242/-24.9%**

Transmission Services – Capital: Activities, Milestones and Explanation of Changes ($K)

FY 2023 Estimate	FY 2024 Estimate	Explanation of Changes FY 2024 vs FY 2023 Estimate
Milestone: Start design of Quenett Creek/Big Eddy load service project. Begin construction of Midway-Ashe line project. Scoping and begin design of Morrow solar project. Begin design of Badger Canyon 1 project. No progress in customer negotiation on Crider Valley wind project. Begin scoping of Boyd Ridge Substation.	Milestones: Begin construction of Quenett Creek/Big Eddyload service project. Still in construction of Midway-Ashe line project. Still in design of Morrow solar project. Begin construction of Badger Canyon 1 project. Begin scoping and design of Invenergy Crider Valley wind project. Continue scoping and design of Boyd Ridge Substation.	The decrease in the costs reflects a reshaping of funding needs for investment in the transmission system assets.

Capital Information Technology & Equipment

Funding Schedule by Activity

Funding ($K)

Capital Information Technology (IT) & Equipment	FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate	FY 2024 vs FY 2023 $	FY 2024 vs FY 2023 %
Capital IT & Equipment	$ 16,030	$ 21,047	$ 23,983	$ 2,936	14.0%
Total, Capital IT & Equipment	**$ 16,030**	**$ 21,047**	**$ 23,983**	**$ 2,936**	**14.0%**

Outyears ($K)

Capital Information Technology (IT) & Equipment	FY 2024 Estimate	FY 2025 Estimate	FY 2026 Estimate	FY 2027 Estimate	FY 2028 Estimate
Capital IT & Equipment	$ 23,983	$ 22,830	$ 24,990	$ 23,180	$ 23,970
Total, Capital IT & Equipment	**$ 23,983**	**$ 22,830**	**$ 24,990**	**$ 23,180**	**$ 23,970**

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Capital Information Technology & Equipment

Overview

Capital Information Technology (IT) & Equipment provides for the acquisition of general and some dedicated special purpose capital information technologies, and acquisition of special-use capital and IT equipment in support of Bonneville's strategic objectives. This category also includes Bonneville's on-going efforts to facilitate delivery of a highly resilient organization able to anticipate, withstand, and effectively respond to disruptive events affecting it and its partners in the Northwest region. The four main areas of resiliency focus continue to include asset management, emergency management, crisis management, and continuity of operations.

Capital Information Technology & Equipment
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$16,030	$21,047	$23,983

Bonneville continues to move its IT infrastructure to a more efficient architecture. This FY 2024 Budget supports this effort. IT continues to eliminate redundancies in tools and applications, establish an agency-wide IT enterprise architecture supported by standardized technical architecture, with standardization for IT purchasing criteria, software licensing processes with minimal agency liabilities through stronger contracts, continuous improvement practices for IT project management, and an agency IT portfolio cost management strategy. Other planned investments include acquisition of capital office furniture and equipment, capital automated data processing (ADP)-based administrative telecommunications equipment, ADP equipment (hardware), and support of capital software development for certain Bonneville programs.

The IT estimates in this FY 2024 Budget under Capital IT & Equipment include all IT functions within the agency except Transmission Services grid operations.

Continued investments in Capital IT & Equipment assets include the following.

Continuous Activity (*all years*):

- Capital system developments in support of
  - Corporate IT projects
  - IT Infrastructure projects
  - Power IT projects
  - Transmission Services IT projects (excluding grid operations)

Capital Information Technology & Equipment:
Activities, Milestones and Explanation of Changes ($K)

FY 2023 Estimate	FY 2024 Estimate	Explanation of Changes FY 2024 vs FY 2023 Estimate
Capital Information Technology & Equipment $21,047	**$23,983**	**$2,936/14.0%**
Capital Information Technology & Equipment $21,047	**$23,983**	**$2,936/14.0%**
Milestones: Capital system developments in support of: Corporate IT projects IT Infrastructure projects Power IT projects Transmission Services IT projects	Milestones: Capital system developments in support of: Corporate IT projects IT Infrastructure projects Power IT projects Transmission Services IT projects	The increase reflects additional funding needs for investment in IT system assets.

Power Services – Operating Expense

Funding Schedule by Activity

Funding ($K)

Power Services - Operating Expenses	FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate	FY 2024 vs FY 2023 $	FY 2024 vs FY 2023 %
Production	$ 1,144,542	$ 919,422	$ 947,516	$ 28,095	3.1%
Associated Projects	$ 448,841	$ 462,020	$ 473,769	$ 11,749	2.5%
Fish & Wildlife	$ 234,971	$ 246,581	$ 268,620	$ 22,039	8.9%
Residential Exchange Program	$ 267,115	$ 266,696	$ 266,663	$ (33)	0.0%
Northwest Power & Conservation Council	$ 11,942	$ 12,431	$ 11,942	$ (489)	-3.9%
Energy Efficiency & Renewable Resources	$ 121,661	$ 150,734	$ 151,233	$ 500	0.3%
Total, Power Services - Operating Expenses	**$ 2,229,071**	**$ 2,057,883**	**$ 2,119,743**	**$ 61,861**	**3.0%**

Outyears ($K)

Power Services - Operating Expenses	FY 2024 Estimate	FY 2025 Estimate	FY 2026 Estimate	FY 2027 Estimate	FY 2028 Estimate
Production	$ 947,516	$ 1,014,401	$ 1,039,714	$ 1,064,847	$ 1,091,062
Associated Projects	$ 473,769	$ 486,375	$ 498,097	$ 509,770	$ 521,394
Fish & Wildlife	$ 268,620	$ 268,250	$ 274,922	$ 281,565	$ 288,177
Residential Exchange Program	$ 266,663	$ 266,696	$ 273,123	$ 279,524	$ 285,898
Northwest Power & Conservation Council	$ 11,942	$ 11,942	$ 12,230	$ 12,516	$ 12,802
Energy Efficiency & Renewable Resources	$ 151,233	$ 152,096	$ 155,761	$ 159,411	$ 163,047
Total, Power Services - Operating Expenses	**$ 2,119,743**	**$ 2,199,759**	**$ 2,253,847**	**$ 2,307,633**	**$ 2,362,379**

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Power Services – Operating Expense

Overview

This Budget category contains six subcategories. The **Production** subcategory includes certain Bonneville non-Federal amortization (including Energy Northwest amortization), O&M costs for Federal base power system generation resources (including CGS, business operations, and short- and long-term power purchases[1]), acquisition of conservation, marketing of power, and oversight of the FCRPS hydroelectric projects and CGS. Bonneville develops power products and services to meet the needs of Bonneville's wholesale customers and acquires power as needed.

In FY 2018, Bonneville completed a long-term resource program, with the purpose of assessing Bonneville's future need for power and reserves and to develop an acquisition strategy to meet those projected needs. In the event that Bonneville does acquire output from a generating resource on a long-term basis, Bonneville will comply with Section 6 of the Northwest Power Act and will modify its budget to reflect the acquisition.

The **Associated Projects** subcategory contains funding for O&M costs for the FCRPS hydroelectric projects, minor additions, improvements and replacements, and costs of Corps and Reclamation hydroelectric projects in the Pacific Northwest, which serve many purposes. All agencies emphasize efficient power production from existing facilities and improvement of the performance and availability of power generating units. Bonneville pays additional financing costs of the FCRPS facilities through its interest expense and capital transfer budget programs. Bonneville also provides direct funding to the USFWS for the operations and maintenance costs that are part of the USFWS's Lower Snake River Compensation Plan (LSRCP) hatcheries. Bonneville is responsible for annual payments to the Confederated Tribes of the Colville Reservation for their contribution to the production of hydropower by the Grand Coulee Dam in accordance with the Settlement Agreement between the United States and the Colville Tribes (April 1994). Additionally, the Spokane Tribe of Indians of the Spokane Reservation Equitable Compensation Act (Public Law 116-100), enacted on December 20, 2019, provides for equitable compensation to the Spokane Tribe of Indians of the Spokane Reservation for the use of tribal land for the production of hydropower by the Grand Coulee Dam, and for other purposes. The Act provides Bonneville and Northwest electric ratepayers cost certainty on this issue as we move toward discussions of long-term power sales contracts with our utility customers. Bonneville expenditures under the settlement that began in FY 2021 are estimated at $6 million annually.

Bonneville's **Fish & Wildlife Program** provides for extensive protection, mitigation, and enhancement of Columbia River Basin fish and wildlife adversely affected by the development and operation of the FCRPS. Bonneville satisfies its fish and wildlife responsibilities by funding projects and activities designed to be consistent with the NPCC's Program under the Northwest Power Act. Consistent with the NPCC's Program, Bonneville also implements measures to aid in the protection of fish and wildlife in the Columbia River and its tributaries, under the ESA (see ESA discussion in the Power Services – Capital Overview section).

Bonneville's mitigation expenditures will focus on activities that benefit Columbia River Basin fish and wildlife resources, following priorities established through ESA consultations, agreements with resource managers, and the NPCC's Program, including actions that:

- Increase survival of ESA-listed and non-listed fish at FCRPS dams and reservoirs;

[1] Including expenses associated with the use of power financial instruments to hedge Bonneville's exposure to market price risk and certain index sales contract provisions as permitted by Bonneville's internal power transacting risk management guidance.

- Increase survival of ESA-listed and non-listed fish throughout their life cycle by protecting and enhancing important habitat areas;
- Protect and enhance important wildlife habitat;
- Use hatcheries to contribute to conservation and recovery of ESA-listed and non-listed fish;
- Provide offsite mitigation projects and habitat, passage, and other improvements that address factors limiting improvements of target species; and
- Support a focused and well-coordinated research, monitoring, and evaluation program.

The **Residential Exchange Program (REP)** was created by Section 5(c) of the Northwest Power Act to extend the benefits of low-cost Federal power to the residential and small farm loads of Pacific Northwest retail electric utilities that have high average system costs. These benefits are passed directly to the consumers. Currently, the region's six investor-owned utilities (IOUs) and two of the region's consumer-owned utilities are actively participating in the REP. Payments under the REP are made to individual investor-owned utilities (IOUs) based on the difference between Bonneville's utility-specific Priority Firm (PF) Exchange rates and each utility's average system cost (ASC), times a utility's residential and small farm loads. ASCs are determined in accordance with Bonneville's 2008 Average System Cost Methodology (ASCM). Participating retail utility ASCs are established in a public process that occurs prior to and during Bonneville's power rate cases. Bonneville's utility-specific PF Exchange rates are determined each rate period. As described below, Bonneville and regional parties reached a settlement of the REP in 2011 under which the total amount of REP benefits available to the IOUs was established through 2028. Payments to the IOUs are made monthly based on historical invoiced exchange loads and the terms of the settlement.

Over the past decade, and prior to the settlement, regional parties filed multiple lawsuits challenging Bonneville's implementation of the REP. These lawsuits were consolidated into four cases that were stayed before the U.S. Court of Appeals for the Ninth Circuit. On July 26, 2011, Bonneville adopted a regionally supported settlement, referred to as the 2012 REP Settlement. Under the settlement, the region's six IOUs will receive about $4.1 billion in REP payments over the 17-year term of the settlement, beginning at $182.1 million in FY 2012, and increasing to $286.1 million in FY 2028. In addition to this settlement, Bonneville has reached related REP settlements with two consumer-owned utilities. A single challenge to the 2012 REP Settlement was dismissed by the U.S. Court of Appeals for the Ninth Circuit in October of 2013.

The **Northwest Power and Conservation Council** (NPCC) budget subcategory provides continued support of NPCC activities, as directed under the Northwest Power Act. The Energy and Water Development Appropriations Act of 1996 added Section 4(h)(10)(D) to the Northwest Power Act, directing the NPCC to appoint the Independent Scientific Review Panel (ISRP) "to review a sufficient number of projects" proposed to be funded through Bonneville's annual fish and wildlife budget "to adequately ensure that the list of prioritized projects recommended is consistent with the Program." The Northwest Power Act further states that "in making its recommendations to Bonneville, the NPCC shall consider the impact of ocean conditions on fish and wildlife populations and shall determine whether the projects employ cost effective measures to achieve program objectives." Today, most mitigation projects funded by Bonneville receive ISRP review as part of the NPCC recommendation process. The NPCC has shifted to a multi-year project review cycle during which the ISRP reviews categories of projects grouped together.

The NPCC's major activities include the periodic preparation of a Northwest Conservation and Electric Power Plan (a 20-year electric energy demand and resources forecast and conservation program – known as the Power Plan) and the Fish and Wildlife Program. The Northwest Power Act directs Bonneville's funding of the NPCC, subject to certain limits based on forecasted Bonneville power sales, be included in Bonneville's annual budget to Congress. The cost of funding the Council is recovered through Bonneville's power rates.

Under the **Energy Efficiency & Renewable Resources** subcategory, Bonneville's Energy Efficiency program promotes the efficient use of energy in the loads of customers and supports Bonneville's acquisition of conservation as the region's lowest cost resource. Such actions will: 1) meet energy efficiency targets; 2) achieve a least cost resource mix; 3) lessen the cost impacts of power purchases; 4) avoid the costs of ramping programs and infrastructure up and down; 5) extend the value of the FCRPS to customers; and 6) build the region's resource portfolio with energy efficiency.

Bonneville's Energy Efficiency program offers several ways for customer utilities to participate in energy conservation. Program components include:

1. Standard offer efficiency measures and custom projects, which result in customer proposals to conserve energy through such programs as residential weatherization; commercial lighting; heating, ventilation, and air conditioning (HVAC); industrial processes and lighting; and irrigated agriculture.
2. Third-party delivery programs, such as Comfort Ready Home, Energy Smart Industrial, and the Green Motors programs.
3. Programs to help regional Federal installations reduce energy use, including Federal hatcheries and irrigation districts, and to support the Corps and Reclamation in their efforts to reduce energy use.
4. Efficiency achieved independently through the market or through codes and standards, e.g., Momentum Savings.
5. Market transformation through the Northwest Energy Efficiency Alliance (NEEA).
6. Exploring integration of demand-side management, distributed generation and other leading-edge technologies which help manage peak loads.

Bonneville also acquires conservation energy savings from its firm power customers under long-term Energy Conservation Agreements, and provides research, evaluation, contract support, NEEA support, and emerging technology development. Additionally, customers perform self-funded conservation.

Explanation of Changes

Bonneville's Budget includes $2,119.7 million in FY 2024 for Power Services operating expenses, which is an increase of 3 percent over the FY 2023 forecasted level.

The FY 2024 Budget decreases the level for the Residential Exchange ($0.33 million), NPCC ($0.49 million), but increases the level for Production ($28.1 million), Associated Projects costs ($11.7 million), Fish & Wildlife ($22.0 million), and Energy Efficiency & Renewable Resources ($0.50 million).

The following pages discuss budget specifics under each of the six Power Services subcategories.

Production

Overview

Under the Production subcategory are three budget areas.

Production
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$1,144,542	$919,422	$947,516

Power Purchases includes power purchased to cover power supply obligations as well as balancing loads with generation from the hydro system. These power purchases can be made in the form of long-term purchases to meet Bonneville's contract obligations to its utility and other customers based on long-term planning requirements or they can be made within the year due to the monthly shape of the customers' loads and the monthly shape of the hydroelectric generation. Also, power purchases can be made within the month and within the day to fill temporary shortages due to fluctuations in the hydro system capability and in Bonneville's load.

Power Scheduling/Marketing relates to the scheduling and marketing (buy/sell) of electric energy with Bonneville's customers and the Pacific Northwest's interconnected utilities. Scheduling includes Power Services' implementation of physical and memo power schedules and associated transmission schedules, implementation of Electronic Tagging (ETag) in accordance with NERC and FERC, and implementation of electronic scheduling.

The third budget area is the **Columbia Generating Station (CGS).** Bonneville includes the project capability of CGS, a non-federal nuclear power plant, in the marketing of Federal power to meet Bonneville's long term firm power supply obligations. CGS is on a 24-month fuel and outage cycle. A maintenance and refueling outage occurred in the fall of 2021.

Operating expenses in Production include the following.

<u>Continuous Activity (*all years*):</u>

- Provide oversight of all power supply contracts and related projects from which Bonneville acquires generation capability to ensure that all Bonneville approval rights are protected; coordinate, communicate, and administer agreements, issues, and programs between Bonneville and the project owners.
- Provide wind resource integration services for wind generation.
- Power purchases.
- Power scheduling/marketing.
- Provide oversight of all contracts signed to date. Pursue cost-effective means to mitigate capacity demands associated with interconnecting large amounts of wind into the Bonneville system.
- Pursue acquisition of additional cost-effective generation to meet load growth.
- Provide oversight on the wind resource integration services currently purchased by public power customers and offer additional renewable resource shaping services to such customers using wind generation to serve their load.

Associated Projects

Overview

Under Associated Projects, funds are budgeted to support FCRPS project costs and work to strengthen interagency and regional relationships to improve project performance and supporting functions, and to better understand project resource requirements and costs. This helps to maintain FCRPS reliability and system performance, as well as to attain Bonneville's strategic business objectives.

Associated Projects
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$448,841	$462,020	$473,769

Continued investments in Associated Projects include the following.

Continuous Activity (*all years*):

- Bureau of Reclamation
  - Continue direct funding of Reclamation operations and maintenance (O&M) power activities.
- Corps of Engineers
  - Continue direct funding of Corps O&M power activities.

Fish & Wildlife Projects

Overview

As discussed at length on pages 30-34 of this document, Bonneville implements a mature Fish & Wildlife mitigation program based on NPCC Program measures and developed from recommendations made by the region's fish and wildlife management agencies and tribes. Several recent NPCC reviews have made additional fish and wildlife project recommendations to Bonneville. Bonneville, in coordination with the NPCC, reviews new and on-going projects for consistency with the NPCC's Program and purposes of the Northwest Power Act. Bonneville reviews and resets project-specific funding commitments annually, including for projects related to applicable BiOps and other agreements. Bonneville informs its funding decisions with the management objectives and priorities in the NPCC's Program (including ISRP reviews) and the Accords extension as it integrates their implementation with actions necessary to fulfill ESA responsibilities. Regular coordination on implementation priorities continues among Bonneville, the NPCC, federal resource management agencies, states, tribes, and others.

Fish & Wildlife
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$234,971	$246,581	$268,620

Continued investments in Bonneville's Fish &Wildlife Program include the following.

Continuous Activity (*all years*):

- Anadromous Fish: Continue implementing both ongoing and new projects that support ESA-listed species and other measures called for under applicable BiOps, the Washington Estuary Agreement, the Kalispel Agreement, the Willamette and Southern Idaho agreements, and applicable extensions of the Columbia Basin Fish Accords. Prioritize projects that address the factors that contribute most to mitigation success and that fulfill Bonneville's responsibility for mitigating the impacts from the FCRPS. Implement and develop activities that protect and enhance tributary and estuary habitat, improve mainstream habitat, reduce potentially harmful hatchery practices on ESA-listed populations, and contribute to sustainable fisheries.
- Resident Fish: Implement activities to mitigate the impacts of the CRS on lamprey, sturgeon, and bull trout and promote the reproduction and recruitment of Kootenai River white sturgeon. These activities have been proposed and consulted upon in the 2020 USFWS CRS BiOp, the NPCC Program, and the 2022 amendments to extend the Columbia Basin Fish Accords.
- Mitigation supporting resident fish to offset anadromous fish losses in areas of the basin where Federal dams have blocked anadromy (referred to as "substitution" in the NPCC's Program): mitigate for reservoir power operation impacts to resident fish and wildlife by seeking projects that benefit both simultaneously. Those resident fish habitat acquisition projects that meet Bonneville's capitalization policy will be funded under the capital portion of Bonneville's Fish & Wildlife budget and credited for both fish and wildlife where appropriate.
- Wildlife: Use existing Bonneville policies to continue the current effort to mitigate wildlife in a manner consistent with the NPCC Program and fulfill commitments in wildlife agreements such as the Kalispel Agreement, Willamette Wildlife Agreement, and Southern Idaho Wildlife Agreement. Those wildlife projects that meet Bonneville's capitalization policy will be funded under the capital portion of

Bonneville's Fish & Wildlife budget and credited against both wildlife and fish obligations according to Bonneville's crediting policy and applicable mitigation contracts.

Residential Exchange Program, NPPC, Energy Efficiency & Renewable Resources

Overview

See detailed descriptions of these three budget subcategories on pages 64 and 65.

Residential Exchange, NPCC, and Energy Efficiency & Renewable Resources ($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$400,717	$429,861	$429,838

Continued investments in these three subcategories include the following.

Residential Exchange Program (REP)

- Includes forecasted REP benefits based on the 2012 REP Settlement.

Northwest Power & Conservation Council

- Continue support of NPCC activities, as directed under the Northwest Power Act, including regional power plan development and maintenance and fish and wildlife program activities.

Energy Efficiency & Renewable Resources

- Conservation purchases: Provide programmatic savings reimbursements and energy efficiency incentives to Bonneville customers to purchase conservation savings. This includes performance payments and Energy Smart Reserved Power payments for Federal installations and fish hatcheries and irrigation districts.
- Conservation infrastructure: All support for programs and operations, including third-party program implementation, contract support, market research (Momentum Savings research), evaluation, and emerging technology research.
- Market transformation: Support for NEEA's market transformation initiatives. NEEA identifies barriers and opportunities to increase the market adoption of efficiency by leveraging its regional partnerships.

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Residential Exchange Program, Northwest Power & Conservation Council
Energy Efficiency & Renewable Resources:
Activities, Milestones and Explanation of Changes ($K)

FY 2023 Estimate	FY 2024 Estimate	Explanation of Changes FY 2024 vs FY 2023 Estimate
Power Services - Operating Expense $2,057,883	**$2,119,743**	**$61,861/3.0%**
Production $919,422 Milestones: Continue to provide oversight of all signed contracts. Continue to provide wind resource integration services for customer wind generation.	**$947,516** Milestones: Continue to provide oversight of all signed contracts. Continue to provide wind resource integration services for customer wind generation.	**$28,095/3.1%** The increase is due to higher CGS and support costs.
Associated Project Costs $462,020 Milestones: Continue direct funding of Corps and Reclamation O&M power activities.	**$473,769** Milestones: Continue direct funding of Corps and Reclamation O&M power activities.	**$11,749/2.5%** The increase addresses inflation and the rise in labor costs.
Fish & Wildlife Costs $246,581 Milestones: Continue implementing both ongoing and new projects that support ESA-listed species and other measures called for under the current CRS BiOps, the 2018 Fish Accord extensions, the Washington Estuary Agreement, the Kalispel Agreement, the Southern Idaho Agreement, and the Willamette Agreement.	**$268,620** Milestones: Continue implementing both ongoing and new projects that support ESA-listed species and other measures called for under the current CRS BiOps, the 2018 Fish Accord extensions, the Washington Estuary Agreement, the Kalispel Agreement, the Willamette Agreement, and the Southern Idaho Agreement.	**$22,037/8.9%** The increase in the costs reflect funding associated with the BiOps, 2018 Fish Accord extension commitments, and Northwest Power Act activities.

FY 2023 Estimate	FY 2024 Estimate	Explanation of Changes FY 2024 vs FY 2023 Estimate
Residential Exchange Program $266,696 Milestones: Continue to provide REP benefits.	**$266,663** Milestones: Continue to provide REP benefits.	**$-33/0.0%** No change in scheduled amount of REP payments payable to IOUs prescribed by REP.
NW Power & Conservation Council $12,431 Milestones: Continue support of the NPCC activities, as directed under the Northwest Power Act, including regional power plan development and maintenance, and fish and wildlife program activities.	**$11,942** Milestones: Continue support of the NPCC activities, as directed under the Northwest Power Act, including regional power plan development and maintenance, and fish and wildlife program activities.	**$-489/-3.9%** The decrease reflects our cost cutting effort while continuing emphasis on the NPCC.
Energy Efficiency & Renewable Resources $150,734 Milestones: Continue close-out of the legacy conservation resource acquisition contracts, which support Bonneville's contractual obligation to serve customer loads. Continue to support utility incentive programs. Continue to support regional energy efficiency programs. Continue supporting energy efficiency at direct serve Federal agencies.	**$151,233** Milestones: Continue close-out of the legacy conservation resource acquisition contracts, which support Bonneville's contractual obligation to serve customer loads. Continue to support utility incentive programs. Continue to support regional energy efficiency programs. Continue supporting energy efficiency at direct serve Federal agencies.	**$500/0.3%** The increase reflects higher funding while continuing emphasis on the energy efficiency program consistent with the Power Plan.

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Funding Schedule by Activity

Funding ($K)

Transmission Services - Operating Expenses	FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate	FY 2024 vs FY 2023 $	FY 2024 vs FY 2023 %
Engineering	$ 113,817	$ 86,842	$ 93,631	$ 6,789	7.8%
Operations	$ 221,869	$ 207,742	$ 240,459	$ 32,716	15.7%
Maintenance	$ 211,170	$ 218,972	$ 242,678	$ 23,705	10.8%
Total, Transmission Services - Operating Expenses	**$ 546,856**	**$ 513,557**	**$ 576,768**	**$ 63,211**	**12.3%**

Outyears ($K)

Transmission Services - Operating Expenses	FY 2024 Estimate	FY 2025 Estimate	FY 2026 Estimate	FY 2027 Estimate	FY 2028 Estimate
Engineering	93,631	95,090	97,736	100,376	103,000
Operations	240,459	249,048	257,716	266,134	274,479
Maintenance	242,678	250,399	258,481	266,529	274,513
Total, Transmission Services - Operating Expenses	**576,768**	**594,538**	**613,933**	**633,039**	**651,992**

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Transmission Services – Operating Expense

Overview

Under the Transmission Services – Operating Expense category are three subcategories: the transmission system services of **Engineering, Operations, and Maintenance** for Bonneville's electric transmission system and associated power system control and communication facilities. Primary goals of this program are:

1. Maintain the safety and reliability of the transmission system;
2. Increase the focus on meeting customers' needs;
3. Optimize the transmission system;
4. Provide open access and non-discriminatory transmission service; and
5. Improve Bonneville's cost effectiveness.

Explanation of Changes

Bonneville's Budget includes $576.8 million in FY 2024 for Transmission Services operating expense, which is a 12.3 percent increase over the FY 2023 forecasted level. The increase continues the operation and maintenance of Bonneville's transmission assets.

The FY 2024 Budget increases the levels for Engineering ($6.8 million), Operations ($32.7 million), and Maintenance ($23.7 million). Spending in each subcategory is discussed on the following pages.

Engineering

Overview

Funding allocated under the Engineering subcategory allows continued efforts to identify best methods for improving system reliability and maintenance practices, and continued cost reduction efforts by identifying opportunities for low-cost reinforcement and voltage support of the existing transmission system.

Engineering
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$113,817	$86,842	$93,631

Continued investments in Engineering include the following.

Continuous Activity (*all years*):

- Research and development (R&D): Conduct research focused on technologies related to business challenges Bonneville faces including reliability, energy efficiency, and integration of renewable energy resources. Technologies of interest are identified in Bonneville's Technology Roadmaps. A portfolio of research is selected every year through Bonneville's Portfolio Decision Framework.
- System development planning and analysis: Continue providing technical support and asset planning to deploy the asset management approach to sustain existing assets and expand the system to meet agency objectives.
- Technical support: Provide technical support activities, such as transmission system planning and studies to optimize portions of the system. Provide support for non-wires solutions studies and pilot projects.
- Capital-to-expense adjustments: Conduct annual analysis of Bonneville's outstanding capital work orders to assess whether they should be expensed. As obsolete inventory is identified and disposed of, it is expensed.
- Regulatory fees: WECC dues and loop flow payments, Department of Commerce/National Telecommunications and Information Administration licensing costs for radio frequencies, DOE Radio Spectrum staff and contractor support, and NERC Critical Infrastructure Protection (CIP) compliance program costs. Includes membership in a regional transmission planning organization.
- Reimbursable transactions: Enter into written agreements with Federal and non-federal entities that have work or services to be performed by Bonneville staff at the expense of the benefiting entities. The projects must be beneficial, under agreed-upon criteria, to Bonneville operations and to the Federal or non-federal entity involved or otherwise be aligned with or supportive of Bonneville's strategic objectives. Additionally, these activities generally contribute to more efficient or reliable construction of the Federal transmission system or otherwise enhance electric service to the region.
- Leased and other costs: Includes leases, lease purchases, and other costs of financing transmission, delivery, and voltage support facilities when such arrangements are operationally feasible and cost effective to deliver power. Leases and lease purchases enable Bonneville to continue to invest in infrastructure to support a safe and reliable system for the transmission of power. Other costs included are the accrued interest costs associated with Large Generator Interconnection Agreements (LGIA).

Operations

Overview

The following activities are funded under Operations.

Operations
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$221,869	$207,742	$240,459

Substation Operations: Perform operations functions necessary to provide electric service to customers and to protect the Federal investment in electric equipment and other facilities. Includes equipment adjustments, switching lines and equipment during emergencies or maintenance, isolating damaged equipment, restoring service to customers, inspecting equipment, and reading meters.

Power System Dispatching and Supporting Functions: Perform central dispatching, control, and monitoring of the electric operation of the Federal transmission system. Also includes load, frequency, and voltage control of Federal generating plants, and coordinating long- and short-term outages of system equipment. In addition, provides technical engineering support of dispatching function and provides all technical and systems support for Dittmer Control Center (DCC) and Munro Control Center (MCC).

Marketing and Sales: Provide management and direction of transmission rates, and provide business strategy in marketing of transmission and ancillary products and services of Transmission Services. Involve customers and constituents in the process of product and rate development. Maintain accurate and complete historical records of current and past legacy transmission agreements. Provide guidance for current and future transmission contract negotiations. Provide financial analysis of market strategies. Monitor and report on the financial health of Transmission Services. Support cost management by effective reporting and analysis of current expenditures. Ensure official budget submittals reflect current management financial strategies and adequately fund transmission programs.

Transmission Scheduling: Provide non-discriminatory, open access to the Bonneville transmission system consistent with Bonneville's Open Access Transmission Tariff (OATT). Schedule transmission capacity to eligible Bonneville customers, which include customers acquiring services under Use of Facilities (UFT), Formula Power Transmission (FPT), Integration of Resources (IR), and Part II or Part III of the OATT. Manage the reservations and scheduling of all transmission services associated with the OATT. Update practices, policies, and commercial systems to accommodate a large diversity of resources, including wind.

Continued investments in Operations include the following.

Continuous Activity (*all years*):

- Continue to operate within parameters of NERC and WECC.
- Continue support of increased compliance activities related to the reliability of the transmission system, including cybersecurity.
- Continue developing facilities, policies, procedures, and implementing systems to support integrating the diversity of resources into the transmission grid.
- Continue preparation for increased complexity of transmission scheduling, power system operations, and dispatching, including congestion management and outage scheduling.

- Continue developing the Dittmer Scheduling Center and Munro Scheduling Center facilities to support continuous real time scheduling operations from both facilities.
- Continue developing a long-term approach to optimize transmission availability through streamlined, cost-effective, and sustainable processes.
- Continue to address succession planning issues across key functions.
- Continue development and implementation of business systems and tools.

Maintenance

Overview

In all aspects of maintenance, Bonneville is continuing the use of reliability centered maintenance (RCM) practices. The use of RCM practices is focused on improving system reliability, increasing availability, and meeting new and existing compliance regulations at lowest lifecycle costs. In addition, Bonneville is deploying asset management to optimize maintain/replace decision making. Maintenance costs are expected to increase as Bonneville addresses the aging transmission system, meeting reliability standards, including vegetation management, and environmental constraints associated with construction, enhancement, and maintenance of the system. The Bonneville transmission system encompasses 15,108 circuit miles on over 11,860 rights-of-way miles (many of these miles are through rugged, inaccessible terrain).

Maintenance
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$211,170	$218,972	$242,678

Continued investments in Maintenance include the following

<u>Continuous Activity (*all years*):</u>

- Continue to improve performance to meet System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) targets.
- Continue refining processes and procedures for monitoring and tracking compliance activities related to the reliability of the transmission system.
- Continue to improve system availability performance through new maintenance procedures and work practices.
- Continue to develop and implement work practices and procedures for implementation of a new specialty crew using bare-hand live line practices for maintenance of high-voltage transmission lines.
- Continue increased emphasis on replacement of line hardware (life extension programs for insulators, connectors, dampers, and fiber optic cable hardware).
- Continue to prepare for the impact of an expected high attrition rate among Bonneville's aging workforce by recruiting apprentices and replacements for critical minimum crew size workload positions.
- Increase outage-scheduling planning and coordination to increase customer satisfaction and system availability.
- Maintain vegetation management levels to ensure system reliability.
- Continue access road work to provide reliable access to facilities and ensure environmental compliance.
- Continue improving environmental stewardship.

<u>Transmission Line Maintenance:</u>

Maintain and repair 15,108 circuit miles of high voltage transmission lines, of which over 4,734 circuit miles are 500 kV transmission extra-high voltage (EHV). Maintenance of EHV lines is two and one-half times more labor-intensive than maintenance of lower transmission voltages, although more efficient in transmission of power. This responsibility includes maintaining transmission rights-of-way to ensure system reliability, safety, and environmental compliance. Adopt work practices that improve system availability, reliability, and compliance.

Right-of-Way Maintenance:

Maintain over 11,860 miles of Bonneville's rights-of-way. This responsibility includes vegetation management, danger tree management, and access road maintenance to ensure system reliability, safety, and environmental compliance. Adopt procedures and processes that improve system availability, reliability, environmental compliance, and reliability compliance. Continue to deploy new technologies such as LiDAR (Light Detection and Ranging) to reliably and cost-effectively manage vegetation.

Substation Maintenance:

Maintain and repair the transmission system power equipment located in Bonneville's 262 substations. Work includes inspections, diagnostic testing, and predictive and condition-based maintenance.

System Protection Maintenance:

Maintain relaying metering and remedial action scheme equipment used to control and protect the electrical transmission system and to meter energy transfers for the purpose of revenue billing. Additionally, field-engineering services provide technical advice and assure the correct operation of power system relaying and special control systems used to support interregional energy transmission capabilities.

Power System Control Maintenance:

Test, repair, and provide field engineering support of Bonneville's highly complex equipment, communications, and control systems, including seven major microwave systems, fiber optic systems, and other critical communications and control equipment that support the power system.

Non-Electric Plant Maintenance:

Maintain and manage Bonneville's non-electric facilities. Includes site, building, and building utility maintenance; custodial services; station utility; and other maintenance service activities, as well as facilities asset management on Bonneville-owned or Bonneville-leased non-electric facilities.

Maintenance Standards and Engineering:

Establish, monitor, and update system maintenance standards, policies, and procedures, and review and update long-range plans for maintenance of the electric power transmission system.

Transmission Services – Operating Expense: Activities, Milestones, and Explanation of Changes ($K)

FY 2023 Estimate	FY 2024 Estimate	Explanation of Changes FY 2024 vs FY 2023 Estimate
Transmission Services - Operating Expense $513,557	**$576,768**	**$63,211/12.3%**
Engineering $86,842	**$93,631**	**$6,789/7.8%**
Milestones: Continue efforts to identify best methods for improving system reliability and maintenance practices. Continue cost reduction efforts by identifying opportunities for low-cost reinforcement and voltage support of the existing transmission system.	Milestones: Continue efforts to identify best methods for improving system reliability and maintenance practices. Continue cost reduction efforts by identifying opportunities for low-cost reinforcement and voltage support of the existing transmission system.	The increase reflects continued emphasis on system reliability standards compliance and research and development.
Operations $207,742	**$240,459**	**$32,716/15.7%**
Milestones: Continue to operate within parameters of NERC and WECC. Continue support of increased compliance activities related to the reliability of the transmission system, including cybersecurity.	Milestones: Continue to operate within parameters of NERC and WECC. Continue support of increased compliance activities related to the reliability of the transmission system, including cybersecurity.	The increase reflects continued emphasis on reliability compliance activities, resource integration activities, key strategic initiative, security, and control center systems support.
Maintenance $218,972	**$242,678**	**$23,705/10.8%**
Milestones: Continue to improve performance to meet System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) targets.	Milestones: Continue to improve performance to meet System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) targets.	The increase reflects implementation of facilities asset management plans, continued implementation of live-line crew, NERC/WECC compliance activities related to land rights and vegetation management, continuing maintenance program activities, including system protection, right-of-way, line maintenance, and performance improvements.

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Interest, Pension, and Post-retirement Benefits Operating Expense

Funding ($K)

Interest, Pension, & Post-Retirement Benefits	FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate	FY 2024 vs FY 2023 $	FY 2024 vs FY 2023 %
BPA Bond Interest (Net)	$ 152,803	$ 113,624	$ 120,768	$ 7,144	6.3%
BPA Appropriation Interest	$ -	$ -	$ -	$ -	0.0%
Corps of Engineers Appropriation Interest	$ 39,717	$ 39,893	$ 28,583	$ (11,310)	-28.4%
Lower Snake River Comp Plan Interest	$ 186	$ 186	$ 102	$ (84)	-45.4%
Bureau of Reclamation Appropriation Interest	$ 1,198	$ 1,198	$ 1,066	$ (132)	-11.0%
Bond Premiums Paid/Discounts (not capitalized)	$ -	$ (1,583)	$ (5,890)	$ (4,307)	272.0%
Subtotal, Interest - Operating Expense	**$ 193,903**	**$ 153,317**	**$ 144,628**	**$ (8,690)**	**-5.7%**
Additional Pension and Post-Retirement Benefits	$ 37,231	$ 32,306	$ 37,780	$ 5,474	16.9%
Total, Interest, Pension, & Post-Retirement Benefits	**$ 231,134**	**$ 185,623**	**$ 182,407**	**$ (3,216)**	**-1.7%**

Outyears ($K)

Interest, Pension, & Post-Retirement Benefits	FY 2024 Estimate	FY 2025 Estimate	FY 2026 Estimate	FY 2027 Estimate	FY 2028 Estimate
BPA Bond Interest (Net)	$ 120,768	$ 141,467	$ 167,982	$ 181,906	$ 196,591
BPA Appropriation Interest	$ -	$ -	$ -	$ -	$ -
Corps of Engineers Appropriation Interest	$ 28,583	$ 18,300	$ 15,488	$ 13,461	$ 13,598
Lower Snake River Comp Plan Interest	$ 102	$ 176	$ -	$ 88	$ 88
Bureau of Reclamation Appropriation Interest	$ 1,066	$ 982	$ 982	$ 357	$ 357
Bond Premiums Paid/Discounts (not capitalized)	$ (5,890)	$ 263	$ 2,681	$ 237	$ (8,860)
Subtotal, Interest - Operating Expense	**$ 144,628**	**$ 161,189**	**$ 187,132**	**$ 196,048**	**$ 201,774**
Additional Pension and Post-Retirement Benefits	$ 37,780	$ 38,314	$ 39,237	$ 40,157	$ 41,072
Total, Interest, Pension, & Post-Retirement Benefits	**$ 182,407**	**$ 199,503**	**$ 226,369**	**$ 236,205**	**$ 242,846**

Interest, Pension and Post-retirement Benefits Operating Expense

Overview

Interest expense provides for interest due on bonds issued to the U.S. Treasury and appropriations repayment responsibilities. The appropriation repayments relate to capital investment in FCRPS hydroelectric generating and transmission facilities of Bonneville, the Corps, and Reclamation. Investments were financed by Congressional appropriations and Bonneville borrowings from the U.S. Treasury. Bonneville repays these amounts through revenue raised in its power sales and transmission services revenues.

Since initially receiving U.S. Treasury borrowing authority in 1974 under the Transmission Act, all of Bonneville's U.S. Treasury borrowing has been at market rates. As of October 1, 1996, all of Bonneville's repayment obligations on FCRPS appropriated investment (Corps and Reclamation FCRPS investment and Bonneville investment financed with appropriations prior to the Transmission Act that were unpaid as of September 30, 1996) were restructured and assigned new current-market interest rates. The Bonneville Appropriations Refinancing Act of 1996 (Refinancing Act) called for re-setting (reducing) the unpaid principal of FCRPS appropriations and reassigning (increasing) interest rates. New principal amounts were established as of the beginning of FY 1997 at the present value of the principal and annual interest payments Bonneville would make to the U.S. Treasury for these obligations in the absence of the legislation, plus $100.0 million. The new principal amounts were assigned prevailing market interest rates as of October 1, 1996. Bonneville's outstanding appropriations repayment obligations at the end of FY 1996 were $6.7 billion with a weighted average interest rate of 3.4 percent. The refinancing reduced the principal amount to $4.1 billion with a weighted average interest rate of 7.1 percent. Implementation of the refinancing took place in 1997 after audited actual financial data were available. Pursuant to the legislation, Bonneville submitted its calculations and interest rate assignments implementing the Refinancing Act to the U.S. Treasury for its review and approval. The U.S. Treasury approved the implementation calculations in July 1997. The Refinancing Act also calls for all future FCRPS appropriations to be assigned prevailing U.S. Treasury yield curve interest rates. Bonneville's outstanding appropriations may be prepaid prior to their stated maturities.

Interest estimates are a function of costs of U.S. Treasury borrowing to Bonneville, repayment status of outstanding FCRPS investments, and projected additions to FCRPS plant in service. These estimates may change over time depending on forecasted market conditions. The interest cost estimates include the impact of Bonneville's appropriation refinancing legislation.

Federal employees associated with the operation of the FCRPS participate in either the Civil Service Retirement System or the Federal Employees Retirement System. Employees may also participate in the Federal Employees Health and Benefit Program and the Federal Employee Group Life Insurance Program. As a Federal agency, all post-retirement activity is managed by the Office of Personnel Management; therefore, neither the assets of the plans or the accumulated plan benefits are recorded by Bonneville. Since 1997, Bonneville has made additional annual contributions to the General Fund of the U.S. Treasury (receipt account 892889) related to the Federal post-retirement benefit programs provided to employees associated with the operation of the FCRPS.

Capital Transfers

Funding ($K)

Capital Transfers	FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate	FY 2024 vs FY 2023 $	FY 2024 vs FY 2023 %
BPA Bond Amortization [1]	$ 689,200	$ 469,587	$ 388,297	$ (81,290)	-17.3%
Bureau of Reclamation Appropriation Amortization	$ 5,000	$ 3,072	$ 2,219	$ (853)	-27.8%
BPA Appropriation Amortization	$ -	$ -	$ -	$ -	0.0%
Corps of Engineers Appropriation Amortization	$ -	$ 261,018	$ 282,401	$ 21,383	8.2%
Lower Snake River Comp Plan Amortizatoin	$ -	$ 1,919	$ 349	$ (1,569)	-81.8%
Total, Capital Transfers	**$ 694,200**	**$ 735,596**	**$ 673,266**	**$ (62,330)**	**-8.5%**

Outyears ($K)

Capital Transfers	FY 2024 Estimate	FY 2025 Estimate	FY 2026 Estimate	FY 2027 Estimate	FY 2028 Estimate
BPA Bond Amortization [1]	$ 388,297	$ 538,077	$ 571,317	$ 612,307	$ 406,879
Bureau of Reclamation Appropriation Amortization	$ 2,219	$ 19	$ 19,237	$ -	$ -
BPA Appropriation Amortization	$ -	$ -	$ -	$ -	$ -
Corps of Engineers Appropriation Amortization	$ 282,401	$ 108,528	$ 69,535	$ -	$ -
Lower Snake River Comp Plan Amortizatoin	$ 349	$ -	$ -	$ -	$ -
Total, Capital Transfers	**$ 673,266**	**$ 646,624**	**$ 660,089**	**$ 612,307**	**$ 406,879**

[1] Bonneville "Bond(s)" in this FY 2024 Budget refers to all bonds issued by Bonneville to and advances received from the U.S. Treasury. This reference is consistent with section 13(a) of the Transmission Act (P.L. 93-454), which defines Bonneville bonds as all bonds, notes, and other evidences of indebtedness issued and sold by Bonneville to the U.S. Treasury.

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Capital Transfers

Overview

This activity conveys funds to the U.S. Treasury for repayment of certain FCRPS costs not included in the Associated Projects budget. Since capital transfers are cash transactions, they are not considered budget obligations.

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Additional Tables

BONNEVILLE POWER ADMINISTRATION
TOTAL OBLIGATIONS/OUTLAYS
Current Services
(in millions of dollars)
FISCAL YEAR

BP-1 SUMMARY[1/3/]	2022		2023		2024		2025	2026	2027	2028
	Oblig.	Outlays	Oblig.	Outlays	Oblig.	Outlays	Oblig.	Oblig.	Oblig.	Oblig.
1 Residential Exchange Program	267	267	267	267	267	267	267	273	280	286
2 Power Services [2/]	1,581	1,581	1,382	1,382	1,422	1,422	1,501	1,538	1,575	1,612
3 Transmission Services	920	920	1,011	1,011	1,171	1,171	1,176	1,170	1,170	1,198
4 Conservation & Energy Efficiency	122	122	151	151	151	151	152	156	159	163
5 Fish & Wildlife	251	251	290	290	310	310	310	304	297	303
6 Interest/ Pension [4/]	231	231	186	186	182	182	200	226	236	243
7 Associated Project Cost - Capital	190	190	281	281	270	270	276	282	288	295
8 Capital Equipment	21	21	21	21	24	24	23	25	23	24
9 Planning Council	12	12	12	12	12	12	12	12	13	13
10 Projects Funded in Advance	121	121	61	61	46	46	55	53	54	55
11 Capitalized Bond Premiums	0	0	0	0	0	0	0	0	0	0
12 **TOTAL OBLIGATIONS/OUTLAYS** [3/]	**3,716**	**3,716**	**3,662**	**3,662**	**3,855**	**3,855**	**3,970**	**4,039**	**4,095**	**4,192**

REVENUES AND REIMBURSEMENTS

Current Services

(in millions of dollars)

FISCAL YEAR

	BP-1 SUMMARY	2022		2023		2024		2025	2026	2027	2028
		Oblig.	Outlays	Oblig.	Outlays	Oblig.	Outlays	Oblig.	Oblig.	Oblig.	Oblig.
13	Revenues [5/]	4,396	4,396	3,933	3,933	4,018	4,018	4,052	4,107	4,143	4,187
14	Project Funded in Advance	121	121	61	61	46	46	55	53	54	55
15	**TOTAL**	**4,517**	**4,517**	**3,994**	**3,994**	**4,064**	**4,064**	**4,107**	**4,160**	**4,197**	**4,242**
16	**BUDGET AUTHORITY (NET)** [6/]	**(984)**		**107**		**256**		**274**	**231**	**252**	**473**
17	**OUTLAYS (NET)** [6/7/8]		**(806)**		**(332)**		**(209)**	**(137)**	**(121)**	**(102)**	**(50)**

These notes are an integral part of this table.

1/ This FY 2024 budget includes capital and expense estimates based on final spending proposals from Bonneville's BP-24 IPR process.

Capital funding levels reflect external factors such as the significant changes affecting West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region.

Budget estimates included in this budget are subject to change due to rapidly changing economic and institutional conditions in the evolving electric utility industry.

2/ Power Services doesn't include Fish & Wildlife, Residential Exchange Program, Planning Council, Conservation & Energy Efficiency and Associated Project Costs which have been shown separately for display purposes.

3/ This budget has been prepared in accordance with PAYGO. Under PAYGO all Bonneville budget estimates are treated as mandatory and are not subject to the discretionary caps included in the Budget Control Act of 2011. These estimates support activities that are separate from discretionary activities and accounts. Thus, any changes to Bonneville estimates cannot be used to affect any other budget categories which have their own dollar caps. Because Bonneville's obligations are and will be incurred under pre-existing legislative authority, Bonneville is not subject to a "pay-as-you-go" test regarding its revision of current-law funding estimates.
For BP-1 table, the CJ reflects forecasted outlays while the yearend GTAS reflects the actual outlay in the Budget Appendix.

4/ See Interest Expense, Pension and Post-retirement Benefits and Capital Transfers section of this budget for a complete discussion of these cost estimates.

5/ Revenues, included in the Net Outlay formulation, are calculated consistent with cash management goals and assume a combination of adjustments. Assumed adjustments include the use of a combination of tools, including upcoming rate adjustment mechanisms, a net revenue risk adjustment, debt service refinancing strategies and/or short-term financial tools to manage net revenues and cash. Some of these potential tools will reduce costs rather than generate revenue, causing the same Net Outlay result. Adjustments for depreciation and 4(h)(10)(C) credits of the Northwest Power Act are also assumed.

6/ Bonneville received $48.7 million of additional budget authority in FY 2007 to accommodate the work necessary to relocate the radio spectrum consistent with the Commercial Spectrum Enhancement Act (P.L. 108-494). In accordance with Federal law, Bonneville plans to return the forecasted unused balance of approximately $8.2 million to the U.S. Treasury as soon as the National Telecommunications Information Administration notifies the Federal Communications Commission that the DOE relocation effort is complete.

7/ Net Outlay estimates are based on current cost savings to date and anticipated cash management goals. They are expected to follow anticipated management decisions throughout the rate period that, along with actual market conditions, will impact revenues and expenses. Actual Net Outlays are volatile and are reported in Report on Budget Execution and Budgetary Resources (SF-133). Actual Net Outlays could differ from estimates due to changing market conditions, streamflow variability, continued restructuring of the electric industry, and other reasons.

8/ FY 2022 Net Outlays are calculated using Bonneville's FY 2022 EOY Actuals. FY 2023 is based off of rate case and FY 2024 to 2028 Net Outlays are based on BP-24 IPR assumptions and an escalation factor from using the FY 2022 Whitebook Loads and Resources Report.

EXPENSED OBLIGATIONS/OUTLAYS [1,4/]
Current Services
(in millions of dollars)
FISCAL YEAR

BP-2	2022		2023		2024		2025	2026	2027	2028
	Oblig.	Outlays	Oblig.	Outlays	Oblig.	Outlays	Oblig.	Oblig.	Oblig.	Oblig.
1 Residential Exchange Program	267	267	267	267	267	267	267	273	280	286
2 Power Services [2/]	1,581	1,581	1,382	1,382	1,422	1,422	1,501	1,538	1,575	1,612
3 Transmission Services	547	547	514	514	577	577	595	614	633	652
4 Conservation & Energy Efficiency	122	122	151	151	151	151	152	156	159	163
5 Fish & Wildlife	235	235	247	247	269	269	268	275	282	288
6 Interest/ Pension [3/]	231	231	186	186	182	182	200	226	236	243
7 Planning Council	12	12	12	12	12	12	12	12	13	13
8 TOTAL EXPENSE	2,995	2,995	2,758	2,758	2,880	2,880	2,994	3,094	3,177	3,257
9 Projects Funded in Advance	121	121	61	61	46	46	55	53	54	55

CAPITAL OBLIGATIONS/OUTLAYS [1/]

Current Services

(in millions of dollars)

FISCAL YEAR

BP-2 continued	2022		2023		2024		2025	2026	2027	2028
	Oblig.	Outlays	Oblig.	Outlays	Oblig.	Outlays	Oblig.	Oblig.	Oblig.	Oblig.
10 Transmission Services	374	374	497	497	594	594	581	556	537	546
11 Associated Project Cost	190	190	281	281	270	270	276	282	288	295
12 Fish & Wildlife	16	16	43	43	41	41	41	29	16	15
13 Capital Equipment	21	21	21	21	24	24	23	25	23	24
14 Capitalized Bond Premiums	0	0	0	0	0	0	0	0	0	0
15 **TOTAL CAPITAL INVESTMENTS**	**601**	**601**	**842**	**842**	**929**	**929**	**921**	**892**	**864**	**880**
16 **TREASURY BORROWING AUTHORITY TO**										
17 **FINANCE CAPITAL OBLIGATIONS [4/]**	**601**		**842**		**929**		**921**	**892**	**864**	**880**

These notes are an integral part of this table.

[1/] This FY 2024 budget includes capital and expense estimates based on final spending proposals from Bonneville's BP-24 IPR process.

Capital funding levels reflect external factors such as the significant changes affecting West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region.

Budget estimates included in this budget are subject to change due to rapidly changing economic and institutional conditions in the evolving electric utility industry.

[2/] Power Services doesn't include Fish & Wildlife, Residential Exchange Program, Planning Council, Conservation & Energy Efficiency and Associated Project Costs which have been shown separately for display purposes.

[3/] See Interest Expense, Pension and Post-retirement Benefits and Capital Transfers section of this budget for a complete discussion of these cost estimates.

[4/] This budget has been prepared in accordance with PAYGO. Under PAYGO all Bonneville budget estimates are treated as mandatory and are not subject to the discretionary caps included in the Budget Control Act of 2011. These estimates support activities that are separate from discretionary activities and accounts. Thus, any changes to Bonneville estimates cannot be used to affect any other budget categories which have their own dollar caps. Because Bonneville's obligations are and will be incurred under pre-existing legislative authority, Bonneville is not subject to a "pay-as-you-go" test regarding its revision of current-law funding estimates.

BP-3

CURRENT SERVICES
(in millions of dollars)

	CAPITAL TRANSFERS	FISCAL YEAR						
	Amortization:	2022 Payment	2023 Payment	2024 Payment	2025 Payment	2026 Payment	2027 Payment	2028 Payment
18	BPA Bonds	689	470	388	538	571	612	407
19	Reclamation Appropriations	5	3	2	0	19	0	0
20	BPA Appropriations	0	0	0	0	0	0	0
21	Corps Appropriations	0	261	282	109	70	0	0
22	Lower Snake River Comp Plan Amortization	0	2	0	0	0	0	0
23	**TOTAL CAPITAL TRANSFERS**	**694**	**736**	**673**	**647**	**660**	**612**	**407**
24	**FULL-TIME EQUIVALENT (FTE)**	**2,847**	**3,000**	**3,000**	**3,000**	**3,025**	**3,075**	**3,125**

PROGRAM & FINANCING SUMMARY

Current Services

(in millions of dollars)

Identification Code: 89-4045-0-3-271

		2022	2023	est. 2024	2025	2026	2027	2028
Program by activities:								
	Operating expenses:							
0.01	Power Services	1,133	919	948	1,014	1,040	1,065	1,091
0.02	Residential Exchange Program	267	267	267	267	273	280	286
	Associated Project Costs:							
0.05	Bureau of Reclamation	147	153	154	157	161	165	169
0.06	Corps of Engineers	244	253	259	269	276	282	289
0.07	Colville Settlement	20	22	22	22	23	23	24
0.08	Spokane Settlement	5	6	6	6	6	6	6
0.19	U.S. Fish & Wildlife Service	33	29	32	32	33	34	35
0.20	Planning Council	12	12	12	12	12	13	13
0.21	Fish & Wildlife	235	247	269	268	275	282	288
0.23	Transmission Services	547	514	577	595	614	633	652
0.24	Conservation & Energy Efficiency	122	151	151	152	156	159	163
0.25	Interest	194	153	145	161	187	196	202
0.26	Pension and Health Benefits [1/]	37	32	38	38	39	40	41
0.91	**Total operating expenses** [2/]	**2,995**	**2,757**	**2,879**	**2,994**	**3,094**	**3,177**	**3,257**
	Capital investment:							
1.01	Power Services	190	281	270	276	282	288	295
1.02	Transmission Services	374	497	594	581	556	537	546
1.04	Fish & Wildlife	16	43	41	41	29	16	15
1.05	Capital Equipment	21	21	24	23	25	23	24
1.06	Capitalized Bond Premiums	0	0	0	0	0	0	0
1.07	**Total Capital Investment** [3/]	**601**	**842**	**929**	**921**	**892**	**864**	**880**
2.01	Projects Funded in Advance	121	61	46	55	53	54	55
10.00	**Total obligations** [4/]	**3,716**	**3,661**	**3,854**	**3,970**	**4,039**	**4,095**	**4,192**

These notes are an integral part of this table.

[1/] See Interest Expense, Pension and Post-retirement Benefits and Capital Transfers section of this budget for a complete discussion of these cost estimates.

[2/] Assumes expense obligations, not accrued expenses.

Power Services doesn't include Fish & Wildlife, Residential Exchange Program, Planning Council, Conservation & Energy Efficiency and Associated Project Costs which have been shown separately for display purposes.

[3/] Assumes capital obligations, not capital expenditures.

[4/] This FY 2024 budget includes capital and expense estimates based on final spending proposals from Bonneville's BP-24 IPR process.

For purposes of this table, this FY 2024 budget reflects, for FY 2022, forecast third party financing expense only for PFIA.

Capital funding levels reflect external factors such as the significant changes affecting West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region.

Budget estimates included in this budget are subject to change due to rapidly changing economic and institutional conditions in the evolving electric utility industry.

Refer to 16 USC Chapters 12B, 12G, 12H, and Bonneville's other organic laws, including P.L. 100-371, Title III, Sec. 300, 102 Stat. 869, July 19, 1988, regarding Bonneville's ability to obligate funds.

Program and Financing (continued)

Current Services

(in millions of dollars)

		2022 est.	2023	2024	2025	2026	2027	2028
Financing:								
1000	Unobligated balance available, start of year. [5/]	10	10	8	0	0	0	0
1050	Unobligated balance available, end of year.[5/]	11	8	8	0	0	0	0
1200	Appropriation[6/]	78						
1236	Appropriations applied to repay debt[6/]	(78)						
1900	**Budget authority (gross)**	**3,716**	**4,101**	**4,320**	**4,381**	**4,391**	**4,449**	**4,715**
Budget Authority:								
1400	Permanent Authority: Authority to borrow from Treasury (indefinite) [7/]	739	842	929	921	892	864	880
1600	Contract Authority	1,270						
1800	Spending authority from off-setting collections	4,517	3,994	4,064	4,107	4,160	4,197	4,242
1825	Portion applied to debt reduction	(611)	(736)	(673)	(647)	(660)	(612)	(407)
1850	**Spending authority from offsetting collections (adjusted)**	**1,707**	**3,259**	**3,391**	**3,460**	**3,500**	**3,585**	**3,835**
900	Total obligations	3,717	3,662	3,855	3,970	4,039	4,095	4,192
4110	Outlays (gross)	3,717	3,662	3,855	3,970	4,039	4,095	4,192
Adjustments to budget authority and outlays:								
	Deductions for offsetting collections:							
4120	Federal funds	(56)	(90)	(90)	(90)	(90)	(90)	(90)
4121	Interest on Federal Securities	(9)	(10)	0				
4123	Non-Federal sources	(4,461)	(3,894)	(3,974)	(4,017)	(4,070)	(4,107)	(4,152)
4130	Total, offsetting collections	(4,517)	(3,994)	(4,064)	(4,107)	(4,160)	(4,197)	(4,242)
4160	**Budget authority (net)**	**(984)**	**107**	**256**	**274**	**231**	**252**	**473**
4170	**Outlays (net) 8[9/]**	**(806)**	**(332)**	**(209)**	**(137)**	**(121)**	**(102)**	**(50)**

These notes are an integral part of this table.

[5/] Reflects estimated cost for radio spectrum fund.

[6/] This entry reflects a unique mechanism developed by U.S. Treasury and implemented by U.S. Treasury and BPA to apply earned BPA fish credits to the repayment of BPA bonded debt owed to the U.S . Treasury. This entry does not reflect a tax-payer appropriation.

[7/] The Permanent Authority: Authority to borrow (indefinite) from the U.S. Treasury amounts reflect both Bonneville's capital program financing needs and either the use of, or creation of, deferred borrowing. Deferred borrowing is created when, as a cash and debt management decision, Bonneville uses cash from revenues to liquidate capital obligations in lieu of borrowing at that time from the U.S. Treasury. This temporary use of cash on hand instead of borrowed funds creates the ability in future years to borrow money, when fiscally prudent. The FY 1989 Energy and Water Development Appropriations Act (P.L. 100-371 Of 7/19/88) confirmed that Bonneville has authority to incur obligations in excess of U.S. Treasury borrowing authority and cash in the BPA fund.

Net Outlay estimates are based on current cost savings to date and anticipated cash management goals. They are expected to follow anticipated management decisions throughout the rate period that, along with actual market conditions, will impact revenues and expenses. Actual Net Outlays are volatile and are reported in Report on Budget Execution and Budgetary Resources (SF-133). Actual Net Outlays could differ from estimates due to changing market conditions, streamflow variability, continued restructuring of the electric industry, and other reasons.

Revenues, included in the Net Outlay formulation, are calculated consistent with cash management goals and assume a combination of adjustments. Assumed adjustments include the use of a combination of tools, including upcoming rate adjustment mechanisms, a net revenue risk adjustment, debt service refinancing strategies and/or short-term financial tools to manage net revenues and cash. Some of these potential tools will reduce costs rather than generate revenue, causing the same Net Outlay result. Adjustments for depreciation and 4(h)(10)(C) credits of the Northwest Power Act are also assumed.

[8/] This budget has been prepared in accordance with PAYGO. Under PAYGO all Bonneville budget estimates are treated as mandatory and are not subject to the discretionary caps included in the Budget Control Act of 2011. These estimates support activities that are separate from discretionary activities and accounts. Thus, any changes to Bonneville estimates cannot be used to affect any other budget categories which have their own dollar caps. Because Bonneville's obligations are and will be incurred under pre-existing legislative authority, Bonneville is not subject to a "pay-as-you-go" test regarding its revision of current-law funding estimates.

For BP-1 table, the CJ reflects forecasted outlays while the yearend GTAS reflects the actual outlay in the Budget Appendix.

[9/] FY 2022 Net Outlays are calculated using Bonneville's FY 2022 EOY Actuals. FY 2023 is based off of rate case and FY 2024 to 2028 Net Outlays are based on BP-

These notes are an integral part of this table.

BONNEVILLE POWER ADMINISTRATION
BPA STATUS of U.S. TREASURY BORROWING
CURRENT SERVICES

BP-4A

	Fiscal Year							
	2022				2023			
	Net Capital Obs	Net Capital Obs Subject to BA	Net Capital Expend.	Bonds Out-Standing	Net Capital Obs	Net Capital Obs Subject to BA	Net Capital Expend.	Bonds Out-Standing
Start-of-Year: Total	4,207	3,665	5,106	5,629	4,119	3,577	5,018	5,679
Plus: Annual Increase								
Cum.-Annual Treasury Borrowing								
Treasury Borrowing (Cash)	601	601	601	739	842	842	842	842
Less:								
BPA Bond Amortization	689	689	689	689	470	470	470	470
Net Increase/(Decrease):	(88)	(88)	(88)	50	373	373	373	373
Cum.-End-of-Year: Total	4,119	3,577	5,018	5,679	4,491	3,949	5,390	6,051
Total Remaining Treasury Borrowing Amount				8,021				7,649
Total Legislated Treasury Borrowing Amount				13,700				13,700

These notes are an integral part of this table.

In any given year, Bonneville may issue lower principal amount of bonds to the U.S. Treasury than forecast depending on net revenues, borrowing costs, and other cash management factors. In such cases, Bonneville accumulates a deferred borrowing balance that it accesses as necessary in the future.

Capital funding levels reflect external factors such as the significant changes affecting West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region.

In this FY 2024 budget, Bonneville "bond(s)" refers to all bonds issued by Bonneville to and advances received from the U.S. Treasury. This reference is consistent with section 13 (a) of the Transmission Act, which defines Bonneville bonds as all bonds, notes, and other evidences of indebtednesses issued and sold by Bonneville to the U.S. Treasury.

As in the past, Bonneville may pursue future restructuring of total debt as opportunities arise.

Budget estimates included in this budget are subject to change due to rapidly changing economic and institutional conditions in the evolving electric utility industry.

Cumulative advance amortization payments as of the end of FY 2022 are $6,600 million.

Total includes BPA's self-financing activities. In addition, BPA has negotiated with the U.S. Treasury access to a $750 million short term note as part of the $17.7 billion borrowing authority.

Section 40110 of the Infrastructure Investment and Jobs Act of 2021, Public Law 117-58, enacted on November 15, 2021, provided the Bonneville Administrator with $10 billion in additional permanent borrowing authority "...to assist in the financing, acquisition and replacement of the Federal Columbia Power System and to implement the authority of the Administrator of the Bonneville Power Administration..." Section 40110 specifies that the "obligation"...of the $10 billion in additional borrowing authority...shall not exceed $6 billion by fiscal year 2028. BPA is authorized by Congress to have outstanding at any time up to $13.7 billion of bonds through fiscal year 2027. Beginning in fiscal year 2028, an additional $4 billion will become available to have outstanding for a total of $17.7 billion.

These notes are an integral part of this table.

BONNEVILLE POWER ADMINISTRATION
BPA STATUS of U.S. TREASURY BORROWING
CURRENT SERVICES
(in millions of dollars)

BP-4B

	2024				2025			
	Net Capital Obs	Net Capital Obs Subject to BA	Net Capital Expend.	Bonds Out-Standing	Net Capital Obs	Net Capital Obs Subject to BA	Net Capital Expend.	Bonds Out-Standing
Start-of-Year: Total	4,491	3,949	5,390	6,051	5,032	4,490	5,931	6,592
Plus: Annual Increase								
Cum.-Annual Treasury Borrowing Treasury Borrowing (Cash)	929	929	929	929	921	921	921	921
Less:								
Total BPA Bond Amortization	388	388	388	388	538	538	538	538
Net Increase/(Decrease):								
Total	541	541	541	541	383	383	383	383
Cum.-End-of-Year: Total	5,032	4,490	5,931	6,592	5,415	4,873	6,314	6,975
Total Remaining Treasury Borrowing Amount				7,108				6,725
Total Legislated Treasury Borrowing Amount				13,700				13,700

These notes are an integral part of this table.

In any given year, Bonneville may issue lower principal amount of bonds to the U.S. Treasury than forecast depending on net revenues, borrowing costs, and other cash management factors. In such cases, Bonneville accumulates a deferred borrowing balance that it accesses as necessary in the future.

Capital funding levels reflect external factors such as the significant changes affecting West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region.

In this FY 2024 budget, Bonneville "bond(s)" refers to all bonds issued by Bonneville to and advances received from the U.S. Treasury. This reference is consistent with section 13 (a) of the Transmission Act, which defines Bonneville bonds as all bonds, notes, and other evidences of indebtednesses issued and sold by Bonneville to the U.S. Treasury.

As in the past, Bonneville may pursue future restructuring of total debt as opportunities arise.

Budget estimates included in this budget are subject to change due to rapidly changing economic and institutional conditions in the evolving electric utility industry.

Cumulative advance amortization payments as of the end of FY 2022 are $6,600 million.

Total includes BPA's self-financing activities. In addition, BPA has negotiated with the U.S. Treasury access to a $750 million short term note as part of the $17.7 billion borrowing authority.

Section 40110 of the Infrastructure Investment and Jobs Act of 2021, Public Law 117-58, enacted on November 15, 2021, provided the Bonneville Administrator with $10 billion in additional permanent borrowing authority "...to assist in the financing, acquisition and replacement of the Federal Columbia Power System and to implement the authority of the Administrator of the Bonneville Power Administration..." Section 40110 specifies that the "obligation"...of the $10 billion in additional borrowing authority...shall not exceed $6 billion by fiscal year 2028. BPA is authorized by Congress to have outstanding at any time up to $13.7 billion of bonds through fiscal year 2027. Beginning in fiscal year 2028, an additional $4 billion will become available to have outstanding for a total of $17.7 billion.

These notes are an integral part of this table.

BONNEVILLE POWER ADMINISTRATION
BPA STATUS of U.S. TREASURY BORROWING
CURRENT SERVICES
(in millions of dollars)

BP-4C Fiscal Year

	2026				2027			
	Net Capital Obs	Net Capital Obs Subject to BA	Net Capital Expend.	Bonds Out-Standing	Net Capital Obs	Net Capital Obs Subject to BA	Net Capital Expend.	Bonds Out-Standing
Start-of-Year: Total	5,415	4,873	6,314	6,975	5,735	5,193	6,634	7,295
Plus: Annual Increase								
Cum.-Annual Treasury Borrowing	892	892	892	892	864	864	864	864
Treasury Borrowing (Cash)								
Less:								
Total BPA Bond Amortization	571	571	571	571	612	612	612	612
Net Increase/(Decrease):								
Total	320	320	320	320	252	252	252	252
Cum.-End-of-Year: Total	5,735	5,193	6,634	7,295	5,987	5,445	6,886	7,547
Total Remaining Treasury Borrowing Amount				6,405				6,153
Total Legislated Treasury Borrowing Amount				13,700				13,700

These notes are an integral part of this table.

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Capital funding levels reflect external factors such as the significant changes affecting West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region.

In this FY 2024 budget, Bonneville "bond(s)" refers to all bonds issued by Bonneville to and advances received from the U.S. Treasury. This reference is consistent with section 13 (a) of the Transmission Act, which defines Bonneville bonds as all bonds, notes, and other evidences of indebtednesses issued and sold by Bonneville to the U.S. Treasury.

As in the past, Bonneville may pursue future restructuring of total debt as opportunities arise.

Budget estimates included in this budget are subject to change due to rapidly changing economic and institutional conditions in the evolving electric utility industry.

Cumulative advance amortization payments as of the end of FY 2022 are $6,600 million.

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These notes are an integral part of this table.

BONNEVILLE POWER ADMINISTRATION
BPA STATUS of U.S. TREASURY BORROWING
CURRENT SERVICES
(in millions of dollars)

BP-4D

	Fiscal Year 2028			
	Net Capital Obs	Net Capital Obs Subject to BA	Net Capital Expend.	Bonds Out-Standing
Start-of-Year: Total	5,987	5,445	6,886	7,547
Plus: Annual Increase				
Cum.-Annual Treasury Borrowing	880	880	880	880
Treasury Borrowing (Cash)				
Less:				
Total BPA Bond Amortization	407	407	407	407
Net Increase/(Decrease):				
Total	473	473	473	473
Cum.-End-of-Year: Total	6,460	5,918	7,359	8,020
Total Remaining Treasury Borrowing Amount				9,680
Total Legislated Treasury Borrowing Amount				17,700

These notes are an integral part of this table.

In any given year, Bonneville may issue lower principal amount of bonds to the U.S. Treasury than forecast depending on net revenues, borrowing costs, and other cash management factors. In such cases, Bonneville accumulates a deferred borrowing balance that it accesses as necessary in the future.

Capital funding levels reflect external factors such as the significant changes affecting West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region.

In this FY 2024 budget, Bonneville "bond(s)" refers to all bonds issued by Bonneville to and advances received from the U.S. Treasury. This reference is consistent with section 13 (a) of the Transmission Act, which defines Bonneville bonds as all bonds, notes, and other evidences of indebtednesses issued and sold by Bonneville to the U.S. Treasury.

As in the past, Bonneville may pursue future restructuring of total debt as opportunities arise.

Budget estimates included in this budget are subject to change due to rapidly changing economic and institutional conditions in the evolving electric utility industry.

Cumulative advance amortization payments as of the end of FY 2022 are $6,600 million.

Total includes BPA's self-financing activities. In addition, BPA has negotiated with the U.S. Treasury access to a $750 million short term note as part of the $17.7 billion borrowing authority.

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These notes are an integral part of this table.

BONNEVILLE POWER ADMINISTRATION
POTENTIAL THIRD PARTY FINANCING TRANSPARENCY
(in millions of dollars)

BP-5

		Fiscal Year						
Transmission Services - Capital		**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Main Grid	Requirements	7	6	38	39	40	36	28
Area & Customer Services		39	72	38	44	40	45	52
Upgrades & Additions		64	113	151	147	101	54	58
System Replacements		264	306	366	352	375	402	409
Projects Funded in Advance		121	61	46	55	53	54	55
Total, Transmission Services - Capital		494	558	640	636	609	591	601
Associated Project Costs - Capital								
Associated Project Costs	Requiren	190	281	270	276	282	288	295
Projects Funded in Advance[1/]		0	0	0	0	0	0	0
Total, Associated Project Costs - Capital		190	281	270	276	282	288	295
Federal and Non-Federal Funding								
Projects Funded in Advance	Source	121	61	46	55	53	54	55
U.S. Treasury Borrowing Authority		564	778	864	857	838	825	841
Scenario								
Projects Funded in Advance[1/]	Scenario	0	0	0	0	0	0	0
Third Party Financing		93	124	148	145	139	134	137
Alternate Treasury Borrowing Authority		NA	654	715	711	699	691	704

These notes are an integral part of this table.

1/ In this instance, Projects Funded in Advance represents prepayment of Power customers' bills reimbursed by future credits and third party non-federal financing for Conservation initiatives. Also this category includes those facilities and/or equipment where Bonneville retains control or ownership which are funded or financed by a third party, revenue, or with Power or Transmission reserves, either in total or in part.

The table above shows both the potential use of U.S. Treasury borrowing authority for transmission capital projects based on this FY 2024 budget and the use adjusted for potential third-party financing to fund appropriate capital expenditures when feasible in lieu of U.S. Treasury borrowing. Estimates included in this FY 2024 budget are uncertain and may change due to revised capital investment plans, changing economic conditions, and an evolving financial market environment. The estimates of third-party financing included in the table show a reduction in the use of U.S. Treasury borrowing and do not reflect the actual notional third party financing commitment Bonneville may enter into in that particular year. The difference of reduction in use of U.S. Treasury borrowing and the actual notional third party financing commitment is primarily due to the difference in the timing of financing transactions between U.S. Treasury and third-party financing for capital projects with multi-year construction schedules.

Bonneville's Third Party Financing for Transmission Services consists primarily of lease-purchase agreements, which are capitalized obligations that enable Bonneville to acquire the use of transmission facilities over time. Bonneville also undertakes the construction and installation of facilities from funds that customers advance to Bonneville for construction of BPA-owned facilities that assist the customers in obtaining necessary transmission service from Bonneville. These customers receive monetary payment credits in bills for transmission services from Bonneville up to the amount of funds advanced to Bonneville, plus interest.

Bonneville's historical Third Party Financing amounts may vary over time due to re-assignment of certain lease-purchase agreements to Treasury Financing.

Bonneville Status of U.S. Treasury Borrowing with Potential Third Party Financing & PFIA Scenario

With the potential use of third party financing assumed in the scenario above, Bonneville's total remaining U.S. Treasury Borrowing Amount would be extended to the following amounts. See BP-4 BPA Status of Treasury Borrowing- Current Services.

	Fiscal Year						
	2022	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Start-of-Year: Total Bonds Outstanding	5,629	5,679	5,927	6,320	6,557	6,738	6,856
Plus:							
U.S. Treasury Borrowing (Cash)	739	842	929	921	892	864	880
Less:							
Potential Third Party Financing & PFIA	93	124	148	145	139	134	137
BPA Bond Amortization	689	470	388	538	571	612	407
Net Increase/(Decrease) Bonds Outstanding:	50	249	392	237	181	117	336
Cum.-End-of-Year: Total	5,679	5,927	6,320	6,557	6,738	6,856	7,192
Total Remaining U.S. Treasury Borrowing Amount	8,021	7,773	7,380	7,143	6,962	6,844	10,508
Total Legislated U.S.Treasury Borrowing Amount	13,700	13,700	13,700	13,700	13,700	13,700	17,700

U.S. TREASURY PAYMENTS

(in millions of dollars)

		FISCAL YEAR						
		2022	2023	2024	2025	2026	2027	2028
A.	**INTEREST ON BONDS & APPROPRIATIONS**							
	Bonneville Bond Interest							
1	Bonneville Bond Interest (net)	128	114	121	141	168	182	197
2	AFUDC [1/]	25	30	31	29	25	22	21
	Appropriations Interest							
3	Bonneville	0	0	0	0	0	0	0
4	Corps of Engineers [2/]	40	40	29	18	15	13	14
5	Lower Snake River Comp. Plan	0	0	0	0	0	0	0
6	Bureau of Reclamation [3/]	1	1	1	1	1	0	0
7	Bond Premiums paid/Discounts (not capitalized)	0	-2	-6	0	3	0	-9
8	**Total Bond and Approp. Interest**	**194**	**184**	**176**	**190**	**213**	**218**	**223**
B.	**ASSOCIATED PROJECT COST**							
9	Bureau of Reclamation Irrigation Assistance	17	13	8	14	20	6	11
10	Bureau of Rec. O & M [4/]	0	0	0	0	0	0	0
11	Corps of Eng. O & M [4/]	1	0	0	0	0	0	0
12	L. Snake River Comp. Plan O & M [4/]	0	0	0	0	0	0	0
13	**Total Assoc. Project Costs**	**18**	**13**	**8**	**14**	**20**	**6**	**11**
C.	**CAPITAL TRANSFERS**							
	Amortization							
14	Bonneville Bonds [6/]	689	470	388	538	571	612	407
15	Bureau of Reclamation Appropriations	5	3	2	0	19	0	0
16	Corps of Engineers Appropriations	0	261	282	109	70	0	0
17	Lower Snake River Comp. Plan	0	2	0	0	0	0	0
18	Bonneville Appropriations	0	0	0	0	0	0	0
19	**Total Capital Transfers [7/8]**	**694**	**736**	**673**	**647**	**660**	**612**	**407**
D.	**OTHER PAYMENTS**							
20	Unfunded Post-Retirement Liability [5/]	37	32	38	38	39	40	41
21	**TOTAL TREASURY PAYMENTS**	**943**	**965**	**895**	**889**	**932**	**877**	**683**

These notes are an integral part of this table.

1/ This interest cost is capitalized and included in BPA's Transmission System Development, System Replacements, and Associated Projects Capital programs. AFUDC is financed through the sale of bonds.

2/ Includes interest on construction funding for Corps of Engineers (Corps) Columbia River Fish Mitigation (CRFM).

3/ Includes interest on construction funding for Reclamation's Leavenworth Fish Hatchery at Grand Coulee and smaller appropriated projects.

4/ Costs for power O&M is funded directly by Bonneville as follows (in millions):

FISCAL YEAR	2022	2023	2024	2025	2026	2027	2028
Bureau of Reclamation	147	153	154	157	161	165	169
Corps of Engineers	244	253	259	269	276	282	289
Subtotal Bureau and Corps	391	406	414	427	437	447	457
Lower Snake River Comp. Plan	33	29	32	32	33	34	35
Total	424	435	446	459	470	481	492

5/ See Interest Expense, Pension and Post-retirement Benefits and Capital Transfers section of this budget for a complete discussion of these cost estimates.

6/ In this FY 2024 budget, Bonneville "bond(s)" refers to all bonds issued by Bonneville to and advances received from the U.S. Treasury. This reference is consistent with section 13 (a) of the Transmission Act, which defines Bonneville bonds as all bonds, notes, and other evidences of indebtednesses issued and sold by Bonneville to the U.S. Treasury.

7/ Does not include Treasury bond premiums on refinanced Treasury bonds.

8/ FY 2022 data reflects BPA's FY 2022 EOY Actuals.

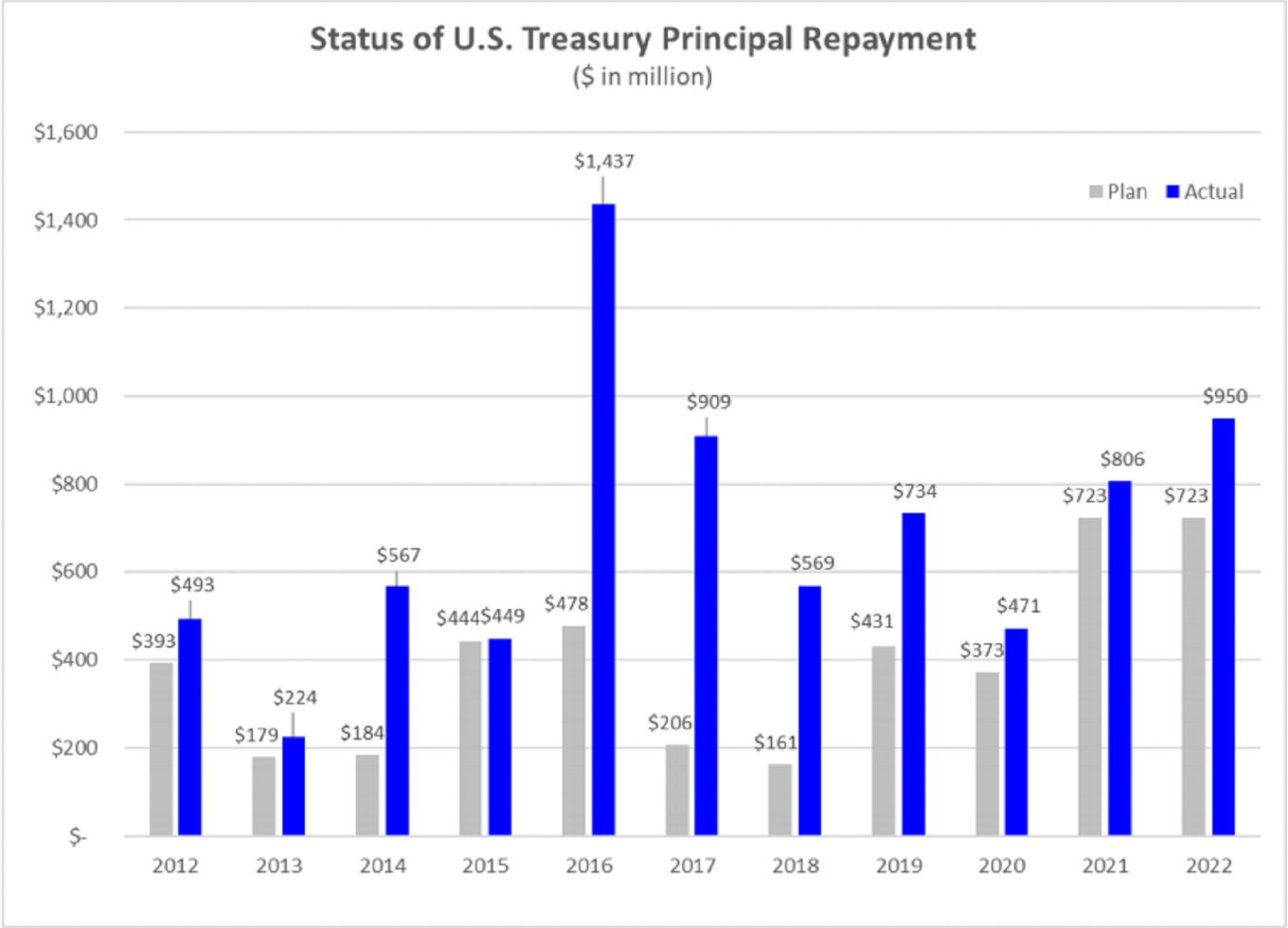


Chart Notes

[1/] This chart displays principal repayment only.

[2/] U.S. Treasury payment outyear estimates for planned amortization of principal are based on rate case estimates when available and are planned amortization for future rate case periods. These estimates may change due to revised capital investment plans, actual U.S. Treasury borrowing, and advanced amortization payments. Bonneville's FY 2022 payment to the U.S. Treasury was approximately $951 million. This was the 39th consecutive year that Bonneville made its scheduled payments to the U.S. Treasury on time and in full. The payment included $694 million in principal, which included $346 million in early retirement of higher interest rate U.S. Treasury debt, $194 million for interest, $17 million in irrigation assistance payments, and $37 million in pension and post-retirement benefits.

[3/] FYs 2002-2012 payments include portions of advance amortization amounts consistent with Bonneville's capital strategy plan and the Bonneville /Energy Northwest debt optimization program.

[4/] Advance amortization due to sale of transmission facilities includes $12.7 million in FY 2003, $5.3 million in FY 2006, $2.0 million in FY 2011, $0.4 million in FY 2013 and $0.4 million in FY 2014, and $0.6 million in FY 2017.

[5/] The cumulative balance of advance amortization payments as of the end of FY 2022 was in excess of $6.6 billion.

[6/] FYs 2014-2022 include advance amortization under the Regional Cooperation Debt initiative with Energy Northwest (EN) under which EN extended maturities on Bonneville-backed debt which enabled the early amortization of higher cost appropriations and bonds.

OBJECT CLASSIFICATION STATEMENT

(in millions of dollars)

	ESTIMATES		
	2022	**2023**	**2024**
11.1 Full-time permanent	293	289	304
11.3 Other than full-time permanent	2	2	2
11.5 Other personnel compensation	107	105	111
11.9 **Total personnel compensation**	**402**	**396**	**417**
12.1 Civilian personnel benefits	166	163	172
13.0 Benefits for former personnel	0	0	0
21.0 Travel and transportation of persons	3	3	3
22.0 Transportation of things	8	8	8
23.1 Rental payments to GSA	0	0	0
23.2 Rents, other	35	34	36
23.3 Communication, utilities & misc. charg	13	13	13
25.1 Consulting Services	104	102	108
25.2 Other Services	2437	2401	2527
25.5 R & D Contracts	4	4	4
26.0 Supplies and materials	29	29	30
31.0 Equipment	112	110	116
32.0 Lands and structures	88	87	91
41.0 Grants, subsidies, contributions	53	52	55
43.0 Interest and dividends	263	259	273
99.0 Total obligations	**3716**	**3661**	**3854**

Estimate of Receipts
(in millions of dollars)

	Fiscal Year						
	2022	2023	2024	2025	2026	2027	2028
Reclamation Interest	1	1	1	1	1	0	0
Reclamation Amortization	5	3	2	0	19	0	0
Reclamation O&M	0	0	0	0	0	0	0
Reclamation Irrig. Assist.	17	13	8	14	20	6	11
Revenues Collected by Reclamation Distributed in Treasury Account (credit)	-17	-7	-5	-7	-7	-1	-6
Colville Settlement (credit)	-5	-5	-5	-5	-5	-5	-5
Total 1/ Reclamation Fund	**1**	**5**	**1**	**3**	**29**	**1**	**1**
Corps O&M	0						
COE Approp. CRFM Studies Expense	8						
CSRS	37	32	38	38	39	40	41
Total 2/ Repayments on miscellaneous costs	**45**	**32**	**38**	**38**	**39**	**40**	**41**

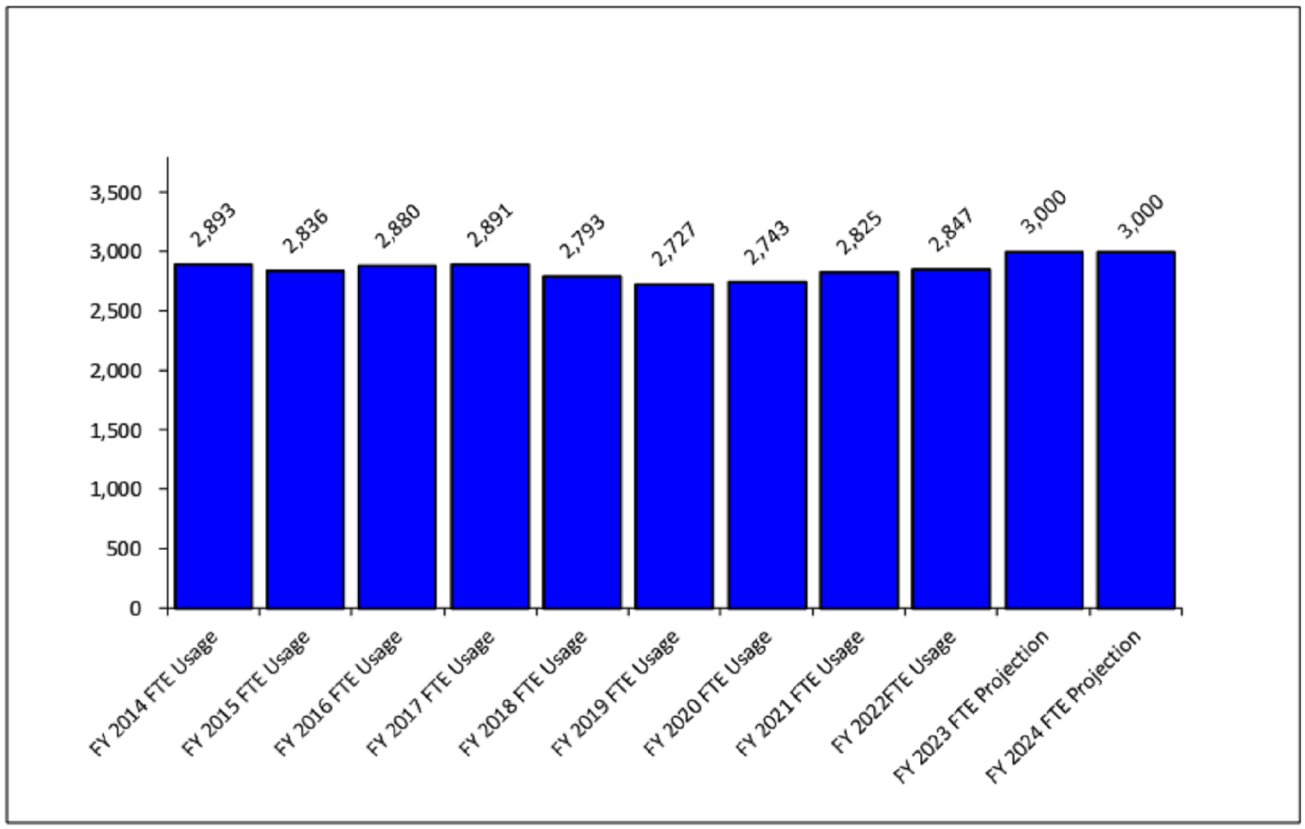
1/ Includes amortization of appropriations and irrigation assistance, and interest costs for Reclamation. The cost of power O&M for Reclamation is no longer included in Proprietary Receipts due to Direct Funding by Bonneville. Represents transfer to Account #895000.26

2/ The costs of power O&M for the Corps and Lower Snake River Comp. Plan are no longer included in Proprietary Receipts due to Direct Funding by Bonneville. Represents transfers to Account #892889, Repayments on misc. recoverable costs, not otherwise classified. Costs for power O&M is funded directly by Bonneville as follows (in millions).

	2022	2023	2024	2025	2026	2027	2028
Bureau of Reclamation	147	153	154	157	161	165	169
Corps of Engineers	244	253	259	269	276	282	289
Lower Snake River Comp. Plan	33	29	32	32	33	34	35
Total	**424**	**435**	**446**	**459**	**470**	**481**	**492**

See Interest Expense, Pension and Post-retirement Benefits and Capital Transfers section of this budget for a complete discussion of these cost estimates.

BONNEVILLE FTE



These notes are an integral part of this chart.

1. Actual FTE data is consistent with DOE personnel reports.
2. FTE outyear data are estimates and may change. Bonneville is facing a dynamic and changing transmission marketplace and operations while, at the same time, many of its employees are eligible to retire in the near future. It is important that Bonneville continue to attract and retain skilled individuals to meet the growing demands of a competitive and rapidly changing industry. Accordingly, FTE estimates may need to be adjusted in the future.
3. As of 10 Oct 2022 DOE HR staff has reported FY 2022 BPA's FTE Usage at 2,847.

Total Cost of BPA Fish & Wildlife Actions

COST ELEMENT	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
CAPITAL INVESTMENTS [1]										
BPA FISH AND WILDLIFE	52.1	37.4	21.4	16.0	5.4	30.7	22.3	40.2	41.9	16.1
BPA SOFTWARE DEVELOPMENT COSTS	0.0	0.1	1.4	1.2	1.4	0.8	0.0	0.0	0.0	0.0
ASSOCIATED PROJECTS (FEDERAL HYDRO)	103.6	101.7	81.4	34.1	58.9	51.8	55.5	106.6	66.7	10.4
TOTAL CAPITAL INVESTMENTS	155.7	139.2	104.1	51.4	65.7	83.2	77.9	146.7	108.6	26.5
PROGRAM EXPENSES										
BPA DIRECT FISH AND WILDLIFE PROGRAM	239.0	231.8	258.2	258.1	254.7	258.7	240.4	238.1	253.6	249.4
FISH & WILDLIFE SOFTWARE EXPENSE COSTS	0.2	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2
SUPPLEMENTAL MITIGATION PROGRAM EXPENSES [2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REIMBURSABLE/DIRECT-FUNDED PROJECTS [3]										
O & M LOWER SNAKE RIVER HATCHERIES	28.7	31.0	30.9	28.6	26.0	31.4	26.7	31.9	30.7	33.0
O & M CORPS OF ENGINEERS	39.2	47.8	46.4	48.2	46.8	47.5	48.9	46.3	48.3	47.4
O & M BUREAU OF RECLAMATION	5.6	6.6	2.6	6.0	7.0	5.5	8.7	5.8	6.5	7.2
NW POWER AND CONSERVATION COUNCIL ALLOCATED @ 50%	5.0	4.9	4.9	5.4	5.4	5.5	5.6	5.6	5.5	6.0
SUBTOTAL (REIMB/DIRECT-FUNDED)	78.5	90.3	84.9	88.2	85.2	89.9	89.9	89.6	91.0	93.6
TOTAL OPERATING EXPENSES	317.70	322.40	343.17	346.34	339.90	348.65	330.30	327.66	344.60	343.23
PROGRAM RELATED FIXED EXPENSES [4]										
INTEREST EXPENSE	89.1	83.4	89.2	85.6	58.6	41.0	39.7	32.5	29.3	29.4
AMORTIZATION EXPENSE	35.7	38.7	41.3	42.5	42.5	43.4	45.1	46.7	47.4	47.6
DEPRECIATION EXPENSE	18.6	19.2	20.1	20.1	20.3	20.8	21.0	21.1	22.0	22.0
TOTAL FIXED EXPENSES	143.4	141.3	150.6	148.2	121.4	105.1	105.8	100.3	98.7	99.0
GRAND TOTAL PROGRAM EXPENSES	461.1	463.7	493.7	494.6	461.3	453.7	436.1	428.0	443.3	442.2
FORGONE REVENUES AND POWER PURCHASES										
FOREGONE REVENUES	135.5	122.7	195.8	76.6	9.6	2.9	174.4	33.4	190.6	251.9
BPA POWER PURCH. FOR FISH ENHANCEMENT	85.8	196.2	67.5	50.3	(20.5)	24.3	177.6	150.0	110.6	237.9
TOTAL FOREGONE REVENUES AND POWER PURCHASES	221.3	318.9	263.3	126.9	(10.9)	27.2	352.0	183.4	301.2	489.8
TOTAL PROGRAM EXPENSES, FOREGONE REVENUES, & POWER PURCHASES	682.4	782.6	757.0	621.5	450.4	480.9	788.1	611.5	744.5	932.1
CREDITS										
4(h)(10)(C)	(84.1)	(103.9)	(77.7)	(72.6)	(53.7)	(70.1)	(98.2)	(95.5)	(90.6)	(112.3)
FISH COST CONTINGENCY FUND	-	-	-	-	-	-	-	-		-
TOTAL CREDITS	(84.1)	(103.9)	(77.7)	(72.6)	(53.7)	(70.1)	(98.2)	(95.5)	(90.6)	(112.3)

This information has been made publicly available by BPA on 3/25/2008. The figures shown are consistent with audited actuals that contain Agency approved financial information, except for forgone revenues and power purchases which are estimates and do not contain Agency approved financial information

1/ Capital Investments include both BPA's direct Fish and Wildlife Program capital investments, funded by BPA's Treasury borrowing, and "Associated Projects", which include capital investments at Corps of Engineers' and Bureau of Reclamation projects, funded by appropriations and repaid by BPA. The negative amount in FY 1997 reflects a decision to reverse "plant-in-service" investment that was never actually placed into service. The annual expenses associated with these investments are included in "Program-Related Fixed Expenses", below.

2/ Includes High Priority and Action Plan Expenses and other supplemental programs.

3/ "Reimbursable/Direct-Funded Projects" includes the portion of costs BPA pays to or on behalf of other entities that is determined to be for fish and wildlife purposes.

4/ "Fixed Expenses" include depreciation, amortization and interest on investments on the Corps of Engineers' projects, and amortization and interest on the investments associated with BPA's direct Fish and Wildlife Program.

BONNEVILLE POWER ADMINISTRATION
DOE/BP • March 2023

From: Kintz,Jesse H (BPA) - PG-5
Sent: Monday, February 6, 2023 12:51 PM
To: Spear,Daniel J (BPA) - PGB-5; Welch,Julee A (BPA) - LP-7; Baskerville,Sonya L (BPA) - AIN-WASH; Marker,Doug R (BPA) - AIR-7; Senters,Anne E (BPA) - LN-7; Paustian,Jennavive F (BPA) - PGPL-5; Smith,Glen A (BPA) - PG-5; Webster-Wharton,Stacy T (BPA) - PGA-6; Sullivan,Leah S (BPA) - PGB-5; Mai,Amy E (BPA) - EC-4; Biegel,Sarah T (BPA) - EC-4; Todd,Wayne A (BPA) - PGA-6; Smith,Nathan A (BPA) - FAB-2; Hardy,Kyle R (BPA) - FAC-2; Dondy-Kaplan,Hannah A (BPA) - AIR-7; Maslow,Jeffrey J (BPA) - EC-4; Nagra,Angad S (BPA) - LN-7; Conning III,Edward Thomas (BPA) - DKP-7; Chase,Luke B (BPA) - PGAF-6
Subject: BPA's Willamette EIS comments (public comment period)

FYI all that the attached letter was sent to the Corps at the end of last week. This letter represents BPA's public comments on the Willamette EIS, primarily focused on our concerns about non-economical hydropower and building on the previous comments we sent the Corps during the cooperating agency review comment period back in September.

BPA comments on Draft PEIS (3 ...

Feel free to reach out to me, Doug Marker, or Jeff Maslow if any questions on this.

-Jesse

Jesse Kintz
Power Generation – Senior Policy and Project Lead | [PG-2]
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-3340 | C (b)(6)

From: Marker,Doug R (BPA) - AIR-7
Sent: Tuesday, February 14, 2023 3:17 PM
To: Kintz,Jesse H (BPA) - PG-5
Subject: Bonneville Power Administrations comments on WRDA 2020 Sec 218 implementation May 7 2021.pdf
Attachments: Bonneville Power Administrations comments on WRDA 2020 Sec 218 implementation May 7 2021.pdf

Jesse – These are the comments we submitted two years ago.

The Corps is holding public comment sessions tomorrow, next Wednesday, and March 3. They are doing this sooner in the year than they did two years ago. We had Kieran make comments two years ago. I think we should just focus on written comments this time around.

U.S. Army Corps of Engineers
WRDA2020@usace.army.mil
ATTN: Ms. Amy Frantz, CEW-P

Comments of the Bonneville Power Administration
Docket ID No. COE-2021-002
Implementation Guidance for Water Resources Development Act of 2020, Section 218

The Bonneville Power Administration provides the following comments for preparation of implementation guidance for Section 218 of the Water Resources Act of 2020 directing a report to Congress for an initial analysis of deauthorizing hydropower as an authorized project purpose at Cougar and Detroit/Big Cliff Dams in the Willamette River Basin of Oregon. Bonneville is the Federal Power Marketing Administration with the statutory authority to market the electric power generated from Cougar and Detroit/Big Cliff Dams. Bonneville repays the power share of capital and operations and maintenance (O&M) costs from revenues from the sale of hydroelectric power from 31 dams of the Federal Columbia River Power System (FCRPS) including eight located within the Willamette River Valley.

Because of the urgency of related regional discussions, Bonneville urges the Corps to provide the report directed by Section 218 as soon as possible, ideally in summer 2021. Bonneville believes the Corps has largely already produced the information needed for the initial analysis described in Section 218 in previously completed studies and evaluations. The initial analysis report can be readily completed from this available information. By submitting the report this summer, the Corps can inform Congress of its needs for appropriations in the Willamette Valley System (WVS) for Fiscal Year 2022 based on potential guidance or direction the Corps receives from the Congress regarding operations of the Willamette dams for other project benefits, including fish restoration and water use allocations.

Significance of Deauthorization Analysis:

Bonneville believes that the value of power generation at WVS projects has diminished since authorization relative to the other project benefits, particularly compared with flood risk management. Congress originally authorized WVS dams to primarily mitigate flood risk in the population centers of the Willamette Valley, including the state capital of Salem and Oregon's largest city, Portland. While flood damage reduction remains the WVS dams' highest priority authorization, Congress also authorized other purposes including hydropower with the expectation that power revenues could repay the power share of capital and operations and maintenance (O&M) costs for the projects. Today, power generated from WVS dams is among the highest cost generation of the 31 dams in the FCRPS and the value of power is marginal.

In order to fulfill Endangered Species Act obligations, the Corps of Engineers is evaluating a potential need for implementing significant capital investments at these dams for downstream temperature improvements, dissolved gas reductions, and downstream passage of salmonids at several WVS dams, including include Cougar and Detroit/Big Cliff. Implementation of these investments would substantially increase Bonneville's capital repayment and O&M obligations for its allocated share of the project costs. Further, the Corps is implementing additional changes to reservoir operations that reduce the quantity

and value of power generation. The construction of new fish passage infrastructure is likely to be accompanied by changes to reservoir operations that is likely to further reduce power generation value.

Based on current cost estimates, Bonneville believes that power generation at Cougar Dam will likely be highly uneconomical as a result of significantly increased capital obligations, corresponding O&M costs, and diminished power production associated with structural passage as currently being evaluated. Bonneville is reviewing the impacts of capital construction and operational reductions on the value of power from Detroit/Big Cliff. Bonneville will contribute its estimates of these power values to the Corps' initial analysis.

At the same time, reservoir operations are currently constrained under the existing rule curves for each reservoir to reserve a portion of stored water exclusively for power production (the "power pool"). Hydropower deauthorization would eliminate the need for power pool constraints and provide for more flexible operations to benefit other project purposes. The Corps is involved in multiple decision processes for other project benefits that would be aided by Congressional guidance on power authorization and cost allocation.

Urgency of Congressional Guidance for Willamette Capital Investments:

In a WVS O&M Environmental Impact Statement (EIS) process, the Corps is considering alternative capital investments to improve fish passage and water quality at Cougar and Detroit/Big Cliff dams. Current Corps' cost estimates for these projects are in hundreds of millions of dollars at the two dams and approaching billion dollars across the Willamette Valley system, based on Corps' projections. The Corps is focusing alternatives and measures for evaluation of downstream passage structure options to those designs that maintain authorized project purposes, including for power generation. Given this constraint, the structural fish collection and passage alternatives at each reservoir being evaluated are recognized as having substantial uncertainties regarding their biological effectiveness. Subsequent costs for remedial designs would be incurred until some minimum level of biologically effective operation can be realized.

If the Corps analysis was unconstrained by the authorized hydropower purpose, a broader range of operational and/or structural designs could be analyzed at each dam . Other options may be more biologically effective, as well as potentially more cost-effective. Bonneville believes it is prudent to evaluate alternative operational and/or structural designs unconstrained by the hydropower purpose prior to making final construction commitments at Cougar and Detroit/Big Cliff dams, as well as at other dams where fish passage structures and temperature control are being evaluated.

The Corps has Current and Available Information to Respond to Section 218:

Section 218 calls for an initial analysis of the potential effects of deauthorizing hydropower at Cougar and Detroit/Big Cliff dams on other project purposes. The Corps has analyzed the interaction of the multiple project purposes for these dams in a number of existing documents. Most of these documents describe how the hydropower purpose of the dams is an ancillary operation to other project purposes, most notably for flood risk management; and where the hydropower purpose is a constraint, it is in the

preservation of a dedicated pool of storage intended for hydropower operation where deauthorization that eliminated the need for this power pool would provide more flexibility to achieve other project purposes.

These interactions were described in detail in the 2019 Willamette Basin Review Feasibility Study. In particular, this study was directed at assessing the capability of the Willamette reservoirs to meet authorized water supply purposes.

The Draft EIS for Detroit Dam Fish Passage and Temperature Control, and the Draft Environmental Assessment for Downstream Passage at Cougar Dam provide corresponding detail of the interaction of project purposes. The Corps has also done some informal studies at Cougar dam which are likely applicable.

Section 218 also calls for the initial analysis to include compliance with the Endangered Species Act. The 2008 Biological Opinion for the Willamette Valley System includes descriptions of the interactions with water quantity and water quality for listed fish populations with the operations for hydropower generation. Although this document is being reviewed and will be updated for a new 2023 Biological Opinion, the available information it contains is generally still current and is sufficient to respond to Congress as called for by Section 218.

Finally, Section 218 calls for "costs that would be attributed to other authorized purposes of the project, including costs relating to compliance with [the Endangered Species] Act." In a June 2020 briefing and in subsequent follow ups, Bonneville, with the Corps and the Bureau of Reclamation, provided a description to the House Energy and Water Appropriations Subcommittee on the distribution of capital and O&M costs among authorized project purposes of FCRPS dams. This description included some information related to the consequences of reallocating project costs shares among the project purposes, which apart from hydropower generation, are almost entirely non-reimbursable.

Conclusion:

There is sufficient urgency in pending decisions that the Corps should prioritize immediate response to Congress as called for by Section 218. This urgency includes decisions on significant long term funding commitments and the need to investigate more effective alternatives to benefit fish. The majority of information needed for the initial analysis described in Section 218 is readily available and should not require more than incidental time and review.

From: Kintz,Jesse H (BPA) - PG-5
Sent: Monday, January 23, 2023 12:07 PM
To: Leady Jr,William J (BPA) - PG-5
Cc: Marker,Doug R (BPA) - AIR-7
Subject: Draft BPA public comment Willamette EIS letter for our discussion tomorrow
Attachments: BPA comments on Draft PEIS - draft of 01-18-23.docx

Bill,
Attached is a draft of BPA's public EIS letter for our discussion tomorrow.

Some context to highlight for you as you review this:

- This letter builds on the themes of the cooperating agency review letter that BPA sent to the Corps in late September (also attached).
- Note that this letter focuses the entirety of Bonneville's EIS public review comments on the hydropower economics and disposition study issues, vs other, more general issues that would be more typical of EIS comments.
- The letter is addressed to the Corps but was also written with the intention of it being public – i.e. it can be shared publicly with stakeholders.
- We can discuss whether this letter should be shared with the broader executive strategy group this Thursday.

Thanks,
-Jesse

Jesse Kintz
Power Generation – Senior Policy and Project Lead | [PG-2]
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-3340 | C (b)(6)

Draft of January 18, 2022

Comments of the Bonneville Power Administration

Draft Programmatic Environmental Impact Statement
For Willamette Valley System O&M

The Bonneville Power Administration (Bonneville) appreciates this opportunity to comment on the Draft Programmatic Environmental Impact Statement for operations and maintenance of the Willamette Valley System (Draft PEIS).

Bonneville has participated in the development of the Draft PEIS as a cooperating agency, with its role focused primarily on its expertise on the hydropower purpose of the Willamette Valley System, including hydropower generation and marketing, and electric transmission facilities and operations. As contemplated by the Cooperating Agency Memorandum of Understanding between Bonneville and the Corps, Bonneville would like to take this opportunity to present its views on the Draft PEIS, particularly where it believes the PEIS would benefit from additional analysis, while continuing to acknowledge and thank the Corps staff and leadership for its engagement and collaboration with Bonneville in the preparation of the Draft PEIS.

In the Draft PEIS, alternatives are evaluated to achieve multiple objectives, but none of the action alternatives to restore naturally spawning salmon and steelhead above Willamette Valley dams would maintain economical hydropower as a residual benefit of the system.

The Willamette Valley System was constructed to primarily provide flood protection for Oregon communities. The system's storage capacity also provides benefits for recreation, water supply, and water quality. As the Draft PEIS notes, hydropower is a residual benefit of the Willamette Valley System, available after the Corps has optimized operations for other project purposes. The action alternatives presented in the draft PEIS have outcomes which reduce the availability of hydropower generation while multiplying the costs of this generation.

Although the Draft PEIS clarifies some of the challenges to maintaining economical hydropower as a benefit of the Willamette Valley System, Bonneville believes that the Final PEIS would benefit by including specific elements to both more completely capture the scope of those challenges, as well as identifying steps towards addressing them. Accordingly, Bonneville has three requests for inclusion in the Final PEIS:

- Bonneville continues to request that the Corps include in the final PEIS its implementation plan for the consideration of de-authorization and cost allocation updates at these projects. Bonneville notes the recent mandate from Congress in the 2022 Water Resources Development Act directing Willamette system-wide disposition studies of the power purpose of the Willamette dams by June 2024. Bonneville also offers the following considerations for the disposition studies:
    - Disposition studies will inform potential congressional deauthorization of power at the Willamette dams. If power were deauthorized, the Corps may be able to design less costly and more effective passage routes for juvenile salmon.

- Disposition study analysis should also inform needed cost allocation updates. Cost allocation updates are needed as a result of significant operational changes and the shifting economics of managing hydropower and flood control at Willamette Valley projects. The Draft PEIS estimates the annual benefit of flood protection is at least at $1 billion dollars and power generation at $26 million dollars, yet power's cost allocation averages around 40%. If the disposition studies, as part of assessing whether hydropower is in the federal interest, do find net economic value for remaining hydro generation at one or more of the Willamette dams, the Corps and Bonneville should use that analysis to implement the needed appropriate cost allocation between flood risk management and power.

- Meeting Congress' timeline for completing disposition studies by June 2024 should support implementation planning for the Final PEIS and help inform Bonneville's decisions for continued investments in the dams' power facilities. It will be important for the disposition studies to be limited in scope and focused only on hydropower.

- The Corps should revise the PEIS analysis to fully include the impact of the continuation of the near-term operations in the planned implementation of the final preferred alternative. The most significant impact on hydropower is the provision to continue the operations of the 2021 Oregon District Court injunction until structural measures are completed, which, for some of the measures, would be well into the 2040s under the Draft PEIS implementation schedule. These operations are not currently reflected in the analysis and stand to reduce the value of hydropower generation by nearly a third. The Final PEIS should include revised estimates for the remaining value of hydropower generation that incorporates the near-term measures. Because these estimates are also necessary for the disposition studies directed by Congress, their inclusion will help inform both Congress and the Final PEIS.

- Bonneville continues to urge the Corps to update structural cost estimates. The estimated costs of structures for fish passage and water temperature seem to be quite conservative. The Corps states in the Draft PEIS that its cost estimates are based on conceptual designs and that actual costs could likely more than double. However, recent economic events of inflation, constrained supply chains, and escalated interest rates make the Draft PEIS estimates likely out of date.

Again, Bonneville appreciates the Corps' collaboration during the preparation of the PEIS. This represents an important milestone for the future management of the Willamette Valley System. The Willamette Valley System continues to provide substantial regional value through flood risk management, water supply, and recreation as its operations evolve to benefit fish and wildlife. We submit these comments with the objective of resolving the anticipated major, adverse impacts presented in the PEIS to economic and reliable power generation.

From: Kintz,Jesse H (BPA) - PG-5
Sent: Thursday, February 23, 2023 10:58 AM
To: Todd,Wayne A (BPA) - PGA-6
Subject: EIS comments to Corps and WRDA comments to Army
Attachments: BPA comments on Draft PEIS (3 Feb 2023).pdf; BPA comments for Army WRDA 2022 Implementation Guidance Sonya's Version.docx

Wayne-
Here are the two documents I mentioned to you when we talked yesterday – wanted to make sure you were tracking these, and let me know if any questions or comments.

-Jesse

Jesse Kintz
Power Generation – Senior Policy and Project Lead | [PG-2]
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-3340 | C (b)(6)

From: Marker,Doug R (BPA) - AIR-7
Sent: Monday, April 3, 2023 8:19 AM
To: Kintz,Jesse H (BPA) - PG-5; Leady Jr,William J (BPA) - PG-5; Smith,Glen A (BPA) - PG-5; Welch,Julee A (BPA) - LP-7; Senters,Anne E (BPA) - LN-7; Maslow,Jeffrey J (BPA) - EC-4; Mai,Amy E (BPA) - EC-4; Dondy-Kaplan,Hannah A (BPA) - AIR-7; Spear,Daniel J (BPA) - PGB-5
Cc: Wingert,Kevin M (BPA) - DKP-7
Subject: FW: [EXTERNAL] Grand Ronde resolutions
Attachments: resolution 026-23.pdf; Salmon policy_ Corps should prioritize salmon.pdf; Salmon policy_ Deauthorize hydropower for eight Willamette Basin dams (2).pdf

FYI – I received these Tribal Council resolutions from the Grande Ronde Tribes over the weekend. They are calling for deep drawdown operations at the Willamette dams and deauthorizing power.

Best,

Doug

From: Brett Van (b)(6)
Sent: Sunday, April 2, 2023 10:15 PM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>
Subject: [EXTERNAL] Grand Ronde resolutions

Hi Doug and Sonya,
Here are the resolutions passed by Tribal Council that I wanted to share with you.

Please let me know if you have any questions.

Best,
Brett

The Confederated Tribes of the Grand Ronde Community of Oregon
Umpqua Molalla Rogue River Kalapuya Chasta

Phone (503) 879-2301
Fax (503) 879-5964

1-800-422-0232
9615 Grand Ronde Road
Grand Ronde, OR 97347

Resolution No. **026-23**

WHEREAS, the Grand Ronde Tribal Council, pursuant to Article III, Section I of the Tribal Constitution approved November 30, 1984, by the Acting Deputy Assistant Secretary of the Interior, Indian Affairs, is empowered to exercise all legislative and executive authority not specifically vested in the General Council of the Confederated Tribes of the Grand Ronde Community of Oregon; and

WHEREAS, the Tribe has performed various surveys of the membership regarding member needs and preferences and has also provided for community participation through various advisory committees including the Fish & Wildlife Committee, and Tribal members have responded supporting the protection and management of Tribal natural resources; and

WHEREAS, the Tribe desires to protect the quality of life for Tribal members and other community members and wants to protect, enhance, manage and regulate its Tribal natural, cultural, and subsistence resources; and

WHEREAS, the Tribe desires to increase salmon recovery efforts and, in an effort to achieve this goal, has established the Salmon Strength Initiative; and

WHEREAS, in furtherance of the Salmon Strength Initiative, the Tribe, through its Natural Resources Department, has drafted and proposed three fisheries policies which outline and describe salmon recovery actions and goals; and

WHEREAS, the Tribal Council believes that these policies are best suited to achieve the goals of the Salmon Strength Initiative; and

WHEREAS, the Tribe has contracted with VandelHeuval Strategies to work with outside State and Federal agencies to implement these proposed fisheries policies.

NOW THEREFORE BE IT RESOLVED, the Tribal Council hereby: (1) approves and adopts the three proposed Salmon Strength Initiative fisheries policies, and (2) authorizes VandenHeuval Strategies to share and implement these polices with outside State and Federal agencies in an effort to effectuate salmon recovery.

CERTIFICATION: the Tribal Council of the Confederated Tribes of the Grand Ronde Community of Oregon adopted this resolution at a regularly scheduled meeting, with a quorum present as required by the Grand Ronde Constitution, held on **February 08, 2023** by a vote of 7 yes, 0 no and 0 abstentions.

(b)(6) [redacted]

Cheryle A. Kennedy
Tribal Council Chairwoman

Chris Mercier
Tribal Council Vice-Chair

Treaties
Rogue River 1853 & 1854 ~ Umpqua-Cow Creek 1853 ~ Chasta 1854 ~ Umpqua & Kalapuya 1854
Willamette Valley 1855 ~ Molalla 1855

Confederated Tribes of Grand Ronde salmon policy

The Army Corps should prioritize salmon recovery over other uses at Upper Willamette Basin dams

It is the Confederate Tribe of Grand Ronde's position that due to the imminent risk of extinction Willamette Basin dam operations should first prioritize the needs of salmon.

Other uses can be restored or enhanced in the future. The continued existence of these fish cannot.

Upper Willamette River Chinook and steelhead are highly likely to go extinct unless the Army Corps makes significant changes to dam operations. The primary problem is the lack of fish passage at the dams, especially juvenile passage. We urge the Corps to immediately implement deep drawdown measures at Upper Willamette Basin dams for juvenile salmon outmigration and evaluate the results before committing to building juvenile fish collection structures.

Deep drawdown is far less expensive than fish collection structures and can begin immediately. Deep drawdown has proven successful. According to the Army Corps, deep drawdown of Fall Creek reservoir, for example, "results in a roughly ten-fold increase in the adult salmon that later return to Fall Creek" compared to a fuller reservoir.

Long-term deep drawdown can also increase public safety. A lowered reservoir reduces the seismic risk of a reservoir release. Deep drawdown is also consistent with flood control mitigation because operators can hold back water as necessary during flood conditions.

We understand that flood control is an important benefit that Willamette Basin dams will continue to provide. The Corps should prioritize salmon recovery while still providing flood control benefits.

Confederated Tribes of Grand Ronde salmon policy

Congress should deauthorize hydropower for the eight Upper Willamette Basin dams

The Confederated Tribes of Grand Ronde recommends that Congress deauthorize hydroelectric power at eight Willamette Basin dams: Big Cliff, Detroit, Foster, Green Peter, Cougar, Dexter, Lookout Point, Hills Creek. By removing the need for the dams to produce hydropower, the U.S. Army Corps of Engineers (Corps) could operate the dams to dramatically improve salmon and steelhead migration while maintaining important flood control mitigation.

Hydropower kills salmon and loses money. A lot of money. In every alternative proposed by the Corps, the revenue is less than the cost of power generation. In the Corps' preferred alternative, power generation would lose a stunning $741 million over the next 30 years. The best path forward for salmon and ratepayers is to stop hydropower at Upper Willamette Basin dams.

Because hydropower is an authorized use of the Willamette Valley in the Flood Control Act of 1938, Congress would need to deauthorize hydropower. We urge Congress to move quickly. We also urge the Corps to actively support Congressional deauthorization of hydropower and to move with all possible speed on disposition studies necessary for deauthorization.

From: Kintz,Jesse H (BPA) - PG-5
Sent: Monday, February 6, 2023 8:02 PM
To: Thompson, Bradley E CIV USARMY CENWD (USA); Wells, Elizabeth R CIV USARMY CENWP (USA)
Subject: FW: BPA's Comments on the WVS Drat PEIS
Attachments: BPA comments on Draft PEIS (3 Feb 2023).pdf

Brad, Liza,
I meant to send you a quick note prior to us sending this but this got finalized faster than I thought while I was in D.C. last week. There probably aren't any big surprises in here, but please let me know if there's anything that's unclear or that you'd like to discuss. I can also plan to speak to this a bit at the next Deputies meeting, if helpful.

Thanks,
-Jesse

From: Wells, Elizabeth R CIV USARMY CENWP (USA) <Elizabeth.R.Wells@usace.army.mil>
Sent: Monday, February 6, 2023 9:25 AM
To: Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>
Cc: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Knudson, Nicklas B CIV CPMS (USA) <Nicklas.B.Knudson@usace.army.mil>
Subject: [EXTERNAL] FW: BPA's Comments on the WVS Drat PEIS

Thanks, Bill!

Nicklas, please find BPA comments on the Draft PEIS attached. Thanks!

Liza

From: Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>
Sent: Friday, February 03, 2023 5:38 PM
To: Wells, Elizabeth R CIV USARMY CENWP (USA) <Elizabeth.R.Wells@usace.army.mil>
Cc: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Coffey, Frances E (Beth) SES USARMY CENWD (USA) <Frances.E.Coffey@usace.army.mil>; Thompson, Bradley E CIV USARMY CENWD (USA) <Bradley.E.Thompson@usace.army.mil>
Subject: [URL Verdict: Neutral][Non-DoD Source] BPA's Comments on the WVS Drat PEIS

Liz,

Please find out comments attached, and thank your leadership and teamwork on this challenging and complex endeavor.

Bill,

Bill Leady P.E.
Vice President, Generation Asset Management | PG
BONNEVILLE POWER ADMINISTRATION
bpa.gov | Office 503-230-4270 | Cell (b)(6)

From: Leady Jr,William J (BPA) - PG-5
Sent: Monday, February 6, 2023 9:31 AM
To: Kintz,Jesse H (BPA) - PG-5; Marker,Doug R (BPA) - AIR-7
Subject: FW: BPA's Comments on the WVS Drat PEIS
Attachments: BPA comments on Draft PEIS (3 Feb 2023).pdf

The Corps has it.

Bill Leady P.E.
Vice President, Generation Asset Management | PG
BONNEVILLE POWER ADMINISTRATION
bpa.gov | Office 503-230-4270 | Cell (b)(6)

From: Wells, Elizabeth R CIV USARMY CENWP (USA) <Elizabeth.R.Wells@usace.army.mil>
Sent: Monday, February 6, 2023 9:25 AM
To: Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>
Cc: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Knudson, Nicklas B CIV CPMS (USA) <Nicklas.B.Knudson@usace.army.mil>
Subject: [EXTERNAL] FW: BPA's Comments on the WVS Drat PEIS

Thanks, Bill!

Nicklas, please find BPA comments on the Draft PEIS attached. Thanks!

Liza

From: Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>
Sent: Friday, February 03, 2023 5:38 PM
To: Wells, Elizabeth R CIV USARMY CENWP (USA) <Elizabeth.R.Wells@usace.army.mil>
Cc: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Coffey, Frances E (Beth) SES USARMY CENWD (USA) <Frances.E.Coffey@usace.army.mil>; Thompson, Bradley E CIV USARMY CENWD (USA) <Bradley.E.Thompson@usace.army.mil>
Subject: [URL Verdict: Neutral][Non-DoD Source] BPA's Comments on the WVS Drat PEIS

Liz,

Please find out comments attached, and thank your leadership and teamwork on this challenging and complex endeavor.

Bill,

Bill Leady P.E.
Vice President, Generation Asset Management | PG
BONNEVILLE POWER ADMINISTRATION
bpa.gov | Office 503-230-4270 | Cell (b)(6)

From: Kintz,Jesse H (BPA) - PG-5
Sent: Monday, February 27, 2023 4:34 PM
To: Marker,Doug R (BPA) - AIR-7
Subject: FW: Suggested BPA comments for Army WRDA 2022 Implementation Guidance
Attachments: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance

No objections from me Doug to you taking the pen for our written WRDA implementation comments (as you mentioned on Willamette Weekly call earlier). I'm assuming you would use what Sonya shared verbally (and you wrote most of), maybe with a few tweaks? We want time to have the team weigh in and Bill give thumbs up (which should be pretty quick/easy if we use similar comments).

Also, I've been wondering about whether we WANT there to be implementation guidance from Army or not. We probably don't have much say on that one but it occurred to me that the guidance may or may not be helpful for the objectives of getting to a streamlined answer with a proper BPA role. Just a thought.

Jesse

From: Kintz,Jesse H (BPA) - PG-5
Sent: Wednesday, February 22, 2023 9:42 PM
To: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>
Subject: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance

I too was able to listen in for part of the meeting. Well done, Sonya. We can decide if we want to follow up with written comments along the same lines and have until 3/21 for those.

I would add that it was interesting that the National Hydropower Association made some comments, although they weren't on the deauthorization provision and seemed more across the board in nature. I didn't fully track their comments as I only heard part of them while between appointments (maybe you caught some of theirs Sonya?).

-Jesse

From: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>
Sent: Wednesday, February 22, 2023 11:53 AM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Subject: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance

Just FYI that National Wildlife Federation had a strong comment about the Corps never accepting any of their implementation proposals and not addressing why those proposals were rejected once they issue the implementation guidance. They suggested the Corps should have a different approach.

Sonya Baskerville
BPA National Relations
(b)(6) m

On Feb 22, 2023 2:30 PM, "Baskerville,Sonya L (BPA) - AIN-WASH" <slbaskerville@bpa.gov> wrote:

Thanks and done! I was the first called.

Sonya Baskerville
BPA National Relations
(b)(6) m

On Feb 22, 2023 12:43 PM, "Leady Jr,William J (BPA) - PG-5" <wjleady@bpa.gov> wrote:
Sonya,

Thank you for being BPA's voice at the WRDA listening session, I appreciate it. Let's hope the Corps listens.

Bill Leady P.E.
Vice President, Generation Asset Management | PG
BONNEVILLE POWER ADMINISTRATION
bpa.gov | Office 503-230-4270 | Cell (b)(6)

From: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>
Sent: Wednesday, February 22, 2023 6:56 AM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Subject: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance

Nevermind this is the shorter version, but I will deliver it as is as adding even a few more words will add to the time. If I can figure out a way to weave the funding piece in, I will, but I think that is implied already in the several references to costs. Thanks.

Sonya Baskerville
BPA National Relations
(b)(6) m

On Feb 22, 2023 9:51 AM, "Baskerville,Sonya L (BPA) - AIN-WASH" <slbaskerville@bpa.gov> wrote:
Thanks. That is the longer version, and not the version I will use. Please see the attachment I sent to Bill which is the one I will read from. Thanks.

Sonya Baskerville
BPA National Relations
(b)(6) m

On Feb 22, 2023 12:36 AM, "Kintz,Jesse H (BPA) - PG-5" <jhkintz@bpa.gov> wrote:
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Subject: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance
Importance: High

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A few thoughts below.

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Sent: Tue Feb 21 21:36:42 2023

To: Baskerville,Sonya L (BPA) - AIN-WASH; Marker,Doug R (BPA) - AIR-7; Welch,Julee A (BPA) - LP-7; Leady Jr,William J (BPA) - PG-5

Subject: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance

Importance: Normal

Attachments: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance; BPA comments for Army WRDA 2022 Implementation Guidance Sonya's Version.docx

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BPA National Relations

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A few thoughts below.

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Cc: Leady Jr,William J (BPA) - PG-5

Subject: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance

Importance: Normal

Spoke with Bill (cc'd).

He is good with you delivering the comments tomorrow, Sonya, as he's tied up next Wednesday and wouldn't be able to deliver them then.

He said overall, he's fine with the points. We did discuss that it would be good to add points about prioritization of funding, as well as the bigger picture with some other potential common interests that I had suggested. I re-added those to your latest version, attached.

Lastly, he mentioned if he were delivering the comments, his style would likely include comments around "acknowledging the Court EIS deadline" and make the ask be "partnering with BPA's expertise" vs relying on - but given that it's mostly a style preference he was fine with Sonya making the call as the person delivering the comments.

Thanks Sonya for doing this and appreciate you working through my (and Bill's) questions and comments today. Think we're good to go (unless Julee has any late breaking thoughts!). I plan to listen into most of the WRDA comment call tomorrow.

-Jesse

On Feb 21, 2023 6:35 PM, "Baskerville,Sonya L (BPA) - AIN-WASH" <slbaskerville@bpa.gov> wrote:

I am not going to be available the following week. That is the week that John is in town. Thanks.

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BPA National Relations

(b)(6) m

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Ah, thanks for sharing. Looking good. And will plan on you speaking for us that works great.

Is there is a reason we want to get the comments in tomorrow vs next week? The urgency/speed is catching me off guard as Doug and I had talked late last week about aiming for the week he got back to finalize. You are right that the messaging isn't new, but it seems more eyes/time could be beneficial to fine tune this if there isn't a driver for doing this tomorrow. Bill should also have a chance to weigh in on this approach and messaging (Kieran had a leading role last time) and the last update I gave him was that we were working towards written comments that he would get a chance to weigh in on.

Regarding the messaging- I would highlight that Corps NWD leadership continues to be adamant that they aren't going to slow down the EIS for the disposition studies so advocating to merge the two continues to be a largely academic point for us. Given that in addition to that point I am suggesting - via a couple minor edits in the attached- consideration of adding other potential areas of common interest like fish effectiveness and funding certainty, along with a mention of prioritization of funding. See what you think, Sonya.

If we end up waiting until next week (or for our final written comments) I may have a few additional suggestions to add.

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Suggested comments for Department of Army implementation guidance for Section 8220 of WRDA 2022 – Willamette Valley Disposition studies.

Thank you for the opportunity to comment on implementation guidance for Section 8220 of WRDA 2022 – Willamette Valley Disposition studies.

Bonneville believes that we have shared interests with the Corps in ensuring the sufficiency of the final Programmatic Environmental Impact Statement for Willamette Valley System Operations, and achieving certainty around future regional priorities. Given the timeline for completion of the PEIS and potential future WRDA actions, Bonneville urges the Corps to meet Congress' schedule for completion of the disposition studies of the hydropower purpose of the Willamette dams by June 2024 and prioritize any needed funding for this effort. BPA believes the PEIS would be improved by the Corps incorporating analysis of the disposition studies into the draft PEIS.

BPA appreciates that the Corps has expressed a sense of urgency on addressing mitigation of impacts on fish species in the Willamette. To facilitate that, the Congress directed the Corps in WRDA 2020 Section 218 to study the impacts on other authorized project purposes from any deauthorization of power at Cougar and Detroit/Big Cliff dams, in an effort to assist the Corps in expanding options that could help to mitigate the impacts to fish. Bonneville is not aware that the report has been provided to Congress as required. Bonneville provided to the Corps Bonneville's assessment that other project purposes would not be negatively impacted by deauthorization of the power purpose. Bonneville believes that the Corps's own assessment or the Corps's views of Bonneville's assessment would be useful for a complete assessment of deauthorizing the power purpose.

For WRDA 2022 Section 8220 in particular, Bonneville believes that the Corps should confine the disposition studies to the scope defined by section 8220: the hydropower purposes of the dams. Bonneville also believes that the Corps should rely on Bonneville's expertise for the finding of federal interest in the production of commercial power generation from the Willamette dams.

Bonneville also wants to reiterate points it recently provided to the Corps on the draft PEIS:

- An implementation plan for the consideration of deauthorization and cost allocation updates should be included in the final PEIS.

- The Draft PEIS estimates the annual benefit of flood protection to be at least $1 billion and power generation to be $26 million, yet the power purpose's cost allocation averages around 40 percent. This estimate itself highlights the need for updated cost allocations, and should help inform the Corps of its appropriate short and long-term federal funding requests necessary to meet its most valued project purposes.

- The current PEIS analysis does not reflect the anticipated significant cost impact from continue operations of the 2021 Oregon District Court injunction until the Corps completes structural measures. These operations stand to reduce the value of hydropower generation by nearly a third. Having that information incorporated into the analysis will help inform both Congress and the Final PEIS.

- Finally, Bonneville continues to urge the Corps to update structural cost estimates which the Corps states in the Draft PEIS are likely more than double the current estimates. In addition, recent economic events of inflation, constrained supply chains, and escalated interest rates also likely impact the cost estimates.

Thank you again for the opportunity to comment.

From:	Marker,Doug R (BPA) - AIR-7
Sent:	Wednesday, March 29, 2023 5:04 PM
To:	Baskerville,Sonya L (BPA) - AIN-WASH
Cc:	Kintz,Jesse H (BPA) - PG-5; Smith,Glen A (BPA) - PG-5; Todd,Wayne A (BPA) - PGA-6; Welch,Julee A (BPA) - LP-7
Subject:	Our analysis of impacts of power deauthorization to other Willamette dam project purposes
Attachments:	BPA comments to House TI per Sec 218 of 2020 WRDA for mtg Nov 2021.docx

Subject:	Info sharing / background on power economics concerns at Willamette dams
Location:	HQ 653 (10) / WebEx (link to follow)
Start:	Wed 3/8/2023 10:00 AM
End:	Wed 3/8/2023 11:00 AM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Kintz,Jesse H (BPA) - PG-5
Required Attendees:	Komoroski,Kenneth D (BPA) - PGA-6; Marker,Doug R (BPA) - AIR-7; Welch,Julee A (BPA) - LP-7
Optional Attendees:	Todd,Wayne A (BPA) - PGA-6
Resources:	HQ 653 (10)

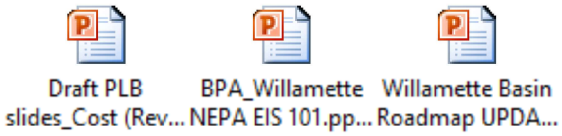
Hello Doug K.,

I haven't had a chance to meet you yet, my name is Jesse Kintz, and I'm a Senior Policy and Project Lead working directly for Bill Leady in Power Generation here at BPA.

The BPA team that has been working on Willamette policy issues would like to catch you up on the history of the Willamette power economics issue – discussing both the BPA and USACE perspectives. I've attached some background slides that we may use to talk off of, but we'll probably talk informally a fair bit.

I'll set up both a conference room and a WebEx option.

-Jesse



Willamette Valley Projects NEPA EIS 101

PG Managers

November 28, 2022

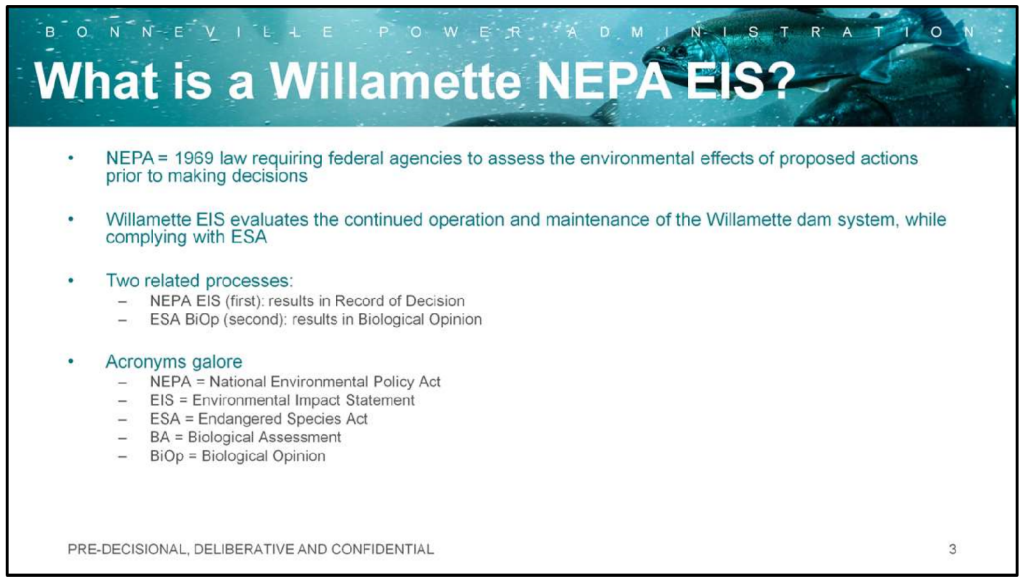
BONNEVILLE POWER ADMINISTRATION

Outline

- Willamette NEPA EIS overview
  - What, where, why, who, when
- BPA role and impacts
  - Draft EIS preferred alternative would result in Willamette power being uneconomical

PRE-DECISIONAL, DELIBERATIVE AND CONFIDENTIAL 2

Which dam is it??



NEPA requires studying impacts on environment for major federal actions (USACE lead)

NEPA requires preparation of detailed statements assessing impact of and alternatives to major federal actions impacting the environment (This is the Env. Impact Statement or Env. Assessments)

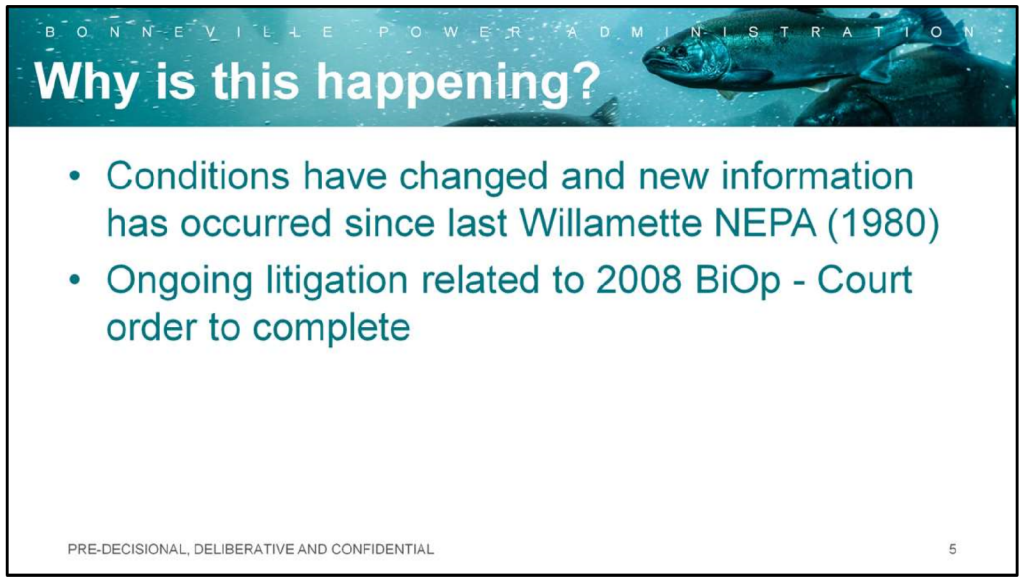
Overseen by Council on Environmental Quality (CEQ)

BA (USACE lead?)

BiOp (NFMS/USFWS lead)

Jeff to provide some info and Jeff/Amy to present

13 dams, 8 power producing
Primarily flood control, high head, rainfall driven (more erratic)
Willamette different than the Columbia or Snake. Power is secondary and not a driver. Less operational flexibility.



NEPA requires studying impacts on environment for major federal actions

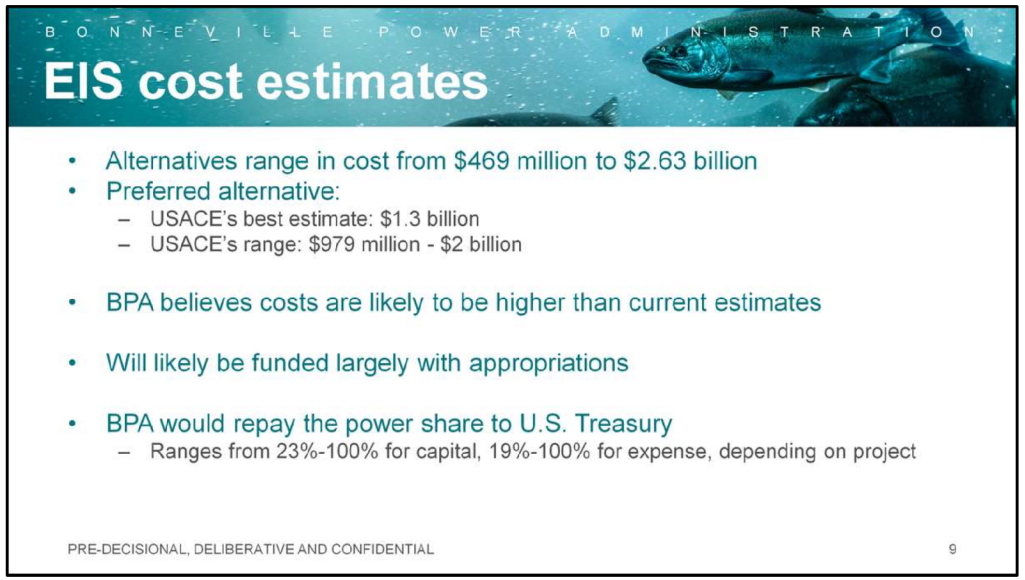
NEPA – study process to consider environmental effects of major federal actions
Lead agency owns it, can be sued

Court Order is a result of litigation related to 2008 BiOp
USACE is releasing for public comment now

Add more emphasis on how EIS cements injunction long term
Comparison is to no action alternative which understates total

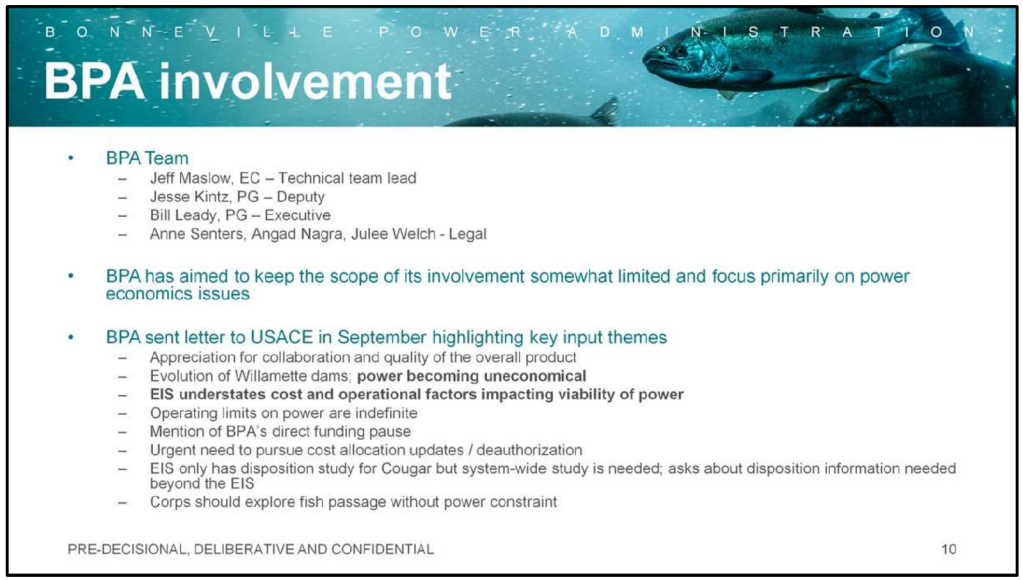
Regarding preferred alternative: point out that the alternatives that the Corps analyzed were compared to a No Action Alternative which basically represented operations *before* the court order. What the Corps is proposing is to keep the court ordered operations in place until they are "replaced" by a Preferred Alternative action.

For example, the NEPA analysis of alternative 2b would assume that LOP will be operated as it was in 2019 (no drawdown) until a FSS is built in the 2040s. In reality, what the Corps is proposing is to drawdown LOP per the court order (assuming doing so is feasible given the landslide/rail road issues) until the FSS is built in in the 2040s. This will be orders of magnitude more expensive than what they have analyzed. Unfortunately, we do not have any modeling of the implementation yet.



Costs will likely increase

Comparison is to no action alternative which understates true total cost – it excludes impact of injunction operations that will be in place until structures, and work that is technically not part of one of the alternatives (Dexter hatchery, Big Cliff TDG)


BONNEVILLE POWER ADMINISTRATION
BPA involvement
• BPA Team
– Jeff Maslow, EC – Technical team lead
– Jesse Kintz, PG – Deputy
– Bill Leady, PG – Executive
– Anne Senters, Angad Nagra, Julee Welch - Legal
• BPA has aimed to keep the scope of its involvement somewhat limited and focus primarily on power economics issues
• BPA sent letter to USACE in September highlighting key input themes
– Appreciation for collaboration and quality of the overall product
– Evolution of Willamette dams; power becoming uneconomical
– EIS understates cost and operational factors impacting viability of power
– Operating limits on power are indefinite
– Mention of BPA's direct funding pause
– Urgent need to pursue cost allocation updates / deauthorization
– EIS only has disposition study for Cougar but system-wide study is needed; asks about disposition information needed beyond the EIS
– Corps should explore fish passage without power constraint
PRE-DECISIONAL, DELIBERATIVE AND CONFIDENTIAL
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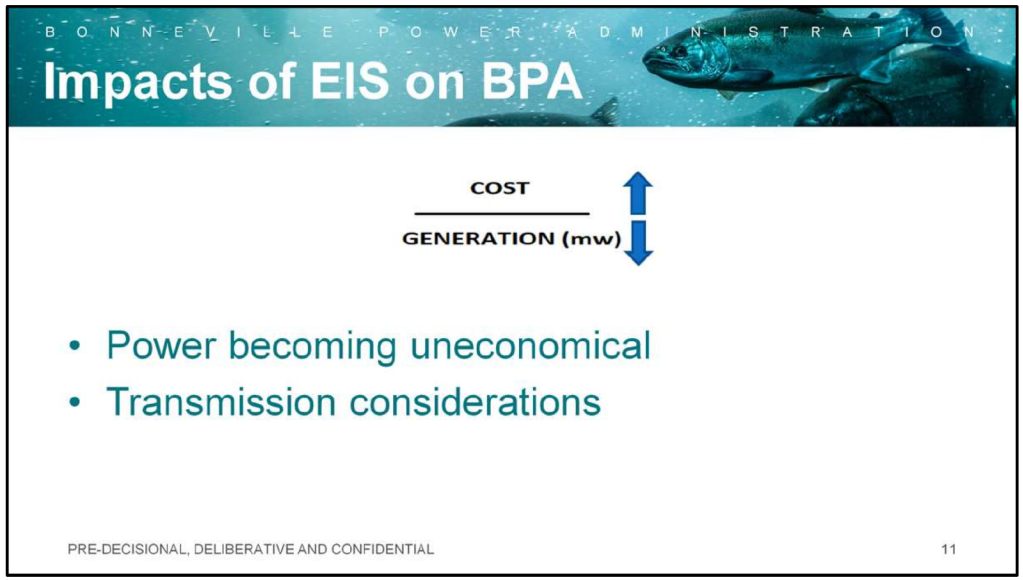
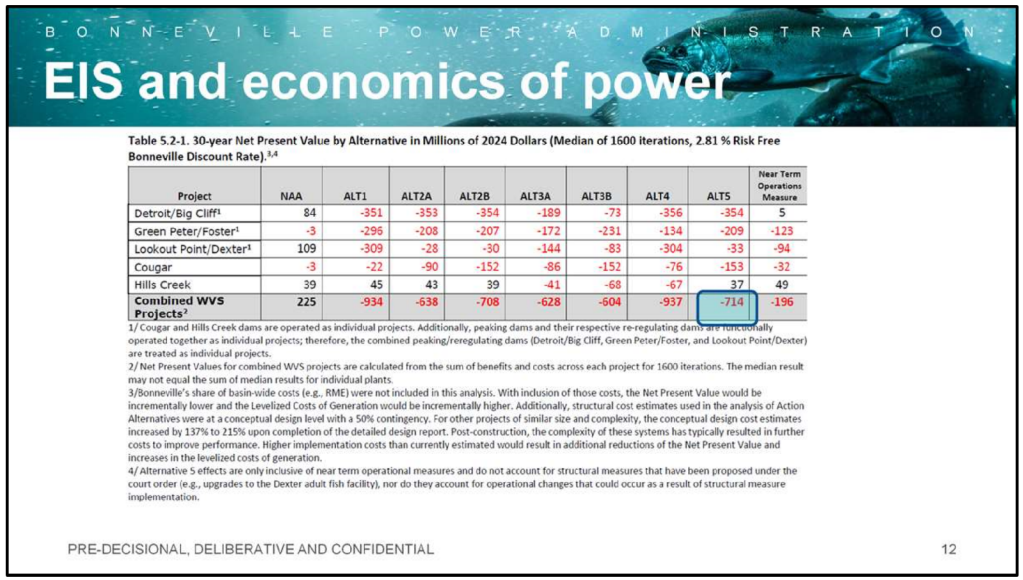
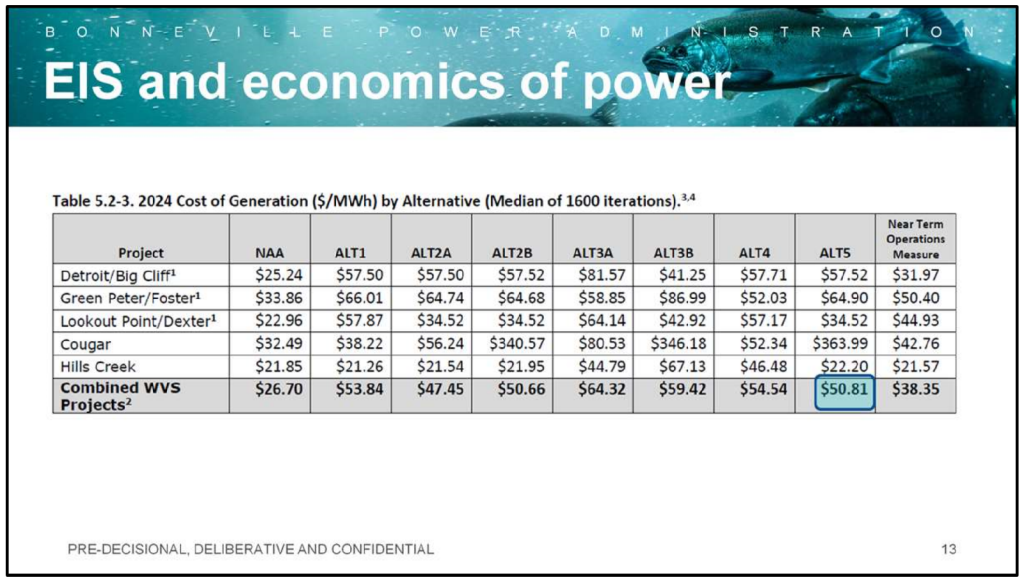


Highlight the fundamental shift in Willamette power going forward
Willamette power is less valuable (non dispatchable)

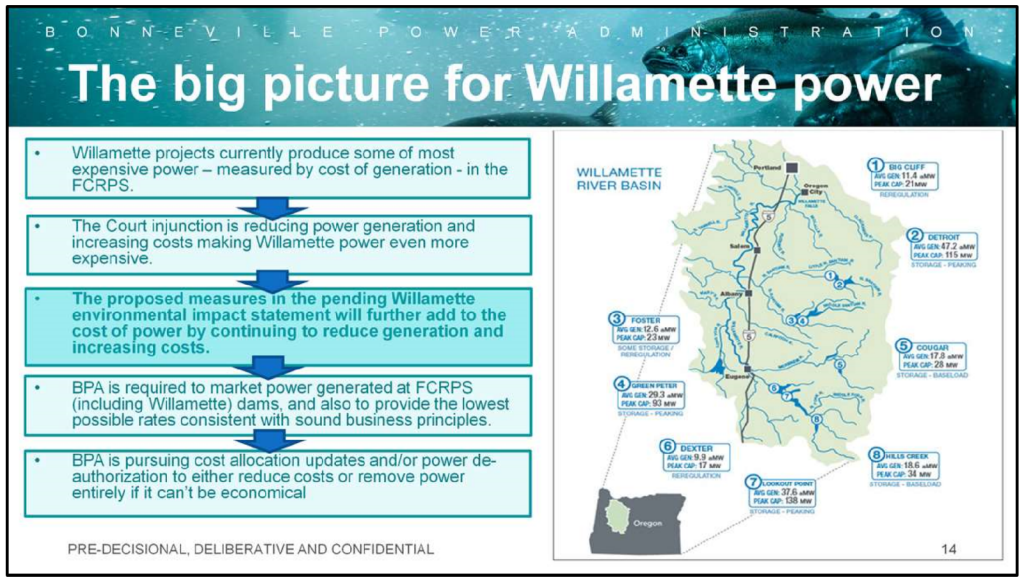


Alt5 is preferred alternative. NPV -$714 million, i.e. costs expected to significantly exceed revenues in the future
Context important – what's included, role of injunction on economics, etc.



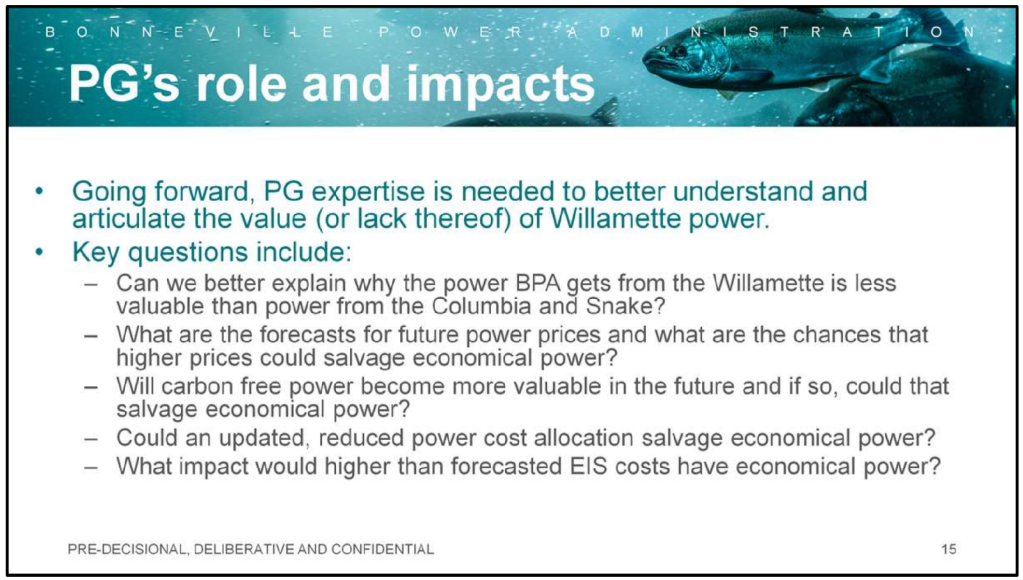
Project	NAA	ALT1	ALT2A	ALT2B	ALT3A	ALT3B	ALT4	ALT5	Near Term Operations Measure
Detroit/Big Cliff[1]	$25.24	$57.50	$57.50	$57.52	$81.57	$41.25	$57.71	$57.52	$31.97
Green Peter/Foster[1]	$33.86	$66.01	$64.74	$64.68	$58.85	$86.99	$52.03	$64.90	$50.40
Lookout Point/Dexter[1]	$22.96	$57.87	$34.52	$34.52	$64.14	$42.92	$57.17	$34.52	$44.93
Cougar	$32.49	$38.22	$56.24	$340.57	$80.53	$346.18	$52.34	$363.99	$42.76
Hills Creek	$21.85	$21.26	$21.54	$21.95	$44.79	$67.13	$46.48	$22.20	$21.57
Combined WVS Projects[2]	**$26.70**	**$53.84**	**$47.45**	**$50.66**	**$64.32**	**$59.42**	**$54.54**	**$50.81**	**$38.35**

COG doubles vs no action alternative. Avg COG for system is ~$11/MWh. Open market is ??
This is high level and doesn't factor in the timing of power



Average generation #s are slightly outdated. Current aMW calculation (based on RES-SIM and HYD-SIM EIS modeling) is ~171aMW, ~2% of FCRPS system

Box #4 needs to add point "Important to also understand that BPA must market power at all Corps dams (even if expensive)."


BONNEVILLE POWER ADMINISTRATION
PG's role and impacts
• Going forward, PG expertise is needed to better understand and articulate the value (or lack thereof) of Willamette power.
• Key questions include:
– Can we better explain why the power BPA gets from the Willamette is less valuable than power from the Columbia and Snake?
– What are the forecasts for future power prices and what are the chances that higher prices could salvage economical power?
– Will carbon free power become more valuable in the future and if so, could that salvage economical power?
– Could an updated, reduced power cost allocation salvage economical power?
– What impact would higher than forecasted EIS costs have economical power?
PRE-DECISIONAL, DELIBERATIVE AND CONFIDENTIAL
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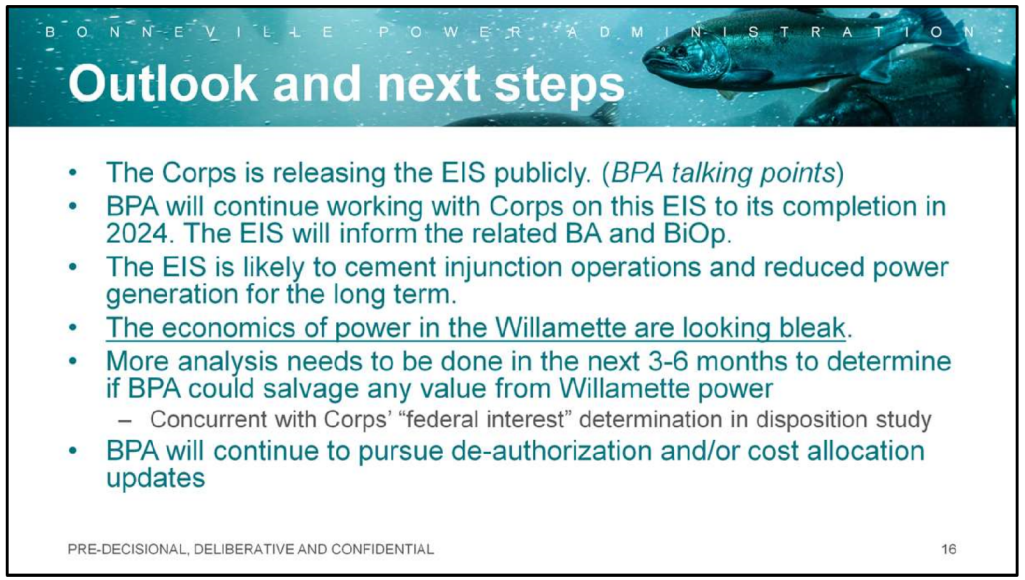
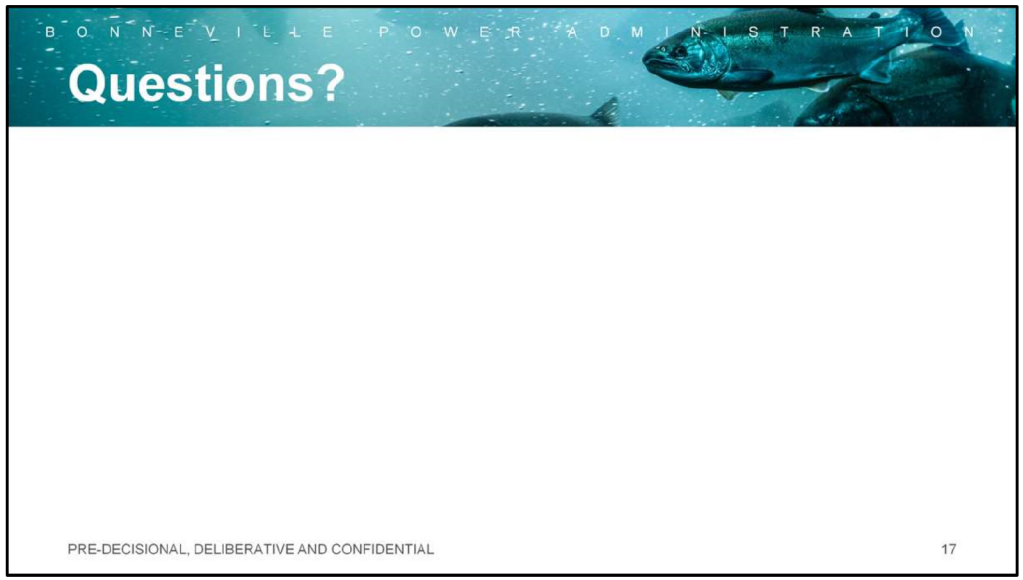


De-auth and cost allocations = Congressional action or legislation possible. Trying to work with Corps. PPC and other stakeholders interested.


BONNEVILLE POWER ADMINISTRATION
Questions?
PRE-DECISIONAL, DELIBERATIVE AND CONFIDENTIAL
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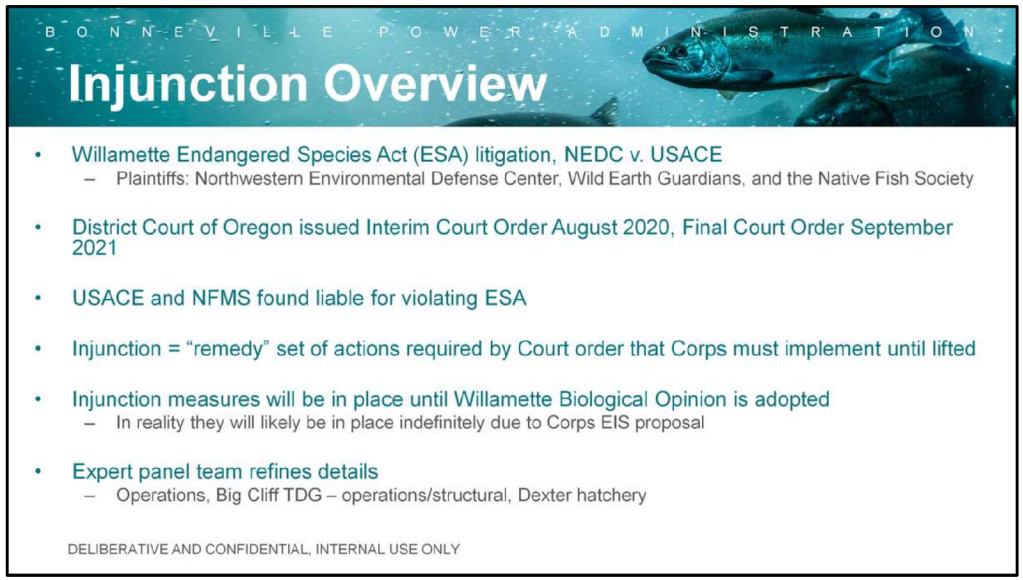
Appendix:
Willamette Court Injunction


BONNEVILLE POWER ADMINISTRATION
Injunction Overview
• Willamette Endangered Species Act (ESA) litigation, NEDC v. USACE
– Plaintiffs: Northwestern Environmental Defense Center, Wild Earth Guardians, and the Native Fish Society
• District Court of Oregon issued Interim Court Order August 2020, Final Court Order September 2021
• USACE and NFMS found liable for violating ESA
• Injunction = "remedy" set of actions required by Court order that Corps must implement until lifted
• Injunction measures will be in place until Willamette Biological Opinion is adopted
– In reality they will likely be in place indefinitely due to Corps EIS proposal
• Expert panel team refines details
– Operations, Big Cliff TDG – operations/structural, Dexter hatchery
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BONNEVILLE POWER ADMINISTRATION

Injunction Overview - Operations

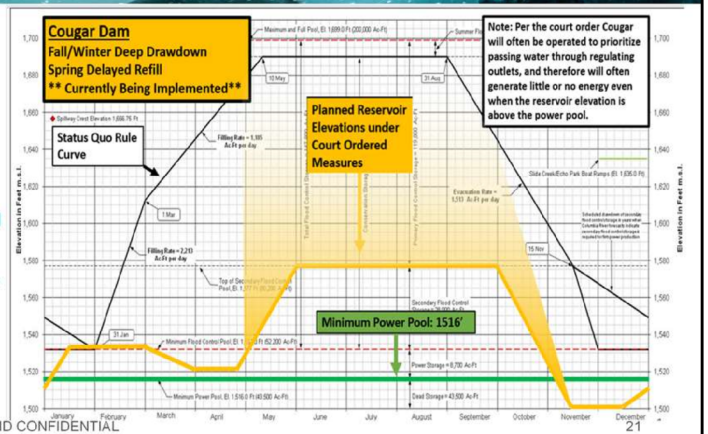
- **Detroit Dam –** Fall Prioritize regulating outlet usage for temperature control. Spring spill operations..
- **Green Peter Dam –** Spring and fall operations non-turbine priority. Deep drawdown starting in winter 2023.
- **Foster Dam –** Spring and fall passage spill operations and delayed refill.
- **Lookout Point Dam –** Late summer to fall prioritize RO's, spring prioritize spill vs turbines. Deep drawdown starting in winter 2023.
- **Hills Creek Dam –** Prioritize regulating outlets in fall/winter.
- **Cougar Dam** – Fall deep drawdown, spring refill delay, passage through non-turbine priority (regulating outlet).

BONNEVILLE POWER ADMINISTRATION

Injunction Overview - Example

Cougar operational measures = Limits on power generation

- Prioritize outflow through RO's
- Delay refill, late April-May refill to minimum of 1571' by June 1 to begin operating temp control tower.
- Oct 1 begin drawdown to 1500' by early Nov.
- Begin refill to 1530' after Dec. 15th.



Willamette Basin Roadmap

December 2021

Goal

Limit Bonneville's cost risk associated with Willamette Valley mitigation actions, including operations that curtail power generation and construction of structural measures which would add significant costs that impact Bonneville's power rates without a corresponding benefit to the power purpose.

.

Review: Current Risks of Cost Exposure

1. Substantial Additional Costs

- Long-Term Capital Repayment to US Treasury (e.g. water temp control tower, floating surface collector, hatcheries)
- Annual Direct Funding O&M

2. Reduction in Generation

- Deep Drawdowns
- Spill

Strategies to Reduce Risk

Opportunity:

- Potential to provide flexibility for operations that benefit fish

Opportunity:

- Reduce the financial impact of mitigation on Bonneville's rate payers

Risk No. 1 Litigation – NEDC v. Corps

Court has ruled on both phases of litigation

Phase 1: Liability

Holding:

Corps and NMFS violated the ESA by:

- Failing to implement the BiOp;
- Failing to reinitiate consultation; and
- Exceeding take of listed species under ITS

Phase 2: Remedy

Holding:

- Corps has broad authority to operate to eliminate *exclusive* power pool
- Injunction Measures are Necessary
- Convened an Expert Panel

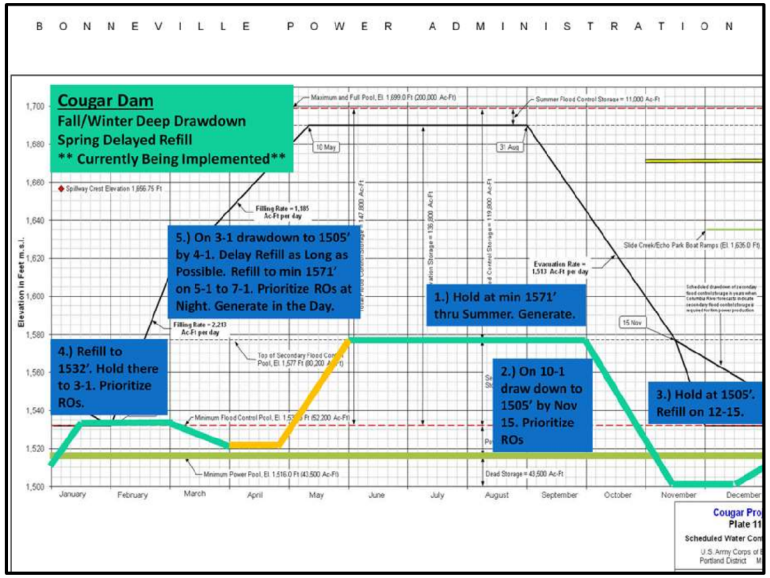
Risk No. 1 Litigation Cont. - Court Ordered Measures Highlights

1. Fall Deep Drawdown Below Power Pool and Spring Delayed Refill/Spill At:
   - Cougar Dam
   - Green Peter Dam
   - Look Out Point Dam

2. Detroit Dam: Prioritize ROs in Fall/Winter with Spring Spill for Temperature

3. Fall/Winter Spill at Hills Creek, Dexter and Foster

4. Other Measures
   * Rebuild Dexter Hatchery: ~$45-$60M
   * RME: Tags and Infrastructure at tens of millions of dollars
   * Potential TDG Abatement at Big Cliff: Tens of millions of dollars


B O N N E V I L L E P O W E R A D M I N I S T R A T I O N
Cougar Dam
Fall/Winter Deep Drawdown
Spring Delayed Refill
** Currently Being Implemented**
5.) On 3-1 drawdown to 1505' by 4-1. Delay Refill as Long as Possible. Refill to min 1571' on 5-1 to 7-1. Prioritize ROs at Night. Generate in the Day.
1.) Hold at min 1571' thru Summer. Generate.
4.) Refill to 1532'. Hold there to 3-1. Prioritize ROs.
2.) On 10-1 draw down to 1505' by Nov 15. Prioritize ROs
3.) Hold at 1505'. Refill on 12-15.
Elevation in Feet, m.s.l.
January
February
March
April
May
June
July
August
September
October
November
December

BONNEVILLE POWER ADMINISTRATION

Risk No. 2 – Corps' Environmental Compliance

The Corps is undergoing two simultaneous reviews to comply with federal law:

Programmatic O&M EIS under National Environmental Policy Act

Current Status:

- Public outreach on the alternatives is planned for Fall/Winter 2020
- Four broad alternatives developed
  - Project storage – prioritize reservoir fill
  - Integrated – provide water management flexibility
  - Operational – focus on operations for ESA-listed fish
  - Structural – focus on structural measures for ESA-listed fish
- Bonneville's goal is to cast a "wide net" to evaluate a wide array of options including non-power operations for improving fish survival.

Consultation with NMFS under Endangered Species Act

Current Status:

- NMFS staff have expressed interest in either operational measures
  - Run of river conditions
  - Deep fall/winter and spring drawdowns
- OR construction of fish passage structures to increase survival of ESA-listed fish species.
- Anticipated that the biological opinion may include these types of measures.

Strategy No. 1 – Updated Cost Allocation (Long term)

Cost Allocations are economic studies that establish the power share of "Joint" (i.e. multi-purpose) costs at an individual dam.

Historic Process:

Strategy No. 1 – Updated Cost Allocation (Long term) cont.

Three potential ways to update existing cost allocations:

Congressional Directive

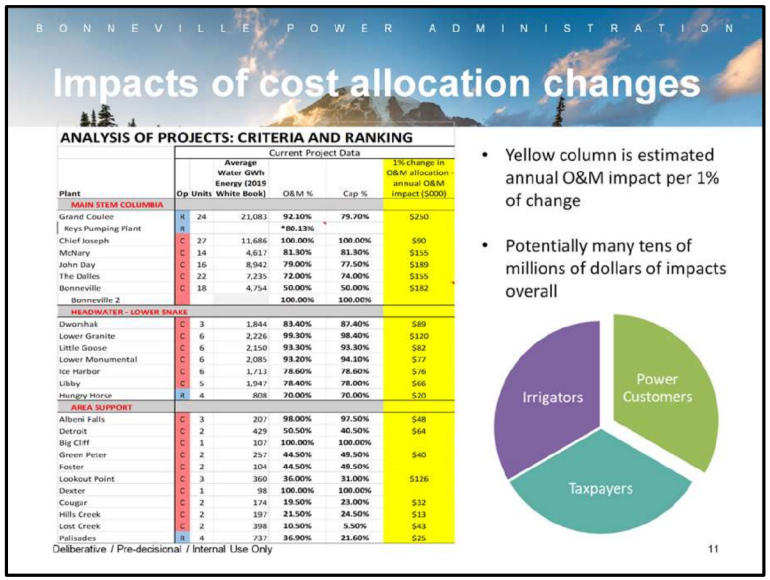
- Legislative or Report Language

Joint Agency Administrative Action

- Cooperative joint study by two to three agencies
- Using existing authority

Bonneville Administrative Action

- Unilateral study and update by Bonneville (power share only)
- Using existing authority



This only shows O&M impacts and including capital would be even greater

Millions of dollars relating to potential construction of Willamette fish facilities
Keys = $7M annual expenses and $128M in capital projected from 2025-2039

Strategy No. 1 – Updated Cost Allocation (Long term) cont.

Cost Allocation Recent Developments:

House Appropriations Subcommittee on Energy Water Development directed Bonneville, Corps, and Reclamation to review and provide a report on the cost allocation process and determine whether updates are warranted.

- Bonneville's perspective is that for specific dams current allocation practices and percentages do not equitably reflect economic benefits received and therefore allocation updates are needed.
- Reclamation and Corps have found numerous policy limitations in conducting new cost allocation and dispute the need to conduct any updates.
- The Agencies are not aligned on legal authority.

Strategy No. 1 – Updated Cost Allocation (Long term) cont.

Cost Allocation Recent Developments (cont.):

Bonneville's FY 2022 OMB Budget Proposal included the following draft bill language request:

> *Provided further, that the Corps and Bureau and Administrator shall jointly conduct an updated cost allocation study, based solely on benefits and without regard to alternate costs, for any FCRPS Project identified by the Administrator and such study shall be completed within three years. The Corps and Bureau shall postpone any planned investments at the Project during the study, unless agreed to by the Administrator, if any portion of the costs tied to the investment are allocated to power. In no event shall the Administrator be responsible for payment of costs other than those specifically allocated to power; any additional costs that may shift to the irrigation purpose shall be considered non-reimbursable.*

Strategy No. 2 – Deauthorization (Long term)

Deauthorization Recent Developments

Section 218 of the 2020 Water Resources Development Act directs the compilation of a report that provides initial analysis on the potential effects of deauthorizing hydropower as a project purpose at the U.S including:

- whether deauthorizing hydropower would either impair operations for other project purposes and Endangered Species Act (ESA) compliance
- how reimbursable and non-reimbursable costs are currently assigned to authorized project purposes and how costs would be reassigned among the project purposes if hydropower is deauthorized. These costs should include the costs for compliance with the ESA.

The Corps has two years from the passage of the 2020 WRDA to complete the report.

Additional congressional action is necessary for actual deauthorization.

Strategy No. 3 – Agency Actions (Short term)

Limited short-term agency actions available:

- Encourage the Corps to "cast a wide-net" in its Willamette EIS analysis; specifically to analyze mitigation options that would be available with the elimination of the power purpose
- Support the Corps' legal argument that it has no current authority to utilize the power pool for fish mitigation operations
- Oppose Corps drawing from Columbia River Fish Mitigation (CRFM) appropriations for Willamette investigation, designs and construction. This is an issue that can be brought forward through the Office of Management and Budget and consideration by the House and Senate Appropriations Committee.
- Reduction in Direct Funding (O&M and Capital); short-term savings come at the risk of unit failure

Questions ?

From: Marker,Doug R (BPA) - AIR-7
Sent: Friday, February 24, 2023 7:56 AM
To: Baskerville,Sonya L (BPA) - AIN-WASH; Kintz,Jesse H (BPA) - PG-5; Leady Jr,William J (BPA) - PG-5; Welch,Julee A (BPA) - LP-7; Senters,Anne E (BPA) - LN-7; Maslow,Jeffrey J (BPA) - EC-4; Mai,Amy E (BPA) - EC-4; Spear,Daniel J (BPA) - PGB-5; Smith,Glen A (BPA) - PG-5
Subject: Public Power Council comments on Willamette DEIS
Attachments: PPC Comments on WVS DEIS FINAL.pdf

The Public Power Council sent their comments on the draft EIS to the Corps. I'm attaching FYI.

Best,

Doug

Doug Marker
Intergovernmental Affairs
Bonneville Power Administration
drmarker@bpa.gov
(b)(6)

From: Kintz,Jesse H (BPA) - PG-5
Sent: Tuesday, February 21, 2023 2:00 PM
To: Leady Jr,William J (BPA) - PG-5
Subject: Possible verbal BPA comments tomorrow for Army WRDA 2022 Implementation Guidance
Attachments: BPA comments for Army WRDA 2022 Implementation Guidance Sonya's Version.docx; Bonneville Power Administrations comments on WRDA 2020 Sec 218 implementation May 7 2021.pdf

Importance: High

FYI that Doug and Sonya are pushing to have Sonya provide BPA remarks at the Army's session tomorrow. I had suggested waiting until next week (see below). We're still hashing through it.

For now, wanted to flag this to give you a heads up and ask that you let me know ASAP if any concerns with commenting along the lines of the attached tomorrow (if that's where we land) or you'd like to discuss further. I've also attached the comments Kieran provided in this forum two years ago.

-Jesse

From: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>
Sent: Tuesday, February 21, 2023 1:08 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>
Subject: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance

Also, this is how I marked-up my remarks. I had been thinking through the edits and finished by draft. Thank.

Sonya Baskerville
BPA National Relations
(b)(6) m

From: Baskerville,Sonya L (BPA) - AIN-WASH
Sent: Tuesday, February 21, 2023 3:30 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>
Subject: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance

This is on my calendar to do tomorrow. Given our messaging is nothing different, I don't think there should be any issue with me presenting our remarks tomorrow. Thanks.

Sonya Baskerville
BPA National Relations
(b)(6) m

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Tuesday, February 21, 2023 3:27 PM

To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>
Subject: RE: Suggested BPA comments for Army WRDA 2022 Implementation Guidance

Appreciate the work to tee this up Doug.

A few thoughts below.

On process:

- We had discussed providing written comments into this Army process at minimum. Are we sure we want to add verbal comments also? We did do this with WRDA 2020 (Kieran provided them) and it seemed the consensus was that it probably doesn't do much. That said, suppose there is no harm in adding verbal comments to continue to emphasize the importance of this issue to BPA. Thoughts? Is there any harm in commenting?
- If we are going to comment verbally, we should aim for next week's session on Wednesday March 1. Tomorrow's session is a quick turnaround and think Bill (and possibly Wayne) should have the opportunity to weigh in on this approach and set of comments as well – aiming for next week would give us time to do that.
- Assuming we do comment verbally- Sonya, do you want to provide our BPA comments or would you prefer me to? I'm fine with either (and assuming Bill doesn't want to).

On content:

- In the opening, we should also highlight the need to prioritize this issue, including providing any necessary funding, in addition to the message that it's important to get it done by the deadline. We could highlight that funding decisions and fish options hinge on resolving this issue in the most timely manner possible.

- I wonder how important the point is about the Corps being late on WRDA 2020 in this context. Assuming it is important and we want it included, I don't think it's completely accurate to say that the Corps hasn't responded to our WRDA 2020 assessment as they have responded in some ways (mostly verbal and informal) albeit not in the ways we would prefer (resolving the question, formally addressing our items, giving us an updated copy of their report and how it addresses our items). Given that I would recommend us saying something along the lines that we haven't received the updated report nor heard any info to rebut our conceptual assertion that the removal of power is either neutral or beneficial to the other purposes.

- Overall, it seems it could be a more compelling point with the Army could be to emphasize how the efficiency and effectiveness of huge funding and fish decisions are dependent on resolving the hydropower question vs the point about the Corps running late on WRDA 2020 (as they do this in many WRDA contexts).

Curious to hear any additional views from Julee or Sonya on this.
If needed I can set up a short check in for early next week when Doug is back from leave to discuss/finalize. I'll also give Bill a heads up that we are considering this.

-Jesse

From: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Sent: Friday, February 17, 2023 5:03 PM
To: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>
Subject: Suggested BPA comments for Army WRDA 2022 Implementation Guidance

There will be another comment opportunity on Wednesday, 2/23 for the Army's implementation guidance to Corps on WRDA 2022. I pulled points from our comments on the EIS that we could use and added an introduction. I think it would be good if Sonya could be on the call to offer these points.

I will flag that I include the second paragraph reminding that the Corps has not met its WRDA 2020 deadline, nor has responded to our assessment. This is definitely a sharp elbowed statement, but emphasizes our concern that the Corps needs to be on task to meet the schedule for WRDA 2022.

My new statements are in Calibri. The statements from our EIS comments are in Times. I know Sonya will be reading from her phone, so that may not help, but the introductory paragraphs are mine…

From: Cook,Joel D (BPA) - K-7
Sent: Wednesday, April 5, 2023 2:12 PM
To: Baskerville,Sonya L (BPA) - AIN-WASH; Cooper,Suzanne B (BPA) - P-6; Leady Jr,William J (BPA) - PG-5; Kintz,Jesse H (BPA) - PG-5; Harris,Marcus A (BPA) - F-2
Cc: Todd,Wayne A (BPA) - PGA-6; Mai,Amy E (BPA) - EC-4; Marker,Doug R (BPA) - AIR-7; Welch,Julee A (BPA) - LP-7; Hardy,Kyle R (BPA) - FAC-2; Spear,Daniel J (BPA) - PGB-5; Smith,Glen A (BPA) - PG-5; Sullivan,Leah S (BPA) - PGB-5; Maslow,Jeffrey J (BPA) - EC-4
Subject: RE: April 3 Willamette/FCRPS legislation status update

Thanks Sonya

Joel D. Cook
Chief Operating Officer, K-7
BONNEVILLE POWER ADMINISTRATION
C: (b)(6) P: 503-230-7640 I jdcook@bpa.gov

From: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>
Sent: Wednesday, April 5, 2023 12:51 PM
To: Cooper,Suzanne B (BPA) - P-6 <sbcooper@bpa.gov>; Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>; Cook,Joel D (BPA) - K-7 <jdcook@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Harris,Marcus A (BPA) - F-2 <maharris@bpa.gov>
Cc: Todd,Wayne A (BPA) - PGA-6 <watodd@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Hardy,Kyle R (BPA) - FAC-2 <krhardy@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Sullivan,Leah S (BPA) - PGB-5 <lssullivan@bpa.gov>; Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>
Subject: RE: April 3 Willamette/FCRPS legislation status update

I will ask for it. Thanks.

Sonya Baskerville
BPA National Relations
(b)(6) m

On Apr 5, 2023 3:43 PM, "Cook,Joel D (BPA) - K-7" <jdcook@bpa.gov> wrote:
Thanks Jesse,
Even though the Corps has stated they "do not plan to share an updated copy of the report with BPA". I am assuming we (Sonya) may be able to get her hands on it, otherwise we will see it when it becomes public?

Joel D. Cook
Chief Operating Officer, K-7
BONNEVILLE POWER ADMINISTRATION
C: (b)(6) P: 503-230-7640 I jdcook@bpa.gov

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Tuesday, April 4, 2023 11:22 AM

To: Cook,Joel D (BPA) - K-7 <jdcook@bpa.gov>; Harris,Marcus A (BPA) - F-2 <maharris@bpa.gov>; Cooper,Suzanne B (BPA) - P-6 <sbcooper@bpa.gov>; Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>
Cc: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Todd,Wayne A (BPA) - PGA-6 <watodd@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>; Sullivan,Leah S (BPA) - PGB-5 <lssullivan@bpa.gov>; Hardy,Kyle R (BPA) - FAC-2 <krhardy@bpa.gov>
Subject: April 3 Willamette/FCRPS legislation status update

Joel, Marcus, Suzanne and Bill,
Sending a status update on Willamettes and FCRPS legislation in lieu of our meeting last week- see below. Note that our next meeting is scheduled for Thursday, April 20.

Let me know if any questions.
-Jesse

Status Updates:

Deauthorization

Updated BPA Willamette financial and operational analysis – with goal to form a BPA position on whether BPA sees a long-term federal interest in Willamette hydropower - is underway.

Corps is holding a "charrette" planning meeting for the WRDA 2022 directed disposition study on 4/11 – BPA will participate and is working on talking points, focused on scoping input, to prepare.

Corps shared that the 2020 WRDA "initial analysis" Cougar/Detroit report has cleared USACE HQ review and is now at ASA (Secretary of Army) Civil Works. The Corps confirmed that they do not plan to share an updated copy of the report with BPA. This leaves it unclear how BPA's previous May 2021 comments with concerns with characterizations of how power removal would impact other purposes were addressed. The Corps has shared high level status updates with BPA that the changes to the report since we last saw them have been minor. Next step is for Army to submit to Congress (no timeline).

Cost allocations

OMB meeting expected on this topic in near future, consistent with BPAs budget justification language which referred to an upcoming meeting between OMB, BPA and Corps to discuss joint schedule for cost allocations for FY25 budget process.

BPA is completing the March report for the EW subcommittee (link here). **Note that BPA added a brief mention of the cost allocation budget justification language since we covered the key points during the last executive strategy meeting on 4/9.** Neither Corps nor Reclamation had input on this quarter's report.

BPA has been sharing information with Reclamation related to the cost allocation at the Keys pumping plant. The formal Keys diversion rate process (which includes the allocation update) kicks off in May.

Environmental processes (NEPA EIS, BA)

Corps is reviewing public comments. Corps received ~800 comments from 91 parties (significantly fewer than CRSO).

Litigation: No significant updates

Upcoming schedule:

Federal Hydropower Council meeting on 4/19

Upcoming milestones:

March 2023	Q report to EW committee
Feb/Mar/Apr 2023	Meetings with new NW Congressional members (as needed)
April 2023	First round of BPA Willamette analysis complete
April 2023	Corps disposition study scoping meeting
April 2023	Federal Hydropower Council meeting
April/May 2023	Meeting with OMB and Corps on cost allocation?
May 2023	Budget hearing with House Natural Resources?
May 2023	BOR Keys diversion rate kickoff meeting

Jesse Kintz
Power Generation – Senior Policy and Project Lead | [PG-2]
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-3340 | C (b)(6)

PUBLIC POWER COUNCIL
Bringing public power together

650 NE Holladay St, Suite 810
Portland, OR 97232
(503) 595-9770
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February 23, 2023

Liza Wells
Deputy District Engineer for Programs and Project Management
Portland District, United States Army Corps of Engineers

RE: PPC Comments on the Draft Programmatic Environmental Impact Statement for Operation and Maintenance of the Willamette Valley System

The Public Power Council (PPC) appreciates this opportunity to provide comments regarding the Draft Programmatic Environmental Impact Statement (Draft EIS) for the operations and maintenance of the Willamette Valley System. PPC is the broadest trade association of Northwest public power, representing the full diversity of utilities with preference rights to purchase wholesale power and transmission services from BPA.

PPC members rely on these services to provide a reliable, economic, and environmentally responsible power supply to the communities and businesses they serve – at cost. PPC members provide the majority of the funding that supports operations and obligations to repay the investments in the federal hydropower system. This includes final "take or pay" responsibility for costs of the power system operations and maintenance of the Willamette Valley System.

PPC is fundamentally concerned that among the analyzed alternatives, there is no path for maintaining economic hydropower production in the Willamette Valley System. The Draft EIS analysis shows massive costs to regional ratepayers, but as described further in these comments, even these costs are likely to be drastically understated. This concern highlights the importance of the Corps' fulfilling in a timely manner its Congressional mandate from the 2022 Washington Resources Development Act (WRDA) that directs the Corps to conduct disposition studies for power deauthorization of the Willamette Valley System.

Within this context, PPC offers the following comments to improve the quality of the final EIS. Additionally, PPC supports the comments of the Bonneville Power Administration (BPA) in this matter as submitted on February 3, 2023.

- **As PPC has urged in previous comments, the final EIS must include consideration for potential deauthorization of power or significant cost reallocations between project functions.** Failure to do so would frustrate the clear intent of Congress in the recent 2022 WRDA legislation and have the potential to make this entire EIS effort for the Willamette Valley System functionally moot. Completing the disposition studies on time and considering their results in the final EIS will have multiple benefits, including the potential for more cost-effective juvenile salmon passage options, reasonable basis for the reallocation of costs between flood control and power where appropriate, and allow for BPA to make informed investment decisions for the projects.

- **The final EIS must be updated with more accurate costs.** First, the draft EIS does not account for the impacts of extending the proposed near-term operations until the completion of structural modifications. This omission dramatically overstates the volume and value of hydroelectric output of the Willamette Valley System projects. Second, the costs of proposed structural improvements for fish passage and water temperature appear highly optimistic based on conceptual designs, and by the Corps' own estimates could likely more than double. Further, the impacts of increased interest rates and material costs should be accounted for.

Thank you for your consideration of these comments. PPC stands ready to work as a partner to resolve the grave economic challenges faced by these projects in a manner that provides the best value for the communities and businesses served by public power, fish and wildlife, and the crucial flood control purposes of the Willamette Valley System.

Sincerely,

(b)(6) [redacted]

Michael Deen
Policy Director
Public Power Council

Suggested comments for Department of Army implementation guidance for Section 8220 of WRDA 2022 – Willamette Valley Disposition studies.

Thank you for the opportunity to comments on implementation guidance for Section 8220 of WRDA 2022 – Willamette Valley Disposition studies.

Bonneville believes that we have a shared interest with the Corps in ensuring that the sufficiency of the final Programmatic Environmental Impact Statement for Willamette Valley System Operations. Given the timeline for completion of the PEIS, Bonneville urges the Corps to meet Congress' schedule for completion of the disposition studies of the hydropower purpose of the Willamette dams by June 2024. BPA believes the PEIS would be enhanced by the Corps incorporating analysis of the disposition studies into the draft Programmatic Environmental Impact Statement for Willamette Valley System Operations.

We appreciate that the Corps has expressed a sense of urgency on addressing mitigation of impacts on fish species in the Willamette. To facilitate that, the Congress directed the Corps in WRDA 2020 Section 218 to study the impacts on other authorized project purposes from any deauthorization of power at Cougar and Detroit/Big Cliff dams, in an effort to assist the Corps in expanding options that could help to mitigate the impacts to fish. Bonneville is not aware that the report, which was due at the end of 2022, has been provided to Congress. Bonneville provided to the Corps Bonneville's assessment that other project purposes would not be negatively impacted by deauthorization of the power purpose. Bonneville believes that the Corps's own assessment or the Corps's views of Bonneville's assessment would be useful for a complete assessment of deauthorizing the power purpose.

For Section 8220 implementation in particular, Bonneville believes that the Corps should confine the disposition studies to the scope defined by section 8220: the hydropower purposes of the dams. Bonneville also believes that the Corps should rely on Bonneville's expertise for the finding of federal interest in the production of commercial power generation from the Willamette dams.

As both the disposition studies and completion of the final PEIS should occur at the same time, Bonneville offers points it recently provided to the Corps on the draft PEIS:

- Bonneville continues to request that the Corps include in the final PEIS its implementation plan for the consideration of de-authorization and cost allocation updates at these projects. Bonneville also offers the following considerations for the disposition studies:
    - Disposition studies will inform potential congressional deauthorization of power at the Willamette dams. If Congress does deauthorize power, the Corps may be able to design less costly and more effective passage routes for juvenile salmon.
    - Disposition study analysis should also inform needed cost allocation updates. Significant operational changes and the shifting economics of managing hydropower and flood control at Willamette Valley projects make cost allocation updates necessary. The Draft PEIS estimates the annual benefit of flood protection to be at least $1 billion and power generation to be $26 million, yet the power purpose's cost allocation averages around 40 percent. If the disposition studies, as part of assessing whether hydropower is in the federal interest, do find

net economic value for remaining hydropower generation at one or more of the Willamette dams, the Corps and Bonneville should use that analysis to implement the needed appropriate cost allocation between flood risk management and power.

- Meeting Congress' timeline for completing disposition studies by June 2024 should support implementation planning for the Final PEIS and help inform Bonneville's decisions for continued investments in the dams' power facilities. It will be important for the Corps to limit the scope of the disposition studies and focus only on the effects of deauthorizing hydropower.

Bonneville believes that the current information about the value of hydropower from the Willamette dams and projected capital cost estimates included in the PEIS are incomplete and out of date, and that outdated data also could affect the accuracy of the disposition studies.

- The Corps should revise the PEIS analysis to fully include the impact of the continuation of the near-term operations in the planned implementation of the final preferred alternative. The most significant impact on hydropower is the provision to continue the operations of the 2021 Oregon District Court injunction until the Corps completes structural measures, which, for some of the measures, would be well into the 2040s under the Draft PEIS implementation schedule. The current analysis does not reflect these operations which stand to reduce the value of hydropower generation by nearly a third. The Final PEIS should include revised estimates for the remaining value of hydropower generation that incorporates the near-term measures. Because these estimates are also necessary for the disposition studies directed by Congress, their inclusion will help inform both Congress and the Final PEIS.

- Bonneville continues to urge the Corps to update structural cost estimates. The estimated costs of structures for fish passage and water temperature seem to be quite conservative. The Corps states in the Draft PEIS that it is basing cost estimates on conceptual designs and that actual costs could likely more than double. However, recent economic events of inflation, constrained supply chains, and escalated interest rates make the Draft PEIS estimates likely out of date.

U.S. Army Corps of Engineers
WRDA2020@usace.army.mil
ATTN: Ms. Amy Frantz, CEW-P

Comments of the Bonneville Power Administration
Docket ID No. COE-2021-002
Implementation Guidance for Water Resources Development Act of 2020, Section 218

The Bonneville Power Administration provides the following comments for preparation of implementation guidance for Section 218 of the Water Resources Act of 2020 directing a report to Congress for an initial analysis of deauthorizing hydropower as an authorized project purpose at Cougar and Detroit/Big Cliff Dams in the Willamette River Basin of Oregon. Bonneville is the Federal Power Marketing Administration with the statutory authority to market the electric power generated from Cougar and Detroit/Big Cliff Dams. Bonneville repays the power share of capital and operations and maintenance (O&M) costs from revenues from the sale of hydroelectric power from 31 dams of the Federal Columbia River Power System (FCRPS) including eight located within the Willamette River Valley.

Because of the urgency of related regional discussions, Bonneville urges the Corps to provide the report directed by Section 218 as soon as possible, ideally in summer 2021. Bonneville believes the Corps has largely already produced the information needed for the initial analysis described in Section 218 in previously completed studies and evaluations. The initial analysis report can be readily completed from this available information. By submitting the report this summer, the Corps can inform Congress of its needs for appropriations in the Willamette Valley System (WVS) for Fiscal Year 2022 based on potential guidance or direction the Corps receives from the Congress regarding operations of the Willamette dams for other project benefits, including fish restoration and water use allocations.

Significance of Deauthorization Analysis:

Bonneville believes that the value of power generation at WVS projects has diminished since authorization relative to the other project benefits, particularly compared with flood risk management. Congress originally authorized WVS dams to primarily mitigate flood risk in the population centers of the Willamette Valley, including the state capital of Salem and Oregon's largest city, Portland. While flood damage reduction remains the WVS dams' highest priority authorization, Congress also authorized other purposes including hydropower with the expectation that power revenues could repay the power share of capital and operations and maintenance (O&M) costs for the projects. Today, power generated from WVS dams is among the highest cost generation of the 31 dams in the FCRPS and the value of power is marginal.

In order to fulfill Endangered Species Act obligations, the Corps of Engineers is evaluating a potential need for implementing significant capital investments at these dams for downstream temperature improvements, dissolved gas reductions, and downstream passage of salmonids at several WVS dams, including include Cougar and Detroit/Big Cliff. Implementation of these investments would substantially increase Bonneville's capital repayment and O&M obligations for its allocated share of the project costs. Further, the Corps is implementing additional changes to reservoir operations that reduce the quantity

and value of power generation. The construction of new fish passage infrastructure is likely to be accompanied by changes to reservoir operations that is likely to further reduce power generation value.

Based on current cost estimates, Bonneville believes that power generation at Cougar Dam will likely be highly uneconomical as a result of significantly increased capital obligations, corresponding O&M costs, and diminished power production associated with structural passage as currently being evaluated. Bonneville is reviewing the impacts of capital construction and operational reductions on the value of power from Detroit/Big Cliff. Bonneville will contribute its estimates of these power values to the Corps' initial analysis.

At the same time, reservoir operations are currently constrained under the existing rule curves for each reservoir to reserve a portion of stored water exclusively for power production (the "power pool"). Hydropower deauthorization would eliminate the need for power pool constraints and provide for more flexible operations to benefit other project purposes. The Corps is involved in multiple decision processes for other project benefits that would be aided by Congressional guidance on power authorization and cost allocation.

Urgency of Congressional Guidance for Willamette Capital Investments:

In a WVS O&M Environmental Impact Statement (EIS) process, the Corps is considering alternative capital investments to improve fish passage and water quality at Cougar and Detroit/Big Cliff dams. Current Corps' cost estimates for these projects are in hundreds of millions of dollars at the two dams and approaching billion dollars across the Willamette Valley system, based on Corps' projections. The Corps is focusing alternatives and measures for evaluation of downstream passage structure options to those designs that maintain authorized project purposes, including for power generation. Given this constraint, the structural fish collection and passage alternatives at each reservoir being evaluated are recognized as having substantial uncertainties regarding their biological effectiveness. Subsequent costs for remedial designs would be incurred until some minimum level of biologically effective operation can be realized.

If the Corps analysis was unconstrained by the authorized hydropower purpose, a broader range of operational and/or structural designs could be analyzed at each dam . Other options may be more biologically effective, as well as potentially more cost-effective. Bonneville believes it is prudent to evaluate alternative operational and/or structural designs unconstrained by the hydropower purpose prior to making final construction commitments at Cougar and Detroit/Big Cliff dams, as well as at other dams where fish passage structures and temperature control are being evaluated.

The Corps has Current and Available Information to Respond to Section 218:

Section 218 calls for an initial analysis of the potential effects of deauthorizing hydropower at Cougar and Detroit/Big Cliff dams on other project purposes. The Corps has analyzed the interaction of the multiple project purposes for these dams in a number of existing documents. Most of these documents describe how the hydropower purpose of the dams is an ancillary operation to other project purposes, most notably for flood risk management; and where the hydropower purpose is a constraint, it is in the

preservation of a dedicated pool of storage intended for hydropower operation where deauthorization that eliminated the need for this power pool would provide more flexibility to achieve other project purposes.

These interactions were described in detail in the 2019 Willamette Basin Review Feasibility Study. In particular, this study was directed at assessing the capability of the Willamette reservoirs to meet authorized water supply purposes.

The Draft EIS for Detroit Dam Fish Passage and Temperature Control, and the Draft Environmental Assessment for Downstream Passage at Cougar Dam provide corresponding detail of the interaction of project purposes. The Corps has also done some informal studies at Cougar dam which are likely applicable.

Section 218 also calls for the initial analysis to include compliance with the Endangered Species Act. The 2008 Biological Opinion for the Willamette Valley System includes descriptions of the interactions with water quantity and water quality for listed fish populations with the operations for hydropower generation. Although this document is being reviewed and will be updated for a new 2023 Biological Opinion, the available information it contains is generally still current and is sufficient to respond to Congress as called for by Section 218.

Finally, Section 218 calls for "costs that would be attributed to other authorized purposes of the project, including costs relating to compliance with [the Endangered Species] Act." In a June 2020 briefing and in subsequent follow ups, Bonneville, with the Corps and the Bureau of Reclamation, provided a description to the House Energy and Water Appropriations Subcommittee on the distribution of capital and O&M costs among authorized project purposes of FCRPS dams. This description included some information related to the consequences of reallocating project costs shares among the project purposes, which apart from hydropower generation, are almost entirely non-reimbursable.

Conclusion:

There is sufficient urgency in pending decisions that the Corps should prioritize immediate response to Congress as called for by Section 218. This urgency includes decisions on significant long term funding commitments and the need to investigate more effective alternatives to benefit fish. The majority of information needed for the initial analysis described in Section 218 is readily available and should not require more than incidental time and review.

From: Kintz,Jesse H (BPA) - PG-5
Sent: Thursday, February 9, 2023 10:53 AM
To: Marker,Doug R (BPA) - AIR-7
Subject: RE: Cost allocations / deauthorization core team bi-weekly

That would be a great topic to discuss. I'll start on a rough/draft schedule of those milestones together and share it with you and the team, so we can map out the plan.

From: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Sent: Thursday, February 9, 2023 10:46 AM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Subject: RE: Cost allocations / deauthorization core team bi-weekly

I didn't get back to you in time. I see you cancelled it, which is fine.

What I wanted to check in about is our schedule and scope to determine what we will say about the federal interest. We need to include something about our schedule for reporting to the congressional committees and our comments for the Corps implementation guidance.

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Thursday, February 9, 2023 9:12 AM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Subject: RE: Cost allocations / deauthorization core team bi-weekly

Doug: Anything burning you think would be good to meet on today? If not I'm leaning towards canceling this week and adding a check in next week instead.

-----Original Appointment-----
From: Kintz,Jesse H (BPA) - FA-2
Sent: Wednesday, April 20, 2022 4:54 PM
To: Smith,Glen A (BPA) - PG-5; Kintz,Jesse H (BPA) - PG-5; Welch,Julee A (BPA) - LP-7; Marker,Doug R (BPA) - AIR-7
Cc: Baskerville,Sonya L (BPA) - AIN-WASH; Todd,Wayne A (BPA) - PGA-6
Subject: Cost allocations / deauthorization core team bi-weekly
When: Thursday, February 9, 2023 2:00 PM-3:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: TBD

The purpose of these meetings is to coordinate on work products related to cost allocations and deauthorization, and help keep the team aligned with strategy direction.

Rescheduling since I'll be in DC on 2/2. We may be ready to discuss the scoping for the Willamette analysis work at this meeting.

Jesse

From: Kintz,Jesse H (BPA) - PG-5
Sent: Thursday, April 13, 2023 8:55 AM
To: Webster-Wharton,Stacy T (BPA) - PGA-6; Baskerville,Sonya L (BPA) - AIN-WASH
Cc: Todd,Wayne A (BPA) - PGA-6; Marker,Doug R (BPA) - AIR-7
Subject: RE: Deauthorization talking points for 4/19/23 Federal Hydropower Council

These work for me.

-Jesse

From: Webster-Wharton,Stacy T (BPA) - PGA-6 <stwebsterwharton@bpa.gov>
Sent: Thursday, April 13, 2023 7:48 AM
To: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Cc: Todd,Wayne A (BPA) - PGA-6 <watodd@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Subject: RE: Deauthorization talking points for 4/19/23 Federal Hydropower Council

This is what I have for the talking points with all of the comments to date:

a. (FYI from Jesse, Doug and Sonya): NOTE: **Sonya mentioned that we want to refrain from mentioning that "we want to retain any power that is viable" as that will be determined as part of the studies and we should refrain from giving the Corps the easy way out.**

- In WRDA 2022 Section 8220, Congress has directed the Corps to do a system-wide disposition study to determine the federal interest in and effects of de-authorizing hydropower as a project purpose for the Willamette Valley system of flood control projects by June 2024.
- De-authorization is needed if power cannot be economically viable because of the operations and structural measures to benefit fish. If effective fish passage would allow some power to be produced, it would likely require reallocation of project cost allocations and the Corps has been unwilling to engage in updating cost allocations.
- The Corps held a planning meeting for the disposition study last week
- It's important to BPA that the Corps meets the 18 month disposition study deadline and BPA wants to help the Corps meet the deadline – including providing analysis for our areas of expertise (commercial power marketing and transmission) and scope input.
- BPA also continues to engage the Corps at the district and division level to revise power cost allocations.

Stacy Webster-Wharton, PE (she/her/hers)
Asset Manager (AM) and Chief Data Officer (CDO) (K) (acting)
BONNEVILLE POWER ADMINISTRATION
stwebsterwharton@bpa.gov
P: 503-230-3102 C: (b)(6)

From: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>
Sent: Thursday, April 13, 2023 7:43 AM

To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Webster-Wharton,Stacy T (BPA) - PGA-6 <stwebsterwharton@bpa.gov>
Cc: Todd,Wayne A (BPA) - PGA-6 <watodd@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Subject: Deauthorization talking points for 4/19/23 Federal Hydropower Council

Again, we do not want to say that we want to retain any power that is viable. That will be determined as part of the studies, but we should refrain from giving the Corps an easy out on this. Consequently, I would delete the last sentence of that second talking point because that is not our message.

For the last bullet, also delete "which would help make power more economically viable." Since the cost allocation effort is broader than the Willamette projects, John should keep that statement to the generic need for a rebalancing generally.

Thanks.

Sonya Baskerville
BPA National Relations
(b)(6) m

On Apr 12, 2023 7:16 PM, "Kintz,Jesse H (BPA) - PG-5" <jhkintz@bpa.gov> wrote:
Stacy,
I've taken a stab at a few FHC talking points on deauthorization- see below. I know Doug is tied up part of this week but he may have some input and I also cc'd Wayne and Sonya in case they want to weigh in.

-Jesse

4/19 Federal Hydro Council bullet points – Deauthorization topic

In WRDA 2022 Section 8220, Congress has directed the Corps to do a system-wide disposition study to determine the federal interest in and effects of de-authorizing hydropower as a project purpose for the Willamette Valley system of flood control projects by June 2024.

De-authorization is needed if power cannot be economically viable because of the operations and structural measures to benefit fish. BPA wants to retain any power that is economical.

The Corps held a charrette planning meeting for the disposition study last week and is trying to decide on a vertically aligned scoping approach.

It's important to BPA that the Corps meets the 18 month disposition study deadline and BPA wants to help the Corps meet the deadline – including providing analysis for our areas of expertise (commercial power marketing and transmission) and scope input.

BPA also continues to engage the Corps at the district and division level to revise power cost allocations which would help make power more economically viable.

Jesse Kintz
Power Generation – Senior Policy and Project Lead | [PG-2]
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-3340 | C (b)(6)

From: Welch,Julee A (BPA) - LP-7
Sent: Monday, April 17, 2023 6:19 PM
To: Todd,Wayne A (BPA) - PGA-6; Kintz,Jesse H (BPA) - PG-5; Smith,Glen A (BPA) - PG-5; Ashby,Gordon S (BPA) - PGA-6
Subject: RE: Debrief on Corps' Charrette
Attachments: Charette Notes (April 2023).docx

Good to hear everyone can attend in person!

A few things:
-I've attached my notes from the Charrette. I was able to get my 14 pages of handwritten notes down to 6 pages typed! What I thought was most significant I bolded and made purple font. We can discuss tomorrow.
-Agenda for tomorrow is below, we can go over at the start and adjust as necessary.
-Most importantly, Jimmy Johns opens at 11 and does delivery. So we can call in an order for lunch right at the start of our meeting.

Agenda
Review Meeting Notes – 20 min
Review 6-pager – 20 min
Strategy (what do we want)– 20 min
How to respond to Corps – 10 min

- Just with the 6-pager comments OR
- A letter (senior exec preferred) plus the 6-pager comments

Prepare skeleton of response, start filling in - 45 min
Assignments as needed to finish responsive documents quickly – 5 min

Thanks,
Julee

From: Todd,Wayne A (BPA) - PGA-6 <watodd@bpa.gov>
Sent: Monday, April 17, 2023 5:32 PM
To: Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Ashby,Gordon S (BPA) - PGA-6 <gsashby@bpa.gov>
Subject: RE: Debrief on Corps' Charrette

I'm planning on being in person.

-----Original Appointment-----
From: Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>
Sent: Friday, April 14, 2023 11:45 AM
To: Welch,Julee A (BPA) - LP-7; Welch,Julee A (BPA) - LP-7; Kintz,Jesse H (BPA) - PG-5; Smith,Glen A (BPA) - PG-5; Ashby,Gordon S (BPA) - PGA-6
Cc: Todd,Wayne A (BPA) - PGA-6
Subject: Debrief on Corps' Charrette
When: Tuesday, April 18, 2023 11:00 AM-1:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: HQ 678 (28); (503) 230-4000 (b)(6)

Our own version of a charrette – a chance to go over our notes in the smaller group and come up with an initial strategy in responding to the Corps. Might even order Jimmy Johns for lunch.

Hopefully you can all make in person, but if not we can do a conference call as well

(b)(5)

[redacted]

(b)(5)

[redacted]

(b)(5)

[redacted]

(b)(5)

[redacted]

(b)(5)

[redacted]


(b)(5)

From: Marker,Doug R (BPA) - AIR-7
Sent: Thursday, March 23, 2023 6:37 AM
To: Seifert,Roger E (BPA) - AIN-WASH; Baskerville,Sonya L (BPA) - AIN-WASH; Kintz,Jesse H (BPA) - PG-5
Cc: Hardy,Kyle R (BPA) - FAC-2; Ellison,Nathan B (BPA) - FAC-2; Alexander,Doug (BPA) - FAC-2
Subject: RE: FY 2023 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH.pptx
Attachments: FY 2024 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH - Marker notes.pptx

Sorry for no attachment

From: Seifert,Roger E (BPA) - AIN-WASH <reseifert@bpa.gov>
Sent: Wednesday, March 22, 2023 8:34 PM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Cc: Hardy,Kyle R (BPA) - FAC-2 <krhardy@bpa.gov>; Ellison,Nathan B (BPA) - FAC-2 <NBEllison@bpa.gov>; Alexander,Doug (BPA) - FAC-2 <daalexander@bpa.gov>
Subject: RE: FY 2023 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH.pptx

Doug,

Do you need to attach the file?

Roger

On Mar 22, 2023 9:28 PM, "Marker,Doug R (BPA) - AIR-7" <drmarker@bpa.gov> wrote:
Made a few suggestions, Roger. Changed the deck title to FY 2024.

Thanks!

From: Seifert,Roger E (BPA) - AIN-WASH <reseifert@bpa.gov>
Sent: Wednesday, March 22, 2023 6:12 PM
To: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Cc: Alexander,Doug (BPA) - FAC-2 <daalexander@bpa.gov>; Ellison,Nathan B (BPA) - FAC-2 <NBEllison@bpa.gov>; Hardy,Kyle R (BPA) - FAC-2 <krhardy@bpa.gov>
Subject: FW: FY 2023 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH.pptx
Importance: High

Sonya, Doug, and Jesse,

Doug Alexander and I have completed several round of drafting on BPA Budget Briefing slides for Sonya' presentation to staff of the Energy and Water Development Subcommittee of the Senate Appropriations Committee now scheduled for next Monday 3/27/2023.

We have included the normal budget briefing material we have in the past, but understand that the most important part of this briefing will be the narrative on FCRPS Cost Allocation and the Willamette River projects disposition study authorized and required by the newly enacted 2022 Water Resources Development Act. We have included the OMB cleared CJ narrative on FCRPS Cost Allocation in this draft. We have also included updated bullet points on the disposition study from our OMB briefing and the bill language from the water authorization law.

Please review all this draft material and in particular the substance and arrangement of this FCRPS cost allocation/Willamette study narrative to make sure it meets your needs. We would ask for your review, tomorrow, Thursday 3/23/2023, so Doug, I can get this into a final draft by Thursday night or early Friday. I am assuming DOE may ask for a review or delivery copy sometime Friday given that the briefing is on Monday 3/27/2023.

Thanks for your review,

Roger
(b)(6) m

From: Alexander,Doug (BPA) - FAC-2 <daalexander@bpa.gov>
Sent: Wednesday, March 22, 2023 8:40 PM
To: Seifert,Roger E (BPA) - AIN-WASH <reseifert@bpa.gov>
Subject: FY 2023 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH.pptx

Roger,

Per our conversation at 5:30 my time, attached is the most recent document that includes the changes we discussed.

Thanks,
Doug

FY 2024 Budget Briefing Senate Energy and Water Development Subcommittee of the Senate Appropriations Committee

Bonneville Power Administration

March 27, 2023

1

BPA - Overview

- BPA is a federal nonprofit power marketing administration based in the Pacific Northwest. Although BPA is part of the U.S. Department of Energy, it is self-funding and covers its costs by selling its products and services. BPA markets wholesale electrical power from 31 federal hydroelectric projects in the Northwest, one nonfederal nuclear plant and several small nonfederal power plants. The dams are operated by the U.S. Army Corps of Engineers and the Bureau of Reclamation. BPA provides about 28 percent of the electric power used in the Northwest and its resources — primarily hydroelectric — make BPA power nearly carbon free.
- BPA also operates and maintains about three-fourths of the high-voltage transmission in its service territory. BPA's territory includes Idaho, Oregon, Washington, western Montana and small parts of eastern Montana, California, Nevada, Utah and Wyoming.
- BPA promotes energy efficiency, renewable resources and new technologies that improve its ability to deliver on its mission. It also funds regional efforts to protect and rebuild fish and wildlife populations affected by hydropower development in the Columbia River Basin.
- BPA is committed to public service and seeks to make its decisions in a manner that provides opportunities for input from all stakeholders. In its vision statement, BPA dedicates itself to providing high system reliability, low rates consistent with sound business principles, environmental stewardship and accountability.

Strategic Direction & Results

- Bonneville's 2018-2023 Strategic Plan, released in 2018, describes how it will operate in a commercially successful manner while meeting its statutory obligations. Bonneville developed this strategic plan after listening to customers and constituents express their interests in Bonneville's commercial viability and ability to meet those obligations. The strategic plan was developed at the point when Bonneville was midway through 20 year firm power sales contracts with its preference power customers. Those customers continue to evaluate how Bonneville will be positioned to meet their needs beyond the terms of their current contracts.

- The strategic plan is framed by these goals:
  - Strengthen financial health
  - Modernize assets and system operations
  - Provide competitive power products and services
  - Meet transmission customer needs efficiently and responsively

- In 2020, Bonneville reassessed and reconfirmed its strategic goals and objectives. In its Strategic Plan Update, Bonneville added a fifth goal, "Value people and deliver results," which captures the agency's commitment to its workforce and the people it serves.

- Bonneville is currently working on a strategic plan refresh for 2024-2028 and expects to publish the plan in 2023 MR(-A1

- In 2018, Bonneville completed its Financial Plan to address the Strategic Plan's direction to maintain and enhance the agency's financial strength. The 2018 Financial Plan establishes a guiding framework for decision-making by defining the financial constraints within which Bonneville operates, and outlines Bonneville's financial health objectives. The plan contains Bonneville's statutory obligations and authorities, financial policies and established practices, and financial health objectives.

3

Strategic Direction & Results (cont.)

- Pursuant to the Financial Plan, Bonneville adopted two specific policies. The Financial Reserves Policy (FRP) defines the level of financial reserves Bonneville and each business line should hold, how to build financial reserves when they fall below a prescribed level, and a process to consider repurposing financial reserves when they exceed a prescribed level. The policy provides a framework to help ensure Bonneville maintains a minimum of 60 days cash on hand for each business line and 90 days for the agency.

- The Leverage Policy created an approach to reduce Bonneville's total debt compared to its assets in an effort to strengthen financial health and financial flexibility. Reducing debt will help Bonneville lower its interest costs, support its strong credit rating, maintain access to borrowing from the U.S. Treasury, and improve financial strength and flexibility.

- In FY 2022, Bonneville held a public process to refresh its Financial Plan. The objective of the Financial Plan Refresh was to ensure Bonneville's long-term financial goals are supported with the appropriate targets, metrics and policies. The scope of the project focused on debt management, debt capacity, and capital execution performance reporting. From September 2021 through March 2022, Bonneville engaged customers and constituents through a series of workshops to discuss proposals. Bonneville completed a Record of Decision in July 2022 and published its 2022 Financial Plan on September 14, 2022. The 2022 Financial Plan is a refresh of specific sections of its 2018 Financial Plan which guides BPA's financial operations and establishes financial health objectives.

Strategic Direction & Results (cont.)

- The Leverage Policy was superseded on July 29, 2022, by the Sustainable Capital Financing Policy. This policy outlines Bonneville's goal that each business unit will achieve a debt-to-asset ratio of no more than 60 percent by 2040 and outlines the approach for driving toward this goal. The policy creates a structure of 90 percent debt and 10 percent revenues for financing Bonneville's capital program. If a business unit is not on track to reach the 60 percent debt-to-asset ratio target, the percent of revenue financing will increase to 20 percent. At this level of revenue financing, the increases are limited to an approximate 1 percent incremental rate impact per rate period.

- This FY 2024 Budget includes capital and expense estimates based on initial approved spending proposals from Bonneville's BP-24 Integrated Program Review (IPR). Capital investment levels reflect Bonneville's capital asset management process and external factors such as changes affecting the West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region and national energy security goals.

- Bonneville utilizes a structured capital project selection process requiring submission of a standardized business case for review. Each business case consists of a description of the project, a clear statement of objectives, description and mitigation of risks, and a rigorous analysis of project costs and benefits, including a status quo assumption and preferred alternatives. In addition, both annual and end-of-project targets are set for each project covering cost, scope, and schedule. Progress reports on these targets are provided to Bonneville's senior executives at least quarterly.

Strategic Direction & Results (cont.)

- In 2019, Bonneville adopted a broad regional settlement of a new transmission tariff, which included terms and conditions that would apply to all of Bonneville's customers. The Tariff sets forth the process Bonneville may use to make future modifications to it and positions the region to take advantage of opportunities in the rapidly changing industry as well as further its objectives for improving the agency's commercial performance. This resulted in a settlement package that includes TC-22 tariff as well as the BP-22 rates proceeding and completed in July 2021. Settlement Agreement on the tariff terms and conditions and a BP-22 Partial Transmission Rates Settlement Agreement that settles transmission and ancillary and control area services rates. Bonneville's Fiscal Year 2022 and 2023 rate decision included the transmission, and ancillary and control area services rates agreed upon in the settlement.

- The Columbia River Treaty: The U.S. Government reached consensus on a high level position for negotiations of the post-2024 future of the Columbia River Treaty in June 2015, and received authorization to negotiate with Canada on the Columbia River Treaty in October 2016. Government Affairs Canada notified the United States State Department in December 2017 of Canada's mandate to negotiate the Columbia River Treaty with the United States. Negotiations began in spring 2018 and continue to date. Both the U.S. Department of State and Canadian negotiators have discussed shared objectives and exchanged information on flood risk management, hydropower and ecosystem considerations.

- As of May 2022, debt instruments issued by non-federal entities but secured by payment and other financial commitments provided by Bonneville received the following credit ratings: Moody's at Aa2 with a positive outlook, Standard & Poor's at AA- with a stable outlook, and Fitch at AA with a stable outlook.

Capital Infrastructure Investment

- Assured access to capital provides BPA with the planning certainty needed to maintain a capital spending program consistent with its mission and strategic objectives, such as transmission upgrades and new transmission to meet transmission service requests, refurbish the hydroelectric system, and fish and wildlife enhancement. BPA has established a Financial Plan goal to maintain $1.5 billion in remaining borrowing authority with the US Treasury in order to have planning certainty for the multi-year nature of many projects, and base spending that is necessary to keep the system from deteriorating.
- This FY 2024 Congressional Budget includes capital and expense estimates based on BPA's 2022 initial IPR. FY 2022 numbers are based on BPA's actual FY 2022 financial results.
- BPA continues to consider other strategies, in addition to the use of Treasury borrowing and third party financing sources, to sustain funding for its infrastructure investment requirements. These additional strategies include restructuring of maturing Energy Northwest debt, and seeking, when feasible, third party financing sources.

Funding Profile by Subprogram [1/]

(Accrued Expenditures in Thousands of Dollars)

	Fiscal Year			
	2022 Actuals	2023 Original [2]	2023 Revised [2]	2024 Proposed
Capital Investment Obligations				
Associated Project Costs [3/]	190,294	264,120	281,260	270,000
Fish & Wildlife	16,119	43,000	43,000	41,335
Subtotal, Power Services	206,413	307,120	324,260	311,335
Transmission Services	373,500	497,086	497,160	593,840
Capital Equipment & Bond Premium	20,905	22,002	21,047	23,983
Total, Capital Obligations [3/]	600,818	826,208	842,468	929,159
Expensed and Other Obligations				
Expensed	2,994,653	2,733,825	2,758,063	2,879,919
Projects Funded in Advance [4/]	120,536	55,775	61,166	45,924
Total, Obligations	3,716,007	3,615,808	3,661,697	3,855,001
Capital Transfers (cash)	694,200	696,000	735,596	673,266
Bonneville Total (Oligations & Capital Transfers)	4,410,207	4,311,808	4,397,293	4,528,267
Bonneville Net Outlays	(806,000)	(324,967)	(332,469)	(208,923)
Full-time Equivalents (FTEs) [5/]	2,847	3,000	3,000	3,000

Public Law Authorizations include:

Bonneville Project Act of 1937, Public Law No. 75-329

Federal Columbia River Transmission System Act of 1974, Public Law No. 93-454

Regional Preference Act of 1964, Public Law No. 88-552

Flood Control Act of 1944, Public Law No. 78-543

Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act), Public Law No. 96-501

BPA/Funding Profile (cont.)

Outyear Funding Profile by Subprogram [1/]

(Accrued Expenditures in Thousands of Dollars)

	Fiscal Year			
	2025	2026	2027	2028
Capital Investment Obligations				
Associated Project Costs [3/]	275,675	281,620	288,001	294,794
Fish & Wildlife	41,300	29,000	15,700	15,000
Subtotal, Power Services	316,975	310,620	303,701	309,794
Transmission Services	581,009	555,897	537,180	546,032
Capital Equipment & Bond Premium	22,830	24,990	23,180	23,970
Total, Capital Obligations [3/]	920,814	891,507	864,061	879,796
Expensed and Other Obligations				
Expensed	2,993,800	3,094,149	3,176,877	3,257,217
Projects Funded in Advance [4/]	55,007	53,073	53,907	54,751
Total, Obligations	3,969,620	4,038,729	4,094,846	4,191,763
Capital Transfers (cash)	646,624	660,089	612,307	406,879
Bonneville Total (Oligations & Capital Transfers)	4,616,244	4,698,818	4,707,153	4,598,642
Bonneville Net Outlays	(137,386)	(121,344)	(102,062)	(49,988)
Full-time Equivalents (FTEs) [5/]	3,000	3,025	3,075	3,125

BPA/Funding Profile Notes

These notes are an integral part of this table.

1/ This budget has been prepared in accordance with PAYGO. Under PAYGO all Bonneville budget estimates are treated as mandatory and are not subject to the discretionary caps included in the Budget Control Act of 2011. These estimates support activities that are separate from discretionary activities and accounts. Thus, any changes to Bonneville estimates cannot be used to affect any other budget categories which have their own dollar caps. Because Bonneville's obligations are and will be incurred under pre-existing legislative authority, Bonneville is not subject to a "pay-as-you-go" test regarding its revision of current-law funding estimates.

2/ Original estimates reflect Bonneville's FY 2023 OMB Budget Submission. Revised estimates, consistent with Bonneville's annual near-term funding review process, provide notification to the Administration and Congress of updated capital and expense funding levels for FY 2023. The BPA estimates in this budget are consistent with the BP-24 IPR.

3/ Includes infrastructure investments to address the long-term electric power related needs of the Northwest and significant changes affecting Bonneville's power and transmission markets.

4/ In this instance, Projects Funded in Advance represents prepayment of Power customers' bills reimbursed by future credits and third party non-federal financing for Conservation initiatives. Also this category includes those facilities and/or equipment where Bonneville retains control or ownership which are funded or financed by a third party, revenue, or with Power or Transmission

5/ As of 7/26/2022, DOE HR staff has reported FY 2022 BPA's FTE forecast useage at 2,839.

Additional Notes

Capital funding levels reflect external factors such as the significant changes affecting West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region.

Cumulative advance amortization payments as of the end of FY 2021 are $6,230 million.

Refer to 16 USC Chapters 12B, 12G, 12H, and Bonneville's other organic laws, including P.L. 100-371, Title III, Sec. 300, 102 Stat. 869, July 19, 1988, regarding Bonneville's ability to obligate funds.

BPA/Funding Profile Notes (cont.)

Budget estimates included in this budget are subject to change due to rapidly changing economic and institutional conditions in the evolving electric utility industry.

Net Outlay estimates are based on current cost savings to date and anticipated cash management goals. They are expected to follow anticipated management decisions throughout the rate period that, along with actual market conditions, will impact revenues and expenses. Actual Net Outlays are volatile and are reported in Report on Budget Execution and Budgetary Resources (SF-133). Actual Net Outlays could differ from estimates due to changing market conditions, streamflow variability, continued restructuring of the electric industry, and other reasons.

Revenues, included in the Net Outlay formulation, are calculated consistent with cash management goals and assume a combination of adjustments. Assumed adjustments include the use of a combination of tools, including upcoming rate adjustment mechanisms, a net revenue risk adjustment, debt service refinancing strategies and/or short-term financial tools to manage net revenues and cash. Some of these potential tools will reduce costs rather than generate revenue, causing the same Net Outlay result. Adjustments for depreciation and 4(h)(10)(C) credits of the Northwest Power Act are also assumed.

FY 2022 Net Outlays are calculated using Bonneville's FY 2022 Q3 review. FY 2023 is based off of rate case and FY 2024 to 2028 Net Outlays are based on BP-24 IPR assumptions and an escalation factor from using the FY 2022 Whitebook Loads and Resources Report.

FTE outyear data are estimates and may change. Bonneville is facing a dynamic and changing energy marketplace and operations while, at the same time, many of its employees are eligible to retire in the near future. It is important that Bonneville continue to attract and retain skilled individuals to meet the growing demands of a competitive and rapidly changing industry. Accordingly, FTE estimates may need to be adjusted in the future.

Amounts in tables and schedules may not add to totals due to rounding.

Major Outyear Considerations

Bonneville's outyear estimates reflect ongoing efforts to achieve its long-term mission and strategic direction. The outyear estimates are developed with consideration and support of Bonneville's multi-year performance targets that lay out the course for achieving Bonneville's long-term objectives. Outyear capital investment levels support Bonneville's infrastructure program, hydro efficiency program, and its fish and wildlife mitigation projects.

Bonneville continues to incorporate the various aspects of the Energy Policy Act of 2005 related to its business, in particular the energy supply, conservation, and new energy technologies for the future that are highlighted in the legislation.

Proposed Bill Language

Expenditures from the Bonneville Power Administration Fund, established pursuant to Public Law 93-454, are approved for official reception and representation expenses in an amount not to exceed $5,000, provided that during fiscal year 2024 no new direct loan obligations may be made. (Consolidated Appropriation Act, 2023.)

Explanation of Changes

The proposed appropriations language restricts new direct loans in FY 2024 as in FY 2023. This bill language is drafted consistent with the Credit Reform Act of 1990.

Willamette River Projects Disposition Study

- Sec. 8220 of the enacted House-passed Water Resources Development Act of 2022 directs the Corps to "carry out a disposition study to determine the Federal interest in, and identify the effects of, deauthorizing hydropower as an authorized purpose" of the Willamette Valley dams.
- The section directs the Corps to return its report within 18 months of WRDA passage. MR(-A2
- Bonneville is concerned it will be obligated to repay a share of the costs for new capital investments at Willamette dams made before the disposition study is completed and Congress decides on deauthorization.
- The enacted WRDA law provides assurance that Bonneville will not be obligated to repay new capital investments pending completion of disposition studies.
- Bonneville urges the Corps to propose stand-alone appropriations for Willamette EIS implementation MR(-A3 draw from other funding sources without specific Congressional approval.

FCRPS Cost Allocations

- The FY 2020 Energy and Water Development Appropriations Act included House subcommittee report language addressing the allocation of costs for multi-purpose projects of the Federal Columbia River Power System. In part, the subcommittee directed that BPA, Corps, and BOR develop a list of prioritized projects for cost reallocation. The FY 2021 Energy and Water Development Act acknowledged the prioritized list submitted by BPA and directed quarterly reports on progress toward resolving policy differences among the agencies for proceeding with reallocation.

- It is clear that reallocation studies will not be easily or timely accomplished without Congressional statutory direction to BPA, the Corps, and BOR. This issue is urgent and Congressional direction will be most effective given current litigation under the Endangered Species Act. An expected outcome of this litigation will be significant reductions in power production and increases in operating costs. Similarly, the Corps may invest in significant fish and wildlife mitigation capital costs at certain Willamette projects that will further erode power production and increase costs. BPA is concerned by use of the Columbia River Fish Mitigation Program to fund the projects. MR(-A4

FCRPS Cost Allocations (cont.)

- The FY 2021 Energy and Water Development Appropriations Act included report language requesting that Bonneville, the Corps, and Reclamation provide quarterly reports on their work to resolve policy differences for the allocation of costs for multi-purpose projects of the FCRPS. This followed language in the House Committee on Appropriations report in the FY 2020 Energy and Water Development Appropriations Act, noting that the allocation of cost sharing among the authorized project purposes can be decades old and requesting that the three agencies return an outline of how cost allocations may be updated.
- The three agencies provided the subcommittee with an outline of cost allocation methods and authorities in June 2020, noting specific policy differences. Bonneville is continuing to provide the subcommittee with Quarterly reports of its progress.

FCRPS Cost Allocations (cont.)

- BPA appreciates the OMB budget guidance to BPA indicating that Bonneville should work with the Corps of Engineers to determine if changes in cost allocation may be warranted and present a joint proposal to OMB for consideration for the FY 2025 Budget if both agencies agree changes may be warranted.

- BPA agrees that a joint proposal to OMB would support the effort to determine whether or not project costs are being appropriately allocated to power, thus ensuring carbon free and reliable FCPRS hydropower costs are not inflated by non-joint, non-power costs. The joint effort also would support the federal interest determination portion of completing the directed studies on disposition of hydropower at the Willamette dams, authorized by the enactment into federal law on December 23, 2022 as Section 8220, Disposition Study of hydropower in the Willamette, Valley, Oregon (pp. 3162-6), of Division H. of Title LXXXI, the Water Resources Development Act of 2022 (WRDA), of the James M. Inhofe National Defense Authorization Act (NDAA), P.L. 117-263, and directed to be completed by June 2024. Thus, the timing for this joint effort is critical to assuring decarbonization goals and certain fish mitigation activities.

FCRPS Cost Allocations (cont.)

- BPA appreciates OMB scheduling a joint meeting of OMB, the Corps and BPA to discuss cost allocation and potential development of a joint proposal. BPA intends to discuss with OMB and the Corps a proposed schedule for the BPA and the Corps joint report to OMB by August 1. And assuming the report will note reallocation is warranted, BPA intends to discuss with OMB and the Corps a joint proposal for commencing the cost allocation update process by September 15 for the FY 2025 Budget.
- BPA believes that the subcommittee continues to have an interest in expeditious commencement of these activities.

Willamette River Projects Disposition Study
Enacted Water Authorization Bill Language

SEC. 8220. DISPOSITION STUDY ON HYDROPOWER IN THE WILLAMETTE VALLEY, OREGON.

(a) DISPOSITION STUDY.

(1) IN GENERAL. - The Secretary shall carry out a disposition study to determine the Federal interest in, and identify the effects of, deauthorizing hydropower as an authorized purpose, in whole or in part, of the Willamette Valley hydropower project.

(2) CONTENTS. - In carrying out the disposition study under paragraph (1), the Secretary shall review the effects of deauthorizing hydropower on - (A) Willamette Valley hydropower project operations; (B) other authorized purposes of such project; (C) cost apportionments; (D) dam safety; (E) compliance with the requirements of the Endangered Species Act (16 U.S.C. 1531 et seq.); and (F) the operations of the remaining dams within the Willamette Valley hydropower project.

(3) RECOMMENDATIONS. - If the Secretary, through the disposition study authorized by paragraph (1), determines that hydropower should be removed as an authorized purpose of any part of the Willamette Valley hydropower project, the Secretary shall also investigate and recommend any necessary structural or operational changes at such project that are necessary to achieve an appropriate balance among the remaining authorized purposes of such project or changes to such purposes.

Willamette River Projects Disposition Study
Enacted Water Authorization Bill Language (cont.)

(b) REPORT. - Not later than 18 months after the date of enactment of this Act, the Secretary shall issue a report to the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Environment and Public Works of the Senate that describes - (1) the results of the disposition study on deauthorizing hydropower as a purpose of the Willamette Valley hydropower project; and (2) any recommendations required under sub-section (a)(3).

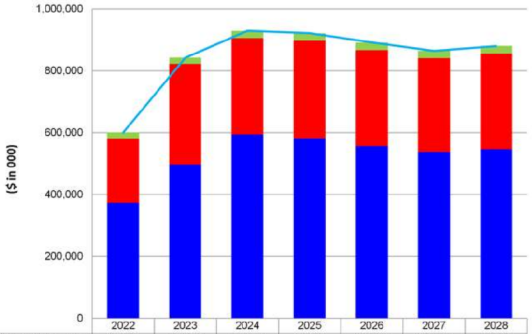
(c) COSTS. – Until such time as the report required under subsection (b) is issued, any new construction-related expenditures of the Secretary at the Willamette Valley hydropower project that are assigned to hydropower shall not be reimbursable.

(d) DEFINITION. - In this section, the term "Willamette Valley hydropower project" means the system of dams and reservoir projects authorized to generate hydropower and the power features that operate in conjunction with the main regulating dam facilities, including the Big Cliff, Dexter, and Foster re-regulating dams in the Willamette River Basin, Oregon, as authorized by section 4 of the Flood Control Act of 1938 (chapter 795, 52 Stat. 1222; 62 Stat. 1178; 64 Stat. 177; 68 Stat. 1264; 74 Stat. 499; 100 Stat. 4144).

Payments to the U.S. Treasury

- BPA repays borrowings from the U.S. Treasury with interest at market rates that exceed the Treasury's cost of borrowing. Repaying bonds issued to the U.S. Treasury results in replenishment of available Treasury borrowing authority.
- BPA is a responsible borrower with a 39th consecutive year track record of making its annual payment to the U.S. Treasury in full and on time. Additionally, BPA has over a 70-year record of meeting its statutory requirement to repay the Federal investment within the period prescribed by law. BPA made its FY 2022 annual payment to the U.S. Treasury payment on time and in full for the 39th consecutive year.
- Bonneville's FY 2022 payment to the U.S. Treasury of $943 million was made on time and in full for the 39th consecutive year. The payment included $694 million in principal, which included $346 million in early retirement of higher interest rate U.S. Treasury debt, $194 million for interest, $17 million in irrigation assistance payments, and $37 million in other payments.
- Bonneville's FY 2023 payment to the U.S. Treasury is currently estimated at approximately $965 million. Based on third-quarter FY 2023 financial results, operating conditions and financial reserves, Bonneville fully expects to make its FY 2023 Treasury payment on time and in full.
- In recent years, BPA has made amortization payments in excess of those scheduled in its FERC-approved rate filings resulting in cumulative amount of advance amortization as of the end of FY 2022 in excess of $6.2 billion.

FY 2024 Budget Estimates
Capital Investments – Excluding PFIA[1]

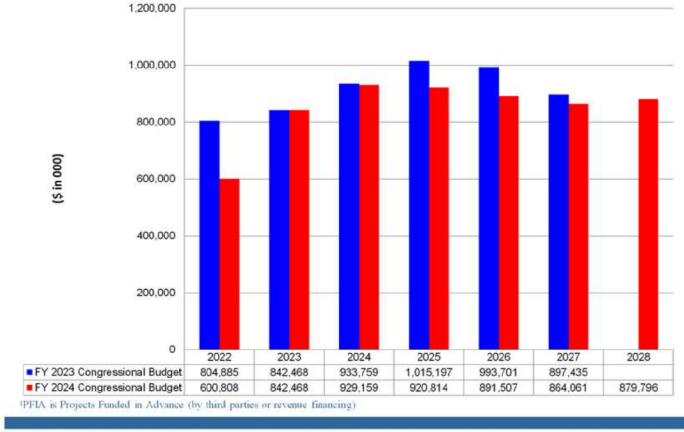


	2022	2023	2024	2025	2026	2027	2028
Capital Equipment & Bond Premium	20,903	21,047	23,983	22,830	24,990	23,180	23,970
Power Services	206,403	324,260	311,335	316,975	310,620	303,701	309,794
Transmission Services	373,500	497,160	593,840	581,009	555,897	537,180	546,032
Total	600,806	842,467	929,158	920,814	891,507	864,061	879,796

[1]PFIA is Projects Funded in Advance (by third parties or revenue financing)

21

FY 2024 vs FY 2023 Budget Estimates
Capital Investments – Excluding PFIA[1]



	2022	2023	2024	2025	2026	2027	2028
FY 2023 Congressional Budget	804,885	842,468	933,759	1,015,197	993,701	897,435	
FY 2024 Congressional Budget	600,808	842,468	929,159	920,814	891,507	864,061	879,796

[1]PFIA is Projects Funded in Advance (by third parties or revenue financing)

22

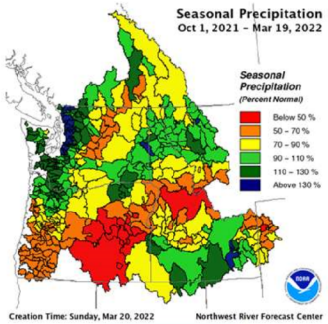
FY 2024 Budget Estimates
Capital Investments – Including PFIA

POWER- Capital	2022 actual/outlay	2023 accrual	2024 accrual
Associated Project Costs	190,293	281,260	270,000
Fish & Wildlife	16,119	43,000	41,335
BUREAU OF RECLAMATION	33,230	51,974	68,925
CORPS OF ENGINEERS	178,925	229,286	201,075
Subtotal	206,413	324,260	311,335
Proj Funded in Advance			
Total, Power Services - Capital	**206,413**	**324,260**	**311,335**

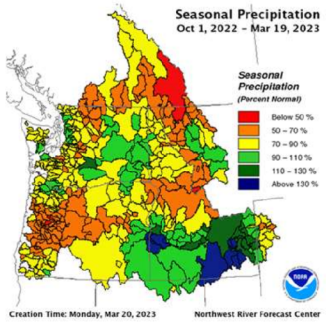
TRANSMISSION- Capital	2022 actual/outlay	2023 accrual	2024 accrual
Main Grid	7,013	6,219	38,285
Area & Customer Services	38,907	71,520	38,285
Upgrades & Addition	63,668	113,430	151,074
Systems Replacements	263,912	305,991	366,197
Subtotal	373,500	497,160	593,840
Proj Funded in Advance	120,536	61,166	45,924
TOTAL, Trans. - Capital	**494,036**	**558,327**	**639,764**

CAPITAL EQUIPMENT	2022 actual/outlay	2023 accrual	2024 accrual
Capital Equipment	20,905	21,047	23,983
Capitalized Bond Premium	0	0	0
TOTAL, Cap. Equip. - Capital	**20,905**	**21,047**	**23,983**

Water Supply Information: Observed Precipitation



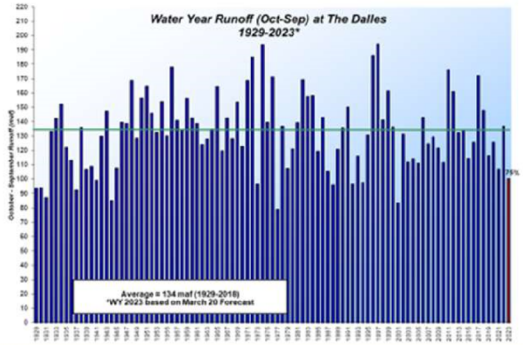
Climate conditions as they existed approximately one year ago are reflected in the map shown above.



24

Water Year Runoff – Historical Raking

Water Year Runoff – Historical Ranking



25

2023 Water Supply Forecast

NWS Official Water Supply Forecasts

Volume at The Dalles, January-July and April-August 2022

all forecasts include 10 days of QPF

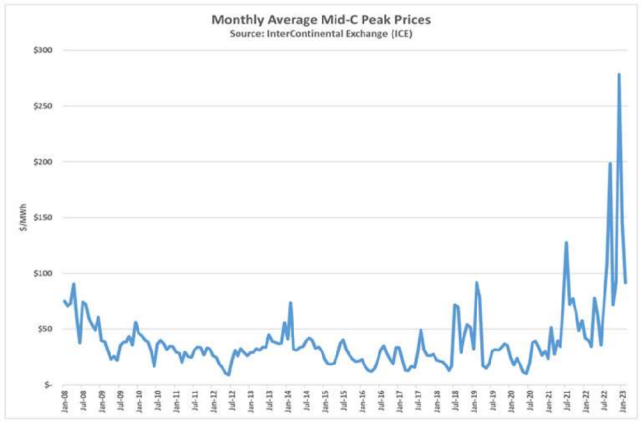
Date	Jan-Jul Median	% Avg	Apr-Aug Median	% Avg
10/3	92.0	89%	81.9	92%
10/17	94.0	91%	85.0	95%
11/7	90.1	87%	81.5	91%
11/14	86.5	83%	77.7	87%
12/5	**82.6**	**80%**	**73.5**	**82%**
12/12	79.2	76%	70.4	79%
1/5	**84.9**	**82%**	**72.4**	**81%**
1/17	83.8	81%	71.6	80%
2/3	**80.1**	**77%**	**72.8**	**82%**
2/15	83.4	80%	75.4	85%
3/3	**79.8**	**77%**	**74.0**	**83%**
3/13	80.2	77%	75.1	84%
3/20	78.1	75%	73.2	82%

1991-2020 average	103.7 MAF	89.2 MAF

Forecasts in **Bold** used for monthly FCRPS flood risk and operations

26

Market Prices



27

FY 2022 Key Strategic Initiative (draft)

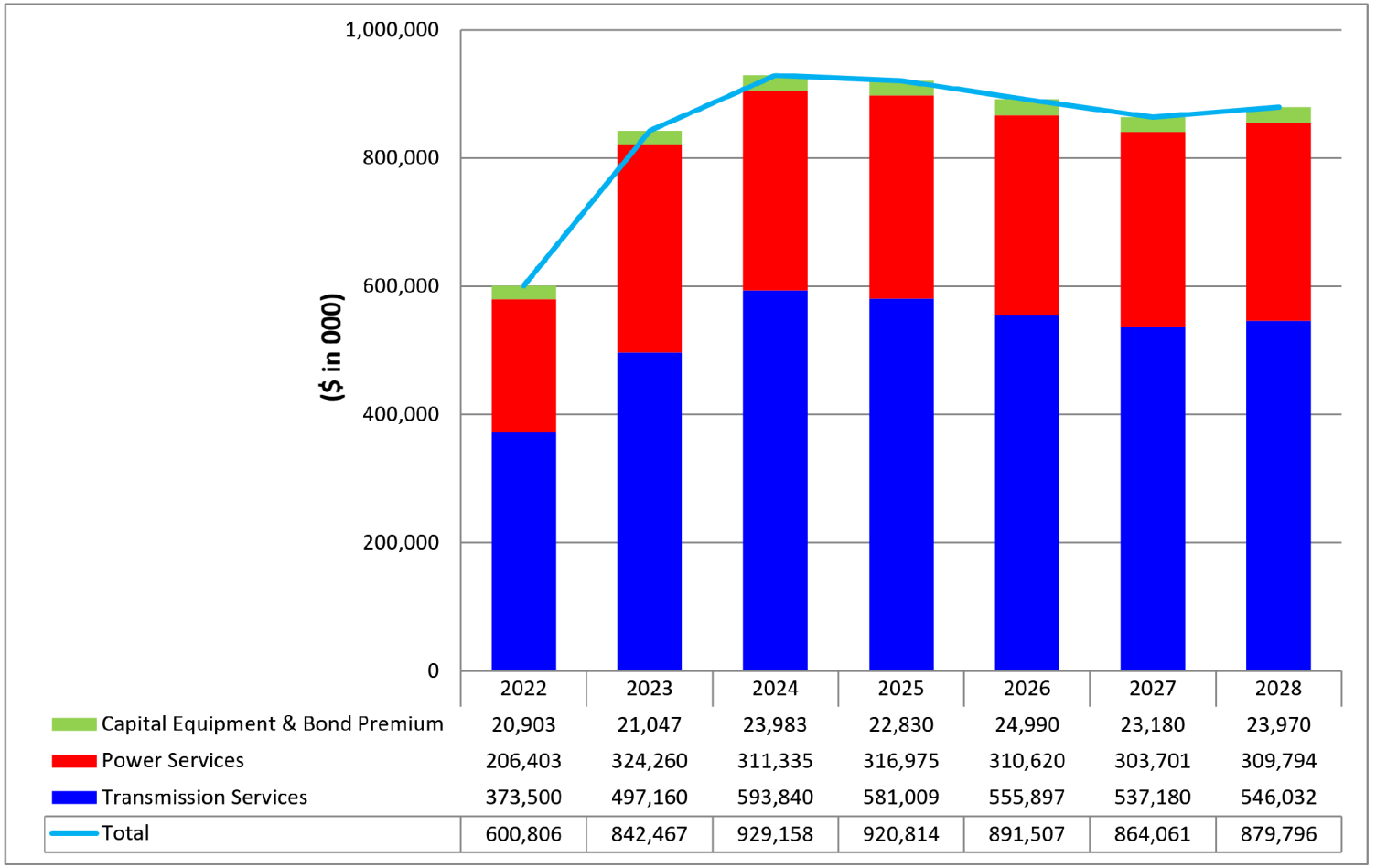
Key Strategic Initiatives (KSIs) are specific strategies and efforts to achieve critical BPA objectives or close significant gaps over multiple years in a phased, programmatic approach. BPA's draft FY 2023 KSI is as follows:

Grid Modernization: Bonneville continues a cross-agency grid modernization initiative. Bonneville's reliance on legacy systems and non-standard commercial practices are costly to maintain and have led to being conservative in its power and transmission operations, planning, and marketing.

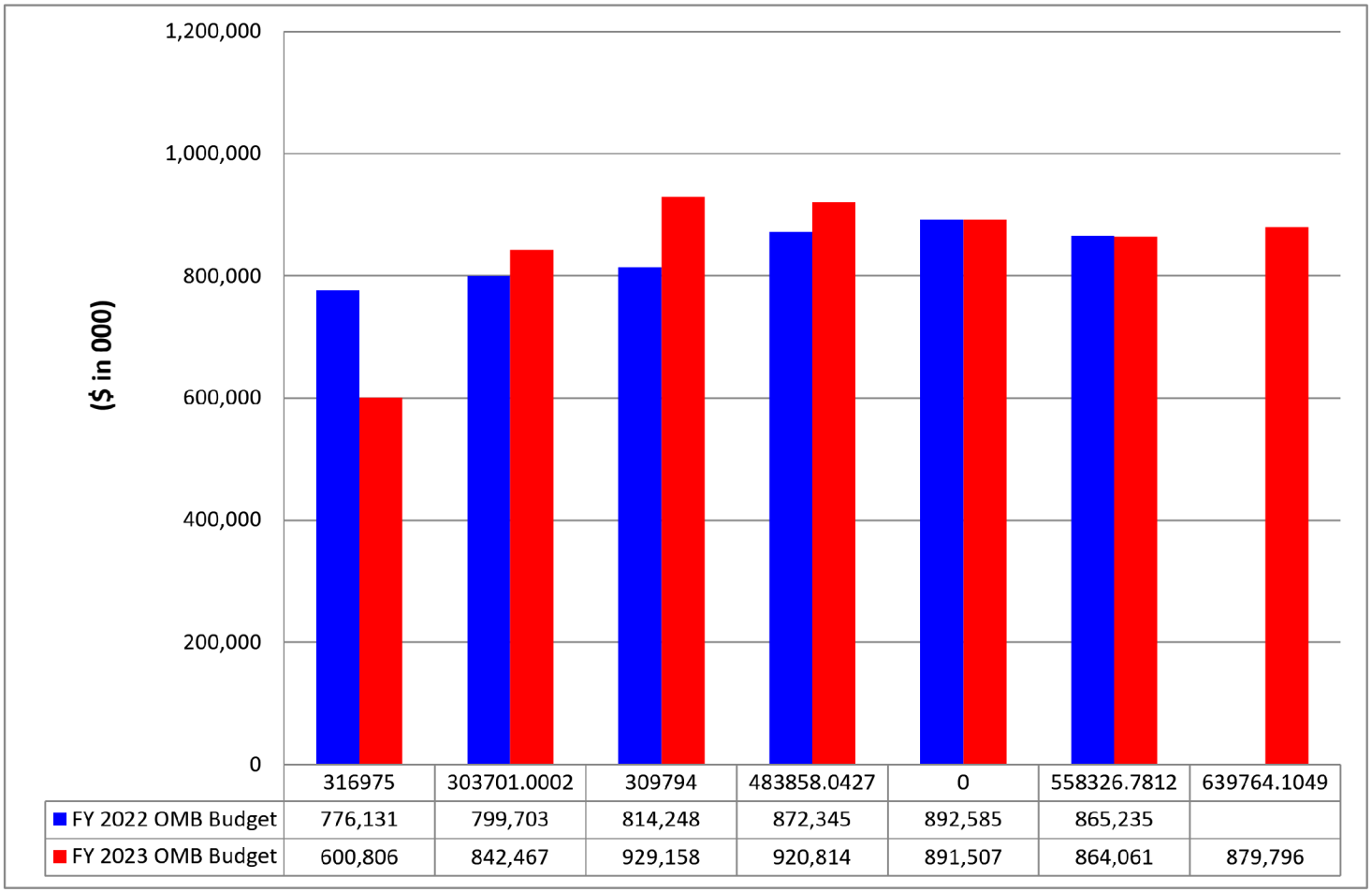
The grid modernization initiative focuses on five areas of effort:

- Operational modernization
- Commercial modernization
- Energy Imbalance Market implementation
- Mission critical information technology improvements
- Improvements to core business practices

Part of the FY22 grid modernization scope was for Bonneville to evaluate joining the Western Energy Imbalance Market (EIM) and enabling Federal and non-federal resources in its service area to access that market. Bonneville joined the EIM after extensive consultations with its customers and constituents through regular public workshops. Bonneville continues to hold public workshops to report on EIM performance and operational issues.



($ in Thousands)	2022	2023	2024	2025	2026	2027	2028
Capital Equipment & Bond Premium	20,903	21,047	23,983	22,830	24,990	23,180	23,970
Power Services	206,403	324,260	311,335	316,975	310,620	303,701	309,794
Transmission Services	373,500	497,160	593,840	581,009	555,897	537,180	546,032
Total	600,806	842,467	929,158	920,814	891,507	864,061	879,796



($ in Thousands)	316975	303701.0002	309794	483858.0427	0	558326.7812	639764.1049
FY 2022 OMB Budget	776,131	799,703	814,248	872,345	892,585	865,235	
FY 2023 OMB Budget	600,806	842,467	929,158	920,814	891,507	864,061	879,796

From:	Kintz,Jesse H (BPA) - PG-5
Sent:	Thursday, March 23, 2023 5:31 PM
To:	Marker,Doug R (BPA) - AIR-7; Seifert,Roger E (BPA) - AIN-WASH; Baskerville,Sonya L (BPA) - AIN-WASH
Cc:	Hardy,Kyle R (BPA) - FAC-2; Ellison,Nathan B (BPA) - FAC-2; Alexander,Doug (BPA) - FAC-2
Subject:	RE: FY 2023 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH.pptx
Attachments:	FY 2024 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH - Marker notes.pptx

Thanks for looping me in, Roger and all. Looks like this is coming together nicely.

Three comments/suggestions related to the disposition and cost allocation messaging below. I defer to Sonya about whether to include these.

- Slide 13, last bullet consider adding this phrasing: Bonneville requests funding transparency and consultation from the Corps with Bonneville, OMB and Congress prior to the Corps seeking funds for investments which Bonneville is obligated to repay.

- Slide 15. Does it make sense to mention the uneconomical power issue in general at the beginning of the disposition and cost allocation slides? If so here is some potential language (from a previous report to House EW committee):
  - The economic viability of power production at FCRPS projects in the Willamette Valley continues to decline. The September 2021 litigation injunction which imposed operational requirements, and related power generation reductions, on Willamette Valley dams remains in effect. The USACE has also released the Willamette EIS, which includes at least $1.3 billion of operational and structural measures to improve temperature, flows, and upstream and downstream passage for ESA-listed fish species.
  - Bonneville believes that power deauthorization or cost-allocation updates need to be pursued urgently, to either remove uneconomical power or make any remaining power more economical while improving passage conditions for fish.

- Slide 15. Might be good to add a third bullet to include mention about why cost allocations are justified and/or the factoid about the benefits being skewed (i.e. $1 billion, $26 million, and 40% power share). If so here is some potential language (from our draft March report to the House EW committee):
  a. Bonneville continues to believe that the allocations at many FCRPS projects have become unbalanced over time, based on changing economic benefits between project purposes, and that cost allocation updates are needed and appropriate. The Willamette NEPA EIS estimates the annual benefits of flood protection to be $1 billion, and the annual benefits of power generation to be $26 million. However, power's cost allocation averages around 40 percent. These figures illustrate the need to update cost allocations to rebalance more equitably between flood control and power generation.

A couple of other items that you may have already addressed-

- The title of this file says "House" when it should say "Senate"
- Some of Doug's review comments seem to be blank/missing?

Again, these comments are not required- they are for consideration and leave it up to Sonya's call. Appreciate the opportunity to weigh in.

-Jesse

Jesse Kintz
Power Generation – Senior Policy and Project Lead | [PG-2]
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-3340 | C (b)(6) [redacted]

From: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Sent: Thursday, March 23, 2023 6:37 AM
To: Seifert,Roger E (BPA) - AIN-WASH <reseifert@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Cc: Hardy,Kyle R (BPA) - FAC-2 <krhardy@bpa.gov>; Ellison,Nathan B (BPA) - FAC-2 <NBEllison@bpa.gov>; Alexander,Doug (BPA) - FAC-2 <daalexander@bpa.gov>
Subject: RE: FY 2023 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH.pptx

Sorry for no attachment

From: Seifert,Roger E (BPA) - AIN-WASH <reseifert@bpa.gov>
Sent: Wednesday, March 22, 2023 8:34 PM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Cc: Hardy,Kyle R (BPA) - FAC-2 <krhardy@bpa.gov>; Ellison,Nathan B (BPA) - FAC-2 <NBEllison@bpa.gov>; Alexander,Doug (BPA) - FAC-2 <daalexander@bpa.gov>
Subject: RE: FY 2023 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH.pptx

Doug,

Do you need to attach the file?

Roger

On Mar 22, 2023 9:28 PM, "Marker,Doug R (BPA) - AIR-7" <drmarker@bpa.gov> wrote:
Made a few suggestions, Roger. Changed the deck title to FY 2024.

Thanks!

From: Seifert,Roger E (BPA) - AIN-WASH <reseifert@bpa.gov>
Sent: Wednesday, March 22, 2023 6:12 PM
To: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Cc: Alexander,Doug (BPA) - FAC-2 <daalexander@bpa.gov>; Ellison,Nathan B (BPA) - FAC-2 <NBEllison@bpa.gov>; Hardy,Kyle R (BPA) - FAC-2 <krhardy@bpa.gov>
Subject: FW: FY 2023 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH.pptx
Importance: High

Sonya, Doug, and Jesse,

Doug Alexander and I have completed several round of drafting on BPA Budget Briefing slides for Sonya' presentation to staff of the Energy and Water Development Subcommittee of the Senate Appropriations Committee now scheduled for next Monday 3/27/2023.

We have included the normal budget briefing material we have in the past, but understand that the most important part of this briefing will be the narrative on FCRPS Cost Allocation and the Willamette River projects disposition study authorized and required by the newly enacted 2022 Water Resources Development Act. We have included the OMB cleared CJ narrative on FCRPS Cost Allocation in this draft. We have also included updated bullet points on the disposition study from our OMB briefing and the bill language from the water authorization law.

Please review all this draft material and in particular the substance and arrangement of this FCRPS cost allocation/Willamette study narrative to make sure it meets your needs. We would ask for your review, tomorrow, Thursday 3/23/2023, so Doug, I can get this into a final draft by Thursday night or early Friday. I am assuming DOE may ask for a review or delivery copy sometime Friday given that the briefing is on Monday 3/27/2023.

Thanks for your review,

Roger
(b)(6) m

From: Alexander,Doug (BPA) - FAC-2 <daalexander@bpa.gov>
Sent: Wednesday, March 22, 2023 8:40 PM
To: Seifert,Roger E (BPA) - AIN-WASH <reseifert@bpa.gov>
Subject: FY 2023 House Energy and Water Development Subcommittee Staff Briefing Draft 032223 -KH.pptx

Roger,

Per our conversation at 5:30 my time, attached is the most recent document that includes the changes we discussed.

Thanks,
Doug

From: Kintz,Jesse H (BPA) - PG-5
Sent: Wednesday, April 12, 2023 5:10 PM
To: Smith,Glen A (BPA) - PG-5; Welch,Julee A (BPA) - LP-7; Ashby,Gordon S (BPA) - PGA-6
Subject: RE: Here are the 4 Accounts in USACE's Planning world
Attachments: D - 6 pieces of paper - Willamette Disposition Study_DRAFT_April 11 2023 Charette.pdf

I forgot to circle back on this during our call earlier, but I would like for us (BPA) to provide the Corps some input/comments on their 6-pager, per their invitation to do that in the meeting yesterday. Give that some thought (I will too) and we can put something together over the next couple of days.

-Jesse

From: Kintz,Jesse H (BPA) - PG-5
Sent: Wednesday, April 12, 2023 2:21 PM
To: Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Ashby,Gordon S (BPA) - PGA-6 <gsashby@bpa.gov>
Subject: RE: Here are the 4 Accounts in USACE's Planning world

Good clarification, thanks

From: Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>
Sent: Wednesday, April 12, 2023 11:23 AM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Ashby,Gordon S (BPA) - PGA-6 <gsashby@bpa.gov>
Subject: Here are the 4 Accounts in USACE's Planning world

They are formally called “Principles and Guidelines accounts”:

(1) National Economic Development (NED)
(2) Regional Economic Development (RED)
(3) Other Social Effects (OSE)
(4) Environmental Quality (EQ).

These are the accounts that the Corps will be analyzing and documenting the positive and negative benefits, costs, and impacts of alternatives. There are process documents (engineering regulations) that prescribe how these will be analyzed.

Glen A. Smith
Senior Policy Advisor | PG-5
BONNEVILLE POWER ADMINISTRATION
gasmith@bpa.gov | P 503-230-3105 | C (b)(6)

From: Kintz,Jesse H (BPA) - PG-5
Sent: Monday, March 6, 2023 9:19 AM
To: Webster-Wharton,Stacy T (BPA) - PGA-6; Marker,Doug R (BPA) - AIR-7
Subject: RE: NWD-BPA talking points update

Thanks Doug and Stacy. I'm fine with edits Doug made.

-Jesse

From: Webster-Wharton,Stacy T (BPA) - PGA-6 <stwebsterwharton@bpa.gov>
Sent: Monday, March 6, 2023 7:55 AM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Subject: RE: NWD-BPA talking points update

Thanks all. I have reviewed and finalized the talking points for the upcoming prep meeting.

Stacy Webster-Wharton, PE (she/her/hers)
Asset Manager (AM) and Chief Data Officer (CDO) (K) (acting)
BONNEVILLE POWER ADMINISTRATION
stwebsterwharton@bpa.gov
P: 503-230-3102 C: (b)(6)

From: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Sent: Sunday, March 5, 2023 6:45 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Webster-Wharton,Stacy T (BPA) - PGA-6 <stwebsterwharton@bpa.gov>
Subject: RE: NWD-BPA talking points update

Stacy and Jesse – I suggest some revisions in the points about the disposition studies:

- We will do our economic analysis – this can be collaborative with the Corps, but my suggestion insists we need to determine commercial viability of power generation. That determination informs the finding of continued federal interests.
- The economic analysis leads to either deauthorization of power or – if power generation remains viable – reallocation. Same analysis – two possible outcomes. It's important to recognize the congressional direction presumes deauthorization as an outcome.

I try to suggest a forthright approach in these comments – I think appropriate and respectful, but I think these are the points we should continue to make.

Thanks for giving me the opportunity for review and I'm happy to discuss.

Best,

Doug

Doug Marker
Intergovernmental Affairs
Bonneville Power Administration
drmarker@bpa.gov
(b)(6) phone and text

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Thursday, March 2, 2023 5:39 PM
To: Webster-Wharton,Stacy T (BPA) - PGA-6 <stwebsterwharton@bpa.gov>
Cc: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Subject: RE: NWD-BPA talking points update

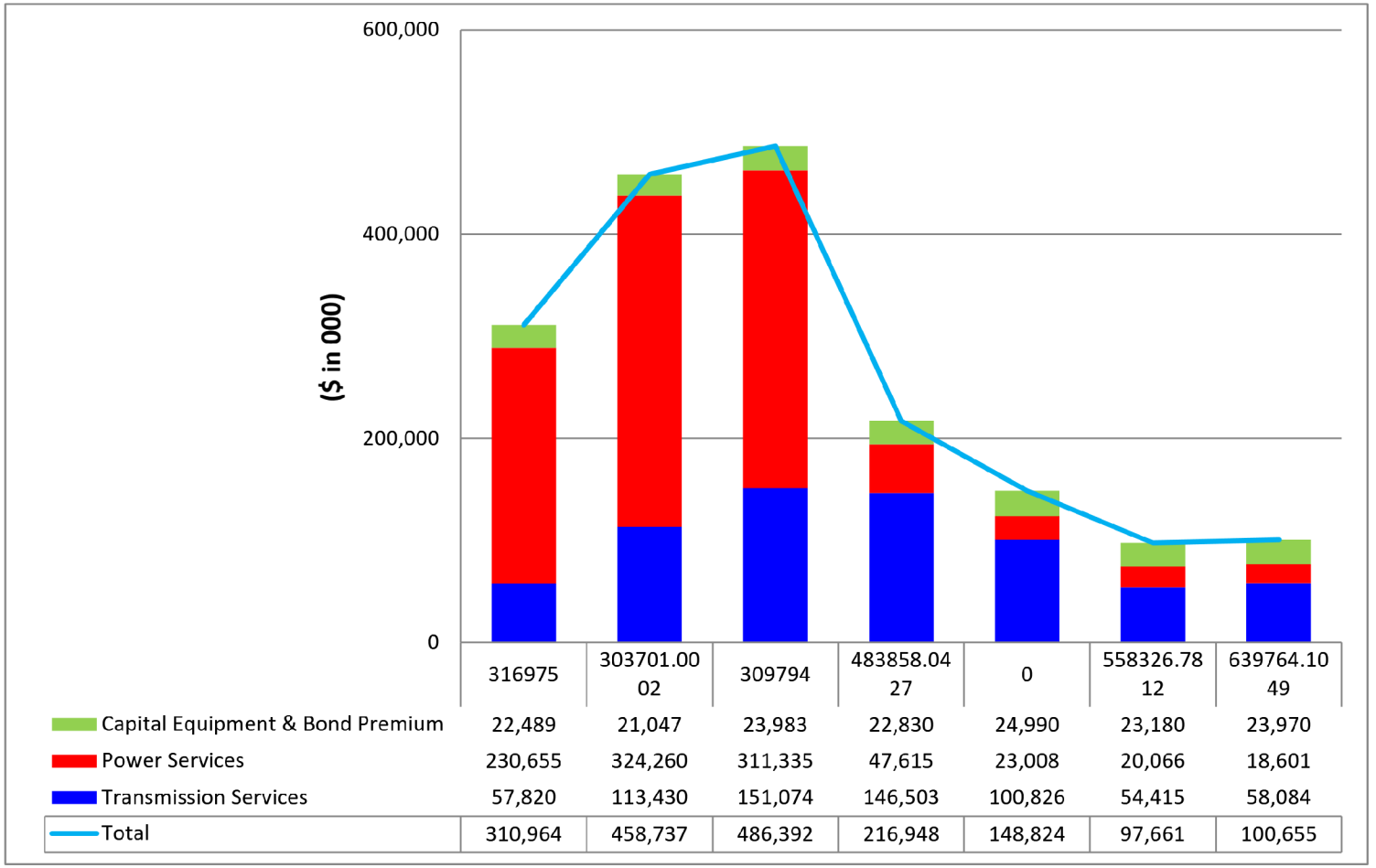
Here are some updated talking points, Stacy. Copying Doug Marker in case he wants to emphasize anything additional from his perspective.

-Jesse

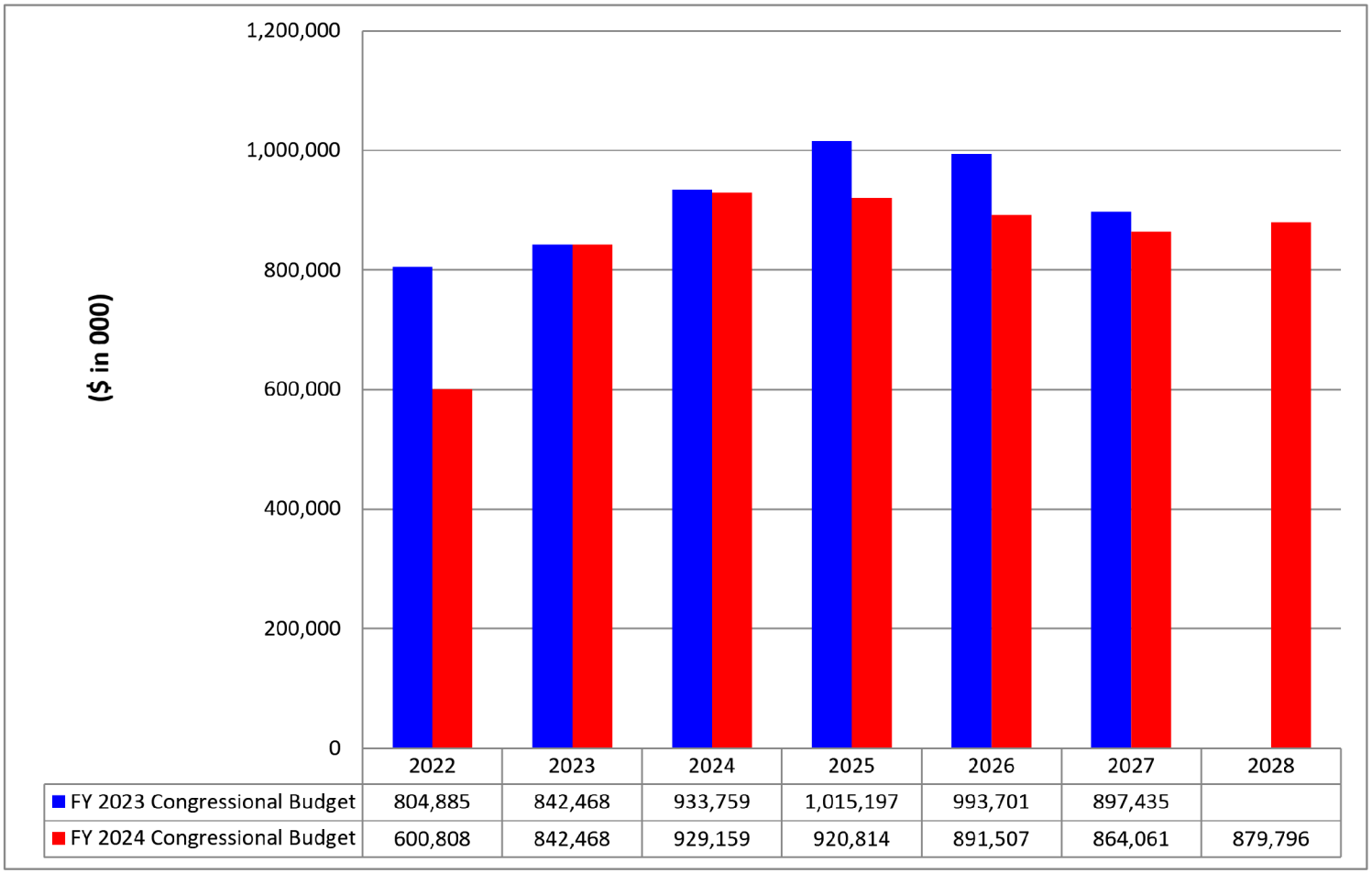
From: Webster-Wharton,Stacy T (BPA) - PGA-6 <stwebsterwharton@bpa.gov>
Sent: Tuesday, February 21, 2023 11:18 AM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Subject: NWD-BPA talking points update

Jess-
In prep for March's meeting, I have attached the talking points for your revision. I have made some revisions (did not track changes) in some areas. Please take a look at the WV/disposition/cost allocation section and provide revisions. Thanks!

Stacy Webster-Wharton, PE (she/her/hers)
Asset Manager (AM) and Chief Data Officer (CDO) (K) (acting)
BONNEVILLE POWER ADMINISTRATION
stwebsterwharton@bpa.gov
P: 503-230-3102 C: (b)(6)



($ in Thousands)	316975	303701.0002	309794	483858.0427	0	558326.7812	639764.1049
Capital Equipment & Bond Premium	22,489	21,047	23,983	22,830	24,990	23,180	23,970
Power Services	230,655	324,260	311,335	47,615	23,008	20,066	18,601
Transmission Services	57,820	113,430	151,074	146,503	100,826	54,415	58,084
Total	310,964	458,737	486,392	216,948	148,824	97,661	100,655



($ in Thousands)	2022	2023	2024	2025	2026	2027	2028
FY 2023 Congressional E	804,885	842,468	933,759	1,015,197	993,701	897,435	
FY 2024 Congressional E	600,808	842,468	929,159	920,814	891,507	864,061	879,796

From: Kintz,Jesse H (BPA) - PG-5
Sent: Thursday, April 6, 2023 5:14 PM
To: Van Calcar, Pamela M (BPA) - PGS-5
Subject: RE: Prep for 4/11 disposition study meeting with Corps: Please review
Attachments: A - Charette Agenda - Willamette Disposition Study_April 11 2023.pdf

Sounds good, can play your remote part day attendance by ear.

I realize I missed replying to your previous email asking about which areas I thought PGS could add to. I was thinking someone like Paul (or you or other PGS rep) would be helpful to have more depth on the value of the power during the discussions of power economic analysis, the case study, and possibly afternoon breakout sessions, and also to hear the context for the inevitable future deeper dives into power value. But we'll be OK either way.

My cell phone is (b)(6) if you need to get ahold of me on the evening before / day of the meeting.

Jesse

From: Van Calcar, Pamela M (BPA) - PGS-5 <pmvancalcar@bpa.gov>
Sent: Thursday, April 6, 2023 4:45 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Subject: RE: Prep for 4/11 disposition study meeting with Corps: Please review

No problem. As for PGS participation, we don't have anyone free for the day. (b)(6), so could possibly join remotely, but no guarantees.

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Thursday, April 6, 2023 4:41 PM
To: Van Calcar, Pamela M (BPA) - PGS-5 <pmvancalcar@bpa.gov>
Subject: RE: Prep for 4/11 disposition study meeting with Corps: Please review

Sorry Pam, should be fixed now

From: Van Calcar, Pamela M (BPA) - PGS-5 <pmvancalcar@bpa.gov>
Sent: Thursday, April 6, 2023 4:38 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Subject: RE: Prep for 4/11 disposition study meeting with Corps: Please review

Hi Jesse – I don't' have access to the sharepoint.

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Thursday, April 6, 2023 3:16 PM
To: Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Todd,Wayne A (BPA) - PGA-6 <watodd@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>

Cc: Van Calcar, Pamela M (BPA) - PGS-5 <pmvancalcar@bpa.gov>
Subject: Prep for 4/11 disposition study meeting with Corps: Please review

I've put together some draft prep notes – including opening remarks and talking points - for Tuesday's Corps disposition study meeting and posted them here. Seeking your review and input (please add any edits to the Sharepoint file) by no later than 9am Monday morning (prior to our 10am pre-meeting check in). Thanks!

-Jesse

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Monday, April 3, 2023 12:06 PM
To: Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Senters,Anne E (BPA) - LN-7 <aesenters@bpa.gov>; Nagra,Angad S (BPA) - LN-7 <ASNagra@bpa.gov>; Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>; Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Cc: Ashby,Gordon S (BPA) - PGA-6 <gsashby@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Todd,Wayne A (BPA) - PGA-6 <watodd@bpa.gov>
Subject: Recap of 3/20 Corps meeting and prep for 4/11 disposition study meeting with Corps

All,
Below is a recap from the most recent monthly meeting we had with the Corps on the Willamette, along with a few notes on the planned approach to the upcoming planning meeting with the Corps on disposition study. Let me know if any questions.

-Jesse

BPA-Corps monthly Willamette meeting (3/20/23):

-Corps has finalized 4/11 as date for an all day disposition study planning/scoping meeting called a "charrette". BPA invited. Attendees are likely to be planning-focused, disposition study leads, economists, possibly real estate or budgeting (middle levels, not execs). Meeting should help clarify the analysis to do for federal interest. Corps is emphasizing achieving vertical alignment up to HQ/Army level.

-Corps confirmed that BPA is the only other federal agency invited to the 4/11 meeting (good sign that they agree with/acknowledge our significant role).

-Corps reiterated that the 18 month disposition study deadline is very short, so they will need to phase the work into what they can do for 18 months, and what would be after.

-Corps now says that they may not get any implementation guidance from the Army on the disposition study provision (WRDA 2022 Sec 8220). This is a change from before when they said guidance was likely.

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-BPA asked if any additional BPA opportunities for review and Corps confirmed no. BPA reiterated that we view the impact on other purposes as an unresolved issue in that report and requested that at minimum the BPA perspective is shared alongside Corps'.

-BPA shared our chart with the categories of Willamette analysis we are working on for federal interest determination.

-Corps mentioned that they plan to include temperature and flow considerations as part of federal interest.

-BPA mentioned the budget language mentioning an OMB meeting and joint proposal for FY2025 budget. Corps had not heard much on this yet.

-After the meeting BPA sent copy of budget language and our WRDA 2022 Sec 8220 implementation comments we sent to Army.

BPA approach to 4/11 disposition study planning meeting:

-Corps plans to send an agenda by middle of this week.

-Potential BPA attendees: Jesse Kintz, Glen Smith, Julee Welch, PGA rep (Wayne Todd and/or Gordon Ashby), possibly a PGS rep (TBD). Will finalize attendees after receiving agenda.

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Jesse Kintz
Power Generation – Senior Policy and Project Lead | [PG-2]
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-3340 | C (b)(6)

From: Kintz,Jesse H (BPA) - PG-5
Sent: Tuesday, April 4, 2023 10:24 AM
To: Leady Jr,William J (BPA) - PG-5
Subject: RE: Recap of 3/20 Corps meeting and prep for 4/11 disposition study meeting with Corps
Attachments: RE: WRDA Sec 218 follow up

Thanks. It makes sense that they would be cautious. Wanted to make sure you were tracking that they did share an early draft with us in 2021 which we commented on (see attached). But it's unclear how/to what extent they acknowledged or addressed our comments and the issue of impacts on other purposes in their HQ/ASA/Congressional discussions. I view this as not ideal collaboration but not as the major issue that Doug sees it as.

Jesse

From: Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>
Sent: Monday, April 3, 2023 4:41 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Senters,Anne E (BPA) - LN-7 <aesenters@bpa.gov>; Nagra,Angad S (BPA) - LN-7 <ASNagra@bpa.gov>; Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>; Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Cc: Ashby,Gordon S (BPA) - PGA-6 <gsashby@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Todd,Wayne A (BPA) - PGA-6 <watodd@bpa.gov>
Subject: RE: Recap of 3/20 Corps meeting and prep for 4/11 disposition study meeting with Corps

Jesse,

Good update, thanks.

One point

-Corps shared that the WRDA 2020 report on Cougar/Detroit has cleared Corps HQ and is now at ASA Civil Works level. Not sure when final report will be shared with Congress. Gave example of some WRDA 2018 items just recently being shared for perspective.

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(b)(5) [redacted]

Bill Leady P.E.
Vice President, Generation Asset Management | PG
BONNEVILLE POWER ADMINISTRATION
bpa.gov | Office 503-230-4270 | Cell (b)(6) [redacted]

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Monday, April 3, 2023 12:06 PM
To: Leady Jr,William J (BPA) - PG-5 <wjleady@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Senters,Anne E (BPA) - LN-7 <aesenters@bpa.gov>; Nagra,Angad S (BPA) - LN-7 <ASNagra@bpa.gov>; Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>; Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Cc: Ashby,Gordon S (BPA) - PGA-6 <gsashby@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Todd,Wayne A (BPA) - PGA-6 <watodd@bpa.gov>
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Jesse Kintz
Power Generation – Senior Policy and Project Lead | [PG-2]
BONNEVILLE POWER ADMINISTRATION
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Joel Cook

Federal Hydropower Council / September 29, 2022

Suggested Comments / Key Messages

Note:

Agenda item –Legislative Perspectives and Future Priorities (Senator Cantell); Hydropower perspective and IIJA and IRA (NHA); National Drought Roundtable; Joint Costs and Accounting Issue Update (Impacts from IIJA and IRA, Corps Joint Cost Accounting and Expense vs Capital).

Good morning everyone. I am happy to be here today for John since he was unable to attend. I am glad to be here in person and that we could come together in a hybrid fashion today to talk about some important issues to the Council. It is my hope that our next meeting may even be fully face-to-face possibly. I wanted to let everyone know that while the BPA technically started in April transitioning back to the office at various level of office interactions, the spikes in covid hampered our efforts to fully implement. Due to this, we paused the transition throughout the summer and now finally on Sept 11th we re-started the transition back to some level of office environment interactions.

I would like to reiterate how much we have appreciated the Corps' and Reclamations' dedication and leaderships during the pandemic over the last two years. While we are hopeful that this transition iteration will go smoothly, the BPA will continue to protect our workforce during the transition while still marketing and reliably transmitting power. We also appreciate the Corps and Reclamations' transition work; together reliably generating power and managing the water makes that possible. Teamwork at all levels made it possible for all of us to protect our workforce and deliver our mission during the pandemic of the past 2 years and into the future.

I want to take a moment to discuss top priorities and how this group can assist or support these priorities. I know we have a full agenda and so I will be as quick as I can so we can jump into the agenda.

2. Top hydropower priorities over the next year.

Over the past almost 2 years, we have continued progress and support to the O&M Cost Reduction and Efficiencies Working Group and the Acquisition and Delivery Process Working Group. For BPA, our ability to market competitive and reliable power is tied to these two efforts. We understand that holding O&M budgets flat or nearly flat has been challenging and sacrifices have been made over the past few years to make this happen. We appreciate and thank the leadership and teamwork from the Northwestern Division and Columbia-Pacific NW Region that made this possible. As we completing IPR 2024, as many of you already know, we

have again committed to keep rates at or below inflation because the power market is only getting more complex and more competitive. That has been especially challenging with current inflationary pressures.
We are also working with customers and the region to offer long term Provider of Choice contracts after 2028.

As you probably know, we entered the Energy Imbalance Market in May and we are committed to successful membership in EIM to provide the BPA with this new option for marketing surplus power. maximizing transmission systems and enhancing our grid management tools to assist with congestion relief.

3. How can the FHC assist or support?

Last meeting we thought it was a good time to start the discussion about cost allocation reviews because there are increasing environmental requirements and operational restrictions that are impacting the hydropower production and economic viability of power production at certain plants. We wanted to collaboratively engage to review and potentially revise cost allocations. As a reminder, BPA has paused new capital investment in the power facilities at the Willamette dams because of the outlook for uneconomical power generation as a result of court-ordered operations at those dams. BPA has a responsibility to provide reliable and cost effective power and cost allocation reviews could assist as part of a potential solution to address the issue of uneconomical power at the Willamette projects.

- **The current injunction prescribing operations and reservoir limits at the Willamette dams impacts the economic viability of power generation at those dams.**
- **We want to remind you that Bonneville has paused capital investment in the power facilities of the Willamette dams pending determination of the long term viability of economic and reliable power generation.**
- **Bonneville has worked to engage the Corps at the district and division level to revise power cost allocations to make power more economically viable. We are also urging the Corps to work with us on disposition studies for the power purpose if power cannot be economically viable because of the operations and structural measures to benefit fish.**

As you are aware, a key part of the issues in the Willamette Valley and cost allocations reviews for specific projects, is de-authorization analysis as directed by Section 218 of the 2020 Water Resource and Development Act (WRDA) and as being further considered in the 2022 WRDA. We continue to be interested in an a timely and appropriate response to the House Transportation and Infrastructure Committee on this de-authorization analysis as directed by this Act (WRDA).

- **Bonneville urges the Corps to complete its report on impacts of deauthorizing the power purpose at Cougar and Detroit dams. This is the report that was directed by WDRA 2020 nearly two years ago.**
- **Bonneville believes that a Willamette system-wide disposition study supporting a Congressional decision to deauthorize power at the Willamette dams should be presented before funding major new construction projects at the dams.**

Lastly, we believe this is the appropriate time to discuss further how best for us to collectively communicate to Congress the full scope of potential capital on Willamette Valley projects and separating these appropriated costs from the Columbia and Snake River fish program. Given the hydropower cost effectiveness concerns at the Willamette projects, it is imperative that there is funding transparency and consultation from the Corps with Bonneville, OMB and Congress prior to the Corps seeking funds for investments which Bonneville is obligated to repay.

- **Bonneville urges the Corps to present a stand-alone programmatic budget for implementing the full scope of the Willamette System EIS and BiOp; and not piecemealed among individual smaller component projects.**
- **This budget should be separate from the Columbia River Fish Mitigation Program, which needs to remain prioritized for needs on the Columbia and Snake River.**

These topics are not new and continue to be important for the BPA. I will finish up by saying that I look forward to continuing discussing these priorities more with our partners to work towards resolution. Thank you for the opportunity to speak today and I look forward to hearing updates about important topics and the interesting work that has been going on. Thank you.

From: Kintz,Jesse H (BPA) - PG-5
Sent: Friday, April 7, 2023 10:41 AM
To: Spear,Daniel J (BPA) - PGB-5; Maslow,Jeffrey J (BPA) - EC-4; Mai,Amy E (BPA) - EC-4
Cc: Sullivan,Leah S (BPA) - PGB-5
Subject: RE: Request for bullet points on Green Peter transmission issue
Attachments: RE: GPR-FOS Voltage Support - Internal Coordination - 1/24/23 DRAFT MEETING NOTES; GPR_FOS_Issue_Statement_DRAFT_4-5-2023.docx

Thanks, both. I've got to admit though that I'm still confused on the Johns from the exchanges below. From the email Jeff M. attached it seems John ANASSIS ran the analysis- do you agree? What analysis did John Schaad do as it relates to the bullet points?

Also, after another read through I have a few more questions/requests on the bullet points and path forward:

- It would be helpful to expand that analysis bullet point to be more specific about the analysis that was done and incorporate a bit more of the email string that Jeff attached- can one of you take a stab at that?
- Can one of you add more specifics to the bullet mentioning the Pac meeting? Timing, reason for meeting, who, etc.
- How does our new "ask" of transmission compare to the analysis that was already done for the EIS? Are we asking for a refresh on the same analysis, or a different analysis?

- The notes from the January meeting mention reaching out to Richard Shaver if long term analysis if needed. Have either of you reached out to him yet about this? On quick look I don't see a Richard Shaver in the directory – is it possible this note refers to Richard Shaheen, the T VP? If it's a staff member, it would probably make sense to reach out to them in parallel with the request from Bill and I to T management.
- I would note that while the bullets ask for a long term analysis, there will be a cost-benefit consideration to whether it makes sense to actually do the analysis (and the overall deauthorization analysis for losing all power at Willamette plants) given the workload requirement. This will be a question we pose when we approach T management and it's also why it's important to explain the rough analysis John A. already did (as that is the de facto fallback plan).

If you have initial thoughts, please reply to this string but I also think we'll need to meeting to talk through these items. I'll check schedules this afternoon, or maybe we can we take some time at the end of Monday's Willamette weekly.

Side note: Jeff, I'm very glad you took notes from the previous meetings and emailed them, so we have a record. That is proving helpful to not have to re-tread too far back on these issues!

-Jesse

From: Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>
Sent: Thursday, April 6, 2023 12:48 PM
To: Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>
Cc: Sullivan,Leah S (BPA) - PGB-5 <lssullivan@bpa.gov>
Subject: RE: Request for bullet points on Green Peter transmission issue

Hello:

Yes, Jeff. You have the right John. As for the extreme weather conditions, I think that is appropriate as the GPR voltage support only comes into play when there is already something that is cutting off the local area from the rest of the grid (which is what would normally provide voltage support) *and* there is some sort of local concern like a fire or cold snap.

Dan Spear

From: Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>
Sent: Thursday, April 6, 2023 3:39 PM
To: Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>
Subject: RE: Request for bullet points on Green Peter transmission issue

Hi Dan and Jesse. Looking back at the notes when we first coordinated on the issue, I think John was the one to perform the simple test case (see attached too). Also interesting that its assumptions included some extreme conditions:

- From 1/24/23 meeting notes: John offered to run a simple test case of zeroing out generation at GPR/FOS to determine how much reliance local communities would have on GPR/FOS for voltage support/grid stability based on data from the last three years (which included heat dome in 2021 and cold snap in late 2022).

Dan – was John Schaad's look different than this one?

Thanks,
Jeff

From: Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>
Sent: Thursday, April 6, 2023 5:53 AM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>
Subject: RE: Request for bullet points on Green Peter transmission issue

Hello:

I believe it was John Schaad.

Dan Spear

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Wednesday, April 5, 2023 8:55 PM
To: Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>
Subject: RE: Request for bullet points on Green Peter transmission issue

This is great, thanks to you both! As you mention, probably going to have to trim a bit when I sent to Bill, but it's nice to have all this in one place.

One question off the top, could we specify which group/person did the initial analysis? John Anassis?

- TXM examined that usage of GPR voltage support over the last year and found that it happened once, and that may have been a quirk of data collection

I'll take a closer look through this tomorrow and let you know if any more follow up questions.

-Jesse

From: Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>
Sent: Wednesday, April 5, 2023 4:41 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>
Subject: RE: Request for bullet points on Green Peter transmission issue

Hi Jesse. We worked on the attached briefing document addressing the issue. It's longer than a few bullets, so we may want to pare it down a bit. Let us know if you have any feedback that we could help incorporate before you brief Bill on the issue and make our request.

Thanks,
Jeff

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Thursday, March 30, 2023 10:50 AM
To: Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>
Subject: Request for bullet points on Green Peter transmission issue

Jeff and Dan,
Can you please work together to compile and send me a few bullet points summarizing where we're at with the Green Peter voltage support issue- including what the issue is, summarizing the analysis and meetings that have occurred so far, and articulating the additional analysis that we think needs to be done? Ideal timing would be by middle of next week (let me know if concerns).

I plan to use these bullets, along the attached DRAFT Willamette analysis project plan which calls for refreshing the EIS analysis on reliability and islanding impacts, to talk with Bill Leady about the appropriate transmission venue to educate transmission management and hopefully get them on board to assign and prioritize this work.

Thanks!
-Jesse

Jesse Kintz
Power Generation – Senior Policy and Project Lead | [PG-2]
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-3340 | C (b)(6)

From: Marker,Doug R (BPA) - AIR-7
Sent: Monday, April 24, 2023 11:45 AM
To: Kintz,Jesse H (BPA) - PG-5
Cc: Baskerville,Sonya L (BPA) - AIN-WASH; Smith,Glen A (BPA) - PG-5; Welch,Julee A (BPA) - LP-7
Subject: RE: Seeking red flag review of proposed BPA input on Corps disposition study document by COB Monday

I've been doing more thinking about this over the weekend.

As you and I discussed, we could be easily overwhelmed by the complexity the Corps brings to this discussion.

I think we have to encourage them to focus the disposition studies on the issues that are driven by the consequence of ending operations fro commercial federal power. Other issues should go into:

The final EIS – The operational consequences of deep drawdowns are now part of the EIS; not the disposition studies. Federal power does not determine reservoir levels or timing of operations. So dam safety from deep drawdowns, water quality and water supply issues from the injunction operations (and likely extension of injunction operations to more dams) are issues for the final EIS. We should urge the Corps to direct such analysis to the final EIS.

As we've struggled to maintain, issues of regional power supply and transmission system impacts are byond the scope of the Corps' authority. We should discourage them from attempting to become regional power planners or transmission planners. Those are our issues.

I know there's been interest in obtaining the services from the Corps HAC group, but I don't know what their analysis serves for issues that are outside of the Corps' authority (such as federal power sales), and I worry about weighing down the disposition study analysis from a Corps unit that is not educated in Bonneville's statutory obligations.

All of this is to suggest we have a framework to advise what topics should be in the disposition studies and which should be directed to the final EIS, or to us for our expertise and responsibilities.

As a reminder, (b)(6) and will be calling in this afternoon while I am waiting to get into the chair.

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Monday, April 24, 2023 11:01 AM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>
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Subject: RE: Seeking red flag review of proposed BPA input on Corps disposition study document by COB Monday

Thanks for the insightful review and comments, Doug, especially on the short turnaround. And for the crisp perspectives in your email below.

I am working on a few suggested adds based on your comments, and keeping in mind how much to comment here vs in a potential follow up letter format.

It would be good to have some discussion on this at the Willamette weekly.

-Jesse

From: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Sent: Friday, April 21, 2023 4:12 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>
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Subject: RE: Seeking red flag review of proposed BPA input on Corps disposition study document by COB Monday

Good timing, Jesse. I just went through the document and added comments.

I want to praise the Corps for a constructive and creative approach. In the interest of time, I had to be pretty direct in some of my comments.

Look, this document reflects a brainstorming "no bad ideas" collection of ideas. But there are a lot of bad ideas and their list needs to be seriously whittled down

Too much of the speculative topics assume a "blank slate" of reservoir operation options. The list reflect aspirations of creative, novel solutions as if all project purposes can be harmonized to such a degree that the sum is greater than its parts. The reality, though, is that the WVS EIS greatly limits the flexibility of reservoir operations and will almost certainly incorporate more before it is final. The Corps should not assume it has unbounded options.

It should also not assign the consequence of these limited operations to power deauthorization. Many of the listed effects on water supply, recreation, and flood risk management are the consequence of fish operations. Those issues belong in the EIS. They should not weigh down the power disposition studies.

The Corps should not stray into Bonneville's authorities for regional power supply and transmission reliability. These issues are not their role and they should not spend scarce time on their view of these hypotheticals. Power resources and local reliability are already impacted by the injunction limits on power. The disposition studies should not presume those limits are not already in place.

The disposition studies should not be a national test case. Congress gave the Corps limited time to complete a narrow analysis. We should guard against their widening this assignment.

Again, we have almost no time to comment on this document, so I had to be specific and direct in my comments. I do appreciate the creativity and constructive attitude reflected in this piece. But it is the narrative equivalent of poster pads on a conference room wall. It needs to get much more focused.

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Friday, April 21, 2023 3:04 PM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>
Cc: Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Todd,Wayne A (BPA) - PGA-6 <watodd@bpa.gov>; Ashby,Gordon S (BPA) - PGA-6 <gsashby@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>
Subject: Seeking red flag review of proposed BPA input on Corps disposition study document by COB Monday

Doug, Sonya and Dan,
I've worked with the other attendees to last week's disposition study charrette (cc line) to put together this set of proposed informal BPA comments on a Corps planning document which attempts to summarize the key problems,

opportunities, related to the disposition study. Please review, especially for strategy and approach considerations, and add any suggested comments/edits. We can also discuss at Monday's Willamette weekly as needed. We owe this back to the Corps early next week so I'm asking for edits or identified red flags for discussion by COB Monday if possible.

As you review, keep in mind that this is an informal format that the Corps invited us to comment on since there wasn't time to discuss in the meeting and also that BPA is considering following these comments up with a more formal letter laying out our suggestions and views on the disposition study - so we may have an opportunity to expand on and clarify some of the points in these comments.

Thanks!
-Jesse

Jesse Kintz
Power Generation – Senior Policy and Project Lead | [PG-2]
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-3340 | C (b)(6)

From: Anasis,John G (TFE)(BPA) - TOOP-DITT-2

Sent: Wed Jan 25 15:04:55 2023

To: Schaad,John G (BPA) - TPCV-ALVEY; Maslow,Jeffrey J (BPA) - EC-4; Simpson,Troy D (TFE)(BPA) - TSE-TPP-2; Lewis,Jacob A (BPA) - TPCF-REDMOND; Wick,Martin A (BPA) - TPCV-TPP-4; Carter,Eric H (TFE)(BPA) - TSE-TPP-2; Baker,Kevlyn D (BPA) - TPCV-TPP-4; Spear,Daniel J (BPA) - PGB-5; Sweeney,Charles R (TFE)(BPA) - TSE-TPP-2; Filan,Dallas A (BPA) - TPCF-TRI CITIES RMHQ; Kintz,Jesse H (BPA) - PG-5

Subject: RE: GPR-FOS Voltage Support - Internal Coordination - 1/24/23 DRAFT MEETING NOTES

Importance: Normal

Attachments: FOS-GPR MVAR & Loop Voltage.gif; Green Peter MW Output.gif; Foster MW Output.gif

Everyone,

I ran the quick analysis of past data looking at the 115kV system voltage near Foster along with the MW and MVAR outputs from Foster and Green Peter that I mentioned at yesterday's meeting and obtained the attached results from our SCADA system. There are 3 plots attached. The first plot shows the voltage on the 115kV loop between Foster and Sweet Home and the MVAR (i.e. reactive) output from Green Peter and Foster. A positive MVAR value indicates that the plant was boosting voltage. The other two plots show the MW output from the two projects over the same time period. I could only go back 1 year because that was only as far back that the voltage data went.

The resolution on the plots is not quite as good as I would have like; however, I think that this data shows that we have been able to maintain a pretty steady voltage this past year despite considerable variation in the real and

reactive output of both plants. Green Peter provides a significantly larger share of the real and reactive power compared to Foster. The 115kV system voltages appeared to be pretty good even if Green Peter was not supplying any MW's to the system.

Voltage support could be maintained if the synchronous condensing capability at Green Peter could be retained. This would enable the plant to continue to provide voltage support even during the full draw down operation.

I hope that this is of some help. Please let me know if there are any questions. Thank you!

John

From: Schaad,John G (BPA) - TPCV-ALVEY <jgschaad@bpa.gov>
Sent: Wednesday, January 25, 2023 1:39 PM
To: Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Simpson,Troy D (TFE)(BPA) - TSE-TPP-2 <tdsimpson@bpa.gov>; Lewis,Jacob A (BPA) - TPCF-REDMOND <jalewis@bpa.gov>; Wick,Martin A (BPA) - TPCV-TPP-4 <mawickjr@bpa.gov>; Carter,Eric H (TFE)(BPA) - TSE-TPP-2 <ehcarter@bpa.gov>; Anasis,John G (TFE)(BPA) - TOOP-DITT-2 <jganasis@bpa.gov>; Baker,Kevlyn D (BPA) - TPCV-TPP-4 <kdmathews@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Sweeney,Charles R (TFE)(BPA) - TSE-TPP-2 <crsweeney@bpa.gov>; Filan,Dallas A (BPA) - TPCF-TRI CITIES RMHQ <dafilan@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Subject: RE: GPR-FOS Voltage Support - Internal Coordination - 1/24/23 DRAFT MEETING NOTES

John Anasis- for clarification….

From: Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>
Sent: Wednesday, January 25, 2023 12:48 PM
To: Simpson,Troy D (TFE)(BPA) - TSE-TPP-2 <tdsimpson@bpa.gov>; Lewis,Jacob A (BPA) - TPCF-REDMOND <jalewis@bpa.gov>; Wick,Martin A (BPA) - TPCV-TPP-4 <mawickjr@bpa.gov>; Carter,Eric H (TFE)(BPA) - TSE-TPP-2 <ehcarter@bpa.gov>; Anasis,John G (TFE)(BPA) - TOOP-DITT-2 <jganasis@bpa.gov>; Baker,Kevlyn D (BPA) - TPCV-TPP-4 <kdmathews@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>; Sweeney,Charles R (TFE)(BPA) - TSE-TPP-2 <crsweeney@bpa.gov>; Schaad,John G (BPA) - TPCV-ALVEY <jgschaad@bpa.gov>; Filan,Dallas A (BPA) - TPCF-TRI CITIES RMHQ <dafilan@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Subject: GPR-FOS Voltage Support - Internal Coordination - 1/24/23 DRAFT MEETING NOTES

DRAFT/Predecisional –Deliberative Work Products – Please Do Not Share

Some DRAFT notes based on yesterday's meeting—please edit or offer clarifications wherever necessary:

- John Anasis walked through the local transmission diagram and explained that Albany/Bethel provides "dual-support" generation/voltage support Sweet Home/Lebanon area – situation not uncommon along 115kv lines in BPA's system. Most other areas in BPA's system do not also have local generating facilities that could provide voltage support.

- Eric noted that it's not clear whether BPA Transmission has a position on potential power de-authorization at GPR/FOS: It may be necessary to reach alignment with BPA Power on the issue of generation becoming unavailable in that scenario. Specifically, regarding two issues:

o Is BPA's Albany-Bethel transmission sufficient to maintain load service? Does that mean BPA have a

responsibility to maintain load service or does that responsibility shift to PAC?

- John offered to run a simple test case of zeroing out generation at GPR/FOS to determine how much reliance local communities would have on GPR/FOS for voltage support/grid stability based on data from the last three years (which included heat dome in 2021 and cold snap in late 2022). (NOTE: Drawdowns under EIS alternatives in zero out generation at these projects from ~Nov 1 - ~ Dec 31.) A more detailed study would require a formal request submitted to Ashley Donahue.

- Richard Shaver should be looped for longer-term transmission studies that are prospective in nature (2-10-20 years into the future) to run simulations with zeroed out generation at those dams to identify the transmission problems (e.g., with or without Albany "dual support") in the ~ Nov 31 – ~Dec 31 timeframe. Jeff noted that this prospective scope of analysis reflects analysis presented in the NEPA context; if there are non-negligible impacts based on this study, we may need to consider revising the final EIS to make findings for this.

Next Steps:

- Jeff/Dan to determine whether talking points need revision and will reach out to this team for high-level-study results (described above)and further analysis.

- John will conduct a simple "test case" based on last three years.

- Jeff/Dan will reach out to Richard Shaver for longer term look, as needed.

- Pending the above steps, Eric will put on hold additional coordination with PAC; however, the team will keep him in the loop. When additional information is available, Eric will be on point to coordinate with PAC accordingly.

BLUF

- **The request:** PG should submit a work request to TXM to complete a 10-year (and longer, if warranted) long-term planning study on the effects of losing voltage support from GPR during periods in which it will not be able to generate on account of a court-ordered draw down operation which is also part of the Corps' Preferred Alternative (PA) in the Willamette DEIS.
- This initial study will help BPA best respond to comments on the effects of GPR being unable to generate that have come from public review of the DEIS. In addition, it will serve as the starting point for a broader work request to TXM planners to conduct a long-term transmission study on all potential reliability and voltage-support issues associated with the deauthorization of power in the Willamette Valley to feed into the system-wide disposition study.

Issue

- At issue is how system-wide deauthorization of the hydropower purpose could affect the transmission system; and specifically, how deep drawdowns under the WV EIS PA may affect transmission voltage support provided to local communities by GPR and FOS dams.

Background

- GPR can provide voltage support to the Transmission "loop" associated with the Lebanon substation; generally, voltage support in this area is provided from integration with the overall transmission system.
- Per the Court Order and the DEIS PA, GPR will be in a drawdown operation from about June 1 – January 1 and likely unable to produce any electricity from ~October 1 - ~January 1.
- *If* the Lebanon substation is "islanded" from the rest of the transmission grid *and* local conditions necessitate voltage support from GPR/FOS *and* the GPR voltage support is not be available from October 1 – January 1, then the possibility of service disruptions in this circumstance will increase. (FOS will likely still generate but does not offer as much voltage support as GPR.)
- Transmission "loops" that do not have local generation are not uncommon in BPA's service territory. The GPR/FOS generation is a "bonus" comparable to much of the rest of the system. Even with the absence of GPR voltage support in late fall/early winter BPA will still meet its reliability requirements.
- There is a former Corps employee local to the area around GPR/FOS who attended the DEIS public meeting in Sweet Home and vocalized his concerns regarding the loss of voltage support associated with the GPR drawdown in his comments on the Willamette EIS.
- The EIS's transmission analysis relies on WECC power flow models for the Western Interconnection power system based on a 10-year planning case. Based on this methodology, the DEIS found transmission reliability impacts from drawdowns occurring in conjunction with extreme events such as wildfire or weather events could affect islanding service from Hills Creek and Cougar dams.

Analysis

- TXM examined that usage of GPR voltage support over the last year and found that it happened once, and that may have been a quirk of data collection

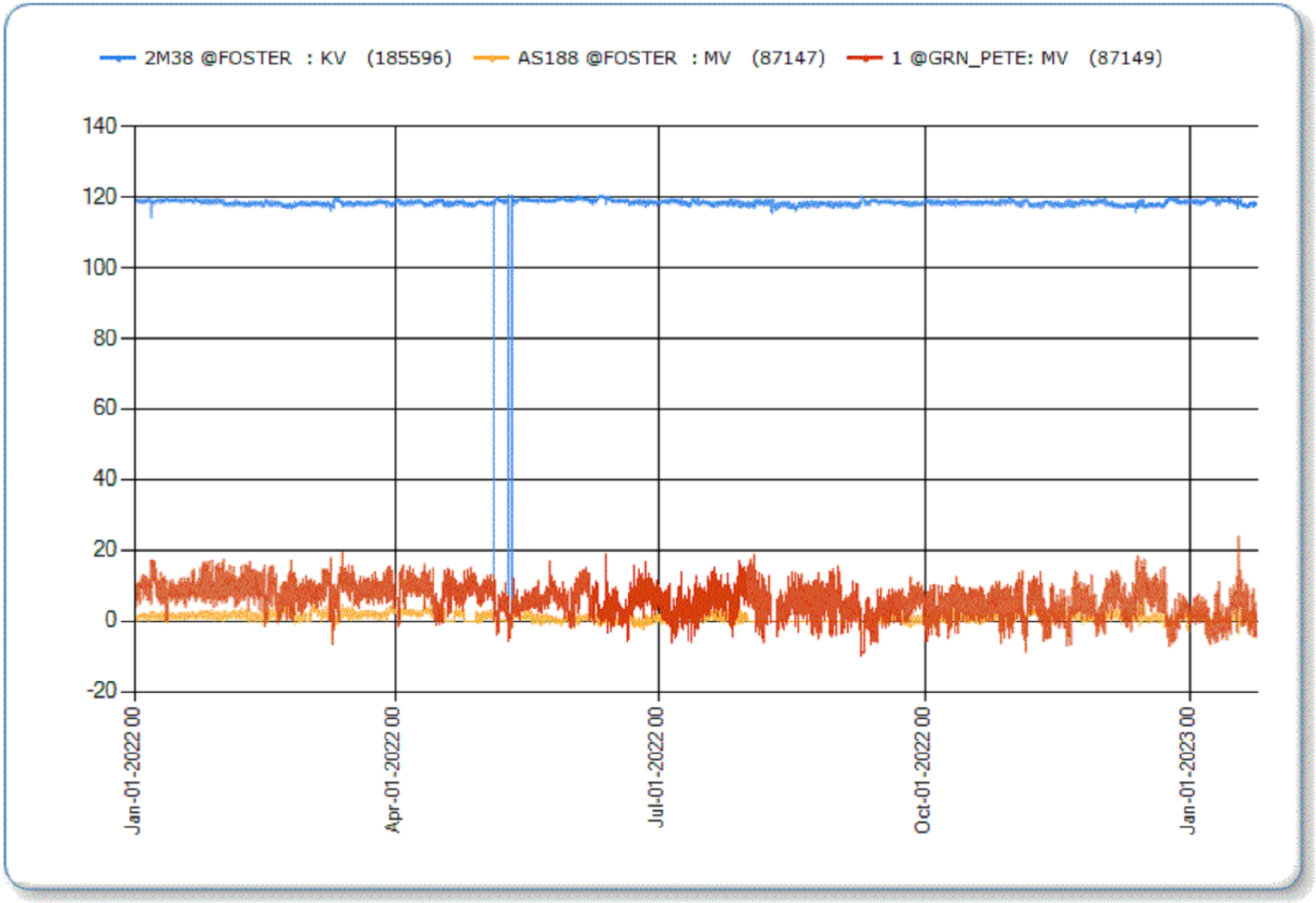
- A more thorough retrospective analysis would take considerably more effort and require managerial workflow dictates

Meetings

- TXM and PG and reps from the Corps met with Consumers Power about the GPR Voltage Support issue. Consumers Power said they would submit post hoc comments to the Corps about the issue on the EIS.
- A meeting with PAC on the issues also took place.

Next Steps

- In a binary sense, the loss of GPR voltage support is a "loss" to the system; to quantify the loss, and to best respond to comments on it in the EIS process and potentially explain the issue in the Final EIS, BPA will work through its management chain to incorporate a formal retrospective analysis of this issue into TXM's work flow. This study should include a planning case (10 year) that reflects the EIS's methodology.
    - Transmission has indicated that the work request should include both Planning and Operations, which would include outreach to the following managers:
        - Meg Albright – head of Operations Support (TOO)
        - Jerry Jackson – head of Operations Planning (TOOP)
        - Ricky Bustamante – head of Network Planning (TPP)
        - Ashley Donahoo – head of Internal Operations for System Operations (TOI)
- This will also serve as an entry point for the sophisticated analyses needed to determine the impact of potential power deauthorization in the Willamette on TXM in the Willamette.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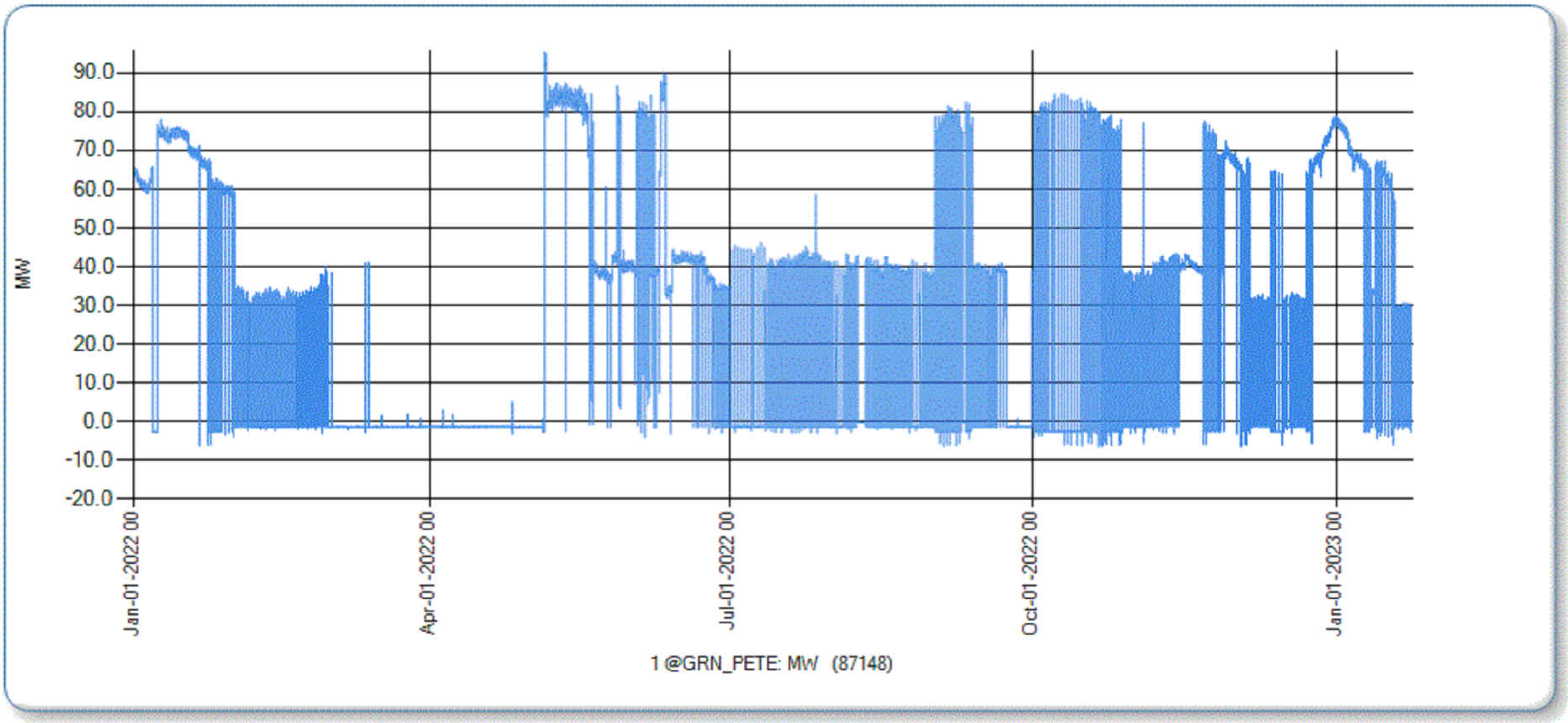
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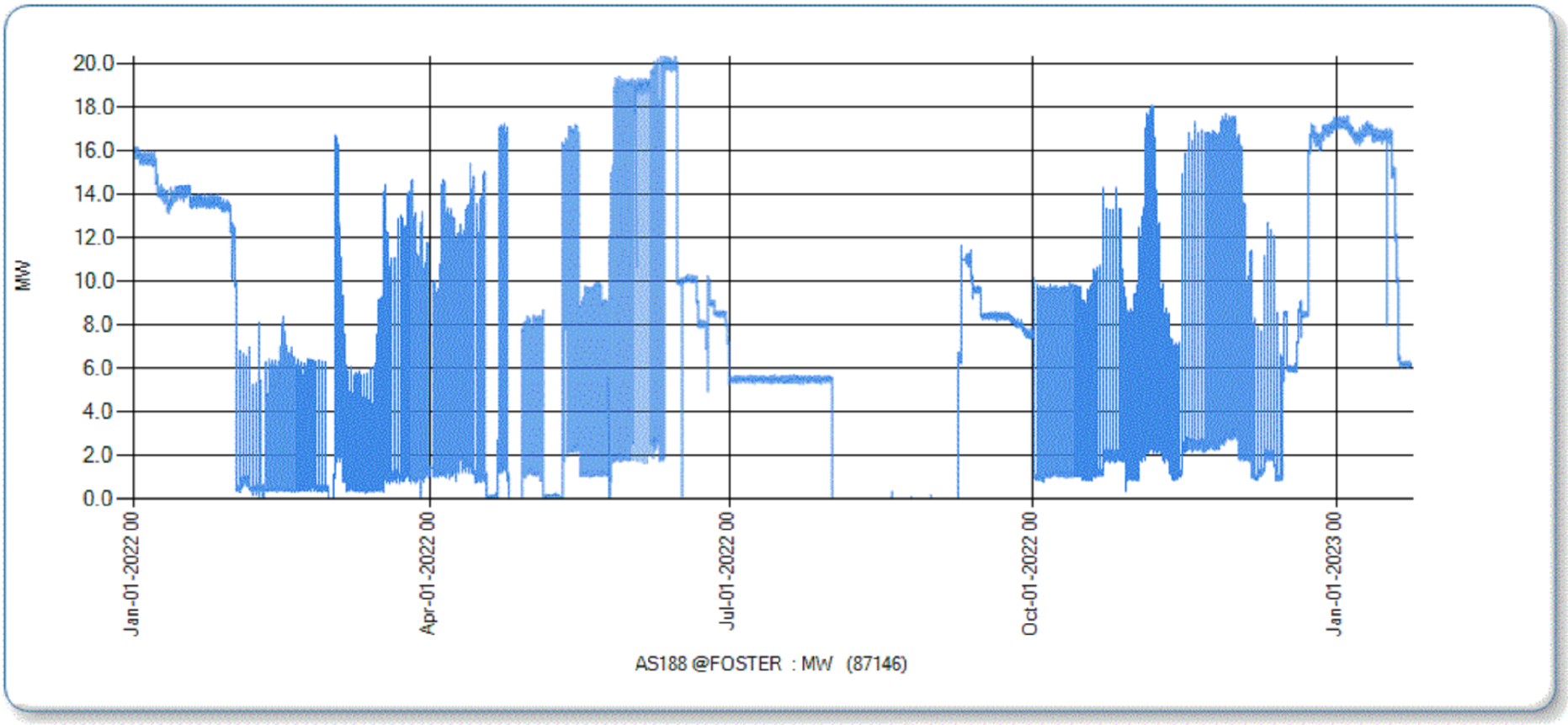
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AS188 @FOSTER : MW (87146)

From: Smith,Glen A (BPA) - PG-5
Sent: Thursday, April 27, 2023 9:00 AM
To: Riley,Erin A (BPA) - PGPR-5; Kintz,Jesse H (BPA) - PG-5; Graessley,Eric W (BPA) - PTM-5
Subject: RE: Willamette Reduced Generation - Impact on Resource Adequacy
Attachments: Appendix G Power and Transmission_4Oct2022_Clean.docx

Hi Erin,

So, to answer your question, 2035 is as good as any guess. We need to be clear and explain what the data quality impacts are in going beyond '35. Especially if they differ from other assumptions and studies that estimate when power would go away in the Valley. We can talk more when we meet again to discuss the results.

On another note, at some point, we need to discuss details related to this current analysis and previous BPA response on the EIS regarding resource adequacy. I've attached the EIS section that discusses our response. I am not familiar with the model and who all was consulted with when we provided this input to the EIS. But, we will need to understand the different approaches and need to explain why we are utilizing this current approach.

I hope this helps, please reach out with any questions,

Glen

From: Riley,Erin A (BPA) - PGPR-5 <eariley@bpa.gov>
Sent: Wednesday, April 26, 2023 9:43 AM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Graessley,Eric W (BPA) - PTM-5 <ewgraessley@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>
Subject: RE: Willamette Reduced Generation - Impact on Resource Adequacy

Hi Jesse,

What date would you like to assume for the power deauthorization?

We can recommend 2035 as the best option for data quality *and* comparable studies. Earlier dates are equivalent in quality, after 2035 will require interpolation and we do not recommend that route.

Best,

Erin

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Thursday, April 20, 2023 8:45 AM
To: Riley,Erin A (BPA) - PGPR-5 <eariley@bpa.gov>; Graessley,Eric W (BPA) - PTM-5 <ewgraessley@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Egerdahl,Ryan J (BPA) - PGPR-5 <rjegerdahl@bpa.gov>; Dombeck,Brian J (BPA) - PGPR-5 <bjdombeck@bpa.gov>
Cc: Chennell,Mildrid A (BPA) - PGPR-5 <machennell@bpa.gov>
Subject: RE: Willamette Reduced Generation - Impact on Resource Adequacy

No problem Erin, that should be workable as we should have a little flexibility with the Corps' disposition study schedule. Thanks for the update.

Hope you are taking care,
-Jesse

From: Riley,Erin A (BPA) - PGPR-5 <eariley@bpa.gov>
Sent: Wednesday, April 19, 2023 3:34 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Graessley,Eric W (BPA) - PTM-5 <ewgraessley@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Egerdahl,Ryan J (BPA) - PGPR-5 <rjegerdahl@bpa.gov>; Dombeck,Brian J (BPA) - PGPR-5 <bjdombeck@bpa.gov>
Cc: Chennell,Mildrid A (BPA) - PGPR-5 <machennell@bpa.gov>
Subject: RE: Willamette Reduced Generation - Impact on Resource Adequacy

Hi All,

Regret to inform you that we are behind on this project. We are about 8 business days behind schedule. :/
I think we are looking at May 2-4 as the delivery date on this now. (b)(6)

I'm sorry for any impact that this timing change has had,

Erin

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Friday, April 7, 2023 5:08 PM
To: Graessley,Eric W (BPA) - PTM-5 <ewgraessley@bpa.gov>; Riley,Erin A (BPA) - PGPR-5 <eariley@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Egerdahl,Ryan J (BPA) - PGPR-5 <rjegerdahl@bpa.gov>; Dombeck,Brian J (BPA) - PGPR-5 <bjdombeck@bpa.gov>
Cc: Chennell,Mildrid A (BPA) - PGPR-5 <machennell@bpa.gov>
Subject: RE: Willamette Reduced Generation - Impact on Resource Adequacy

Sounds great to me. Thanks to you both!

-Jesse

From: Graessley,Eric W (BPA) - PTM-5 <ewgraessley@bpa.gov>
Sent: Tuesday, April 4, 2023 6:45 PM
To: Riley,Erin A (BPA) - PGPR-5 <eariley@bpa.gov>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Egerdahl,Ryan J (BPA) - PGPR-5 <rjegerdahl@bpa.gov>; Dombeck,Brian J (BPA) - PGPR-5 <bjdombeck@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Cc: Chennell,Mildrid A (BPA) - PGPR-5 <machennell@bpa.gov>
Subject: RE: Willamette Reduced Generation - Impact on Resource Adequacy

Sounds good to me, thank you

From: Riley,Erin A (BPA) - PGPR-5 <eariley@bpa.gov>
Sent: Monday, April 3, 2023 4:00 PM
To: Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Egerdahl,Ryan J (BPA) - PGPR-5 <rjegerdahl@bpa.gov>; Dombeck,Brian J (BPA) - PGPR-5 <bjdombeck@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Graessley,Eric W (BPA) - PTM-5 <ewgraessley@bpa.gov>
Cc: Chennell,Mildrid A (BPA) - PGPR-5 <machennell@bpa.gov>
Subject: RE: Willamette Reduced Generation - Impact on Resource Adequacy

I think I can work through the available data and have some inputs to Eric in about a week. I think he needed ~2 weeks. So we are looking at April ~21 ish to have some initial results. Does that work for everyone?

We just got an updated 90yr forecast from the corps for the Willamette injunction and I haven't looked at them yet.

Thank you,

Erin

-----Original Appointment-----
From: Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>
Sent: Monday, March 20, 2023 11:45 AM
To: Smith,Glen A (BPA) - PG-5; Smith,Glen A (BPA) - PG-5; Riley,Erin A (BPA) - PGPR-5; Egerdahl,Ryan J (BPA) - PGPR-5; Dombeck,Brian J (BPA) - PGPR-5; Kintz,Jesse H (BPA) - PG-5; Graessley,Eric W (BPA) - PTM-5
Cc: Chennell,Mildrid A (BPA) - PGPR-5
Subject: Willamette Reduced Generation - Impact on Resource Adequacy
When: Wednesday, March 29, 2023 1:00 PM-2:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: 503-230-4000; ID 687 070 306

Hi Erin and All,

Ryan, Brian and I talked a little about how to assess the potential impact of future reductions in generation from the Willamette Valley System. Ryan thought that we may be able to use some recently developed models to estimate the impact. I'm hoping that the models could have some input variables modified and quickly produce some quantitative results showing the impacts to our resources if we lose 50 to 171 aMWs from the Valley.

Topics:

- Discuss potential generation losses and why we would like to have this analysis completed;
- Discuss various loss scenarios and other things to consider;
- Determine how easy and quick the analysis is and whether or not we have the manpower and time to complete it.

.....

Join Skype Meeting

Trouble Joining? Try Skype Web App

Help

.....

From: Kintz,Jesse H (BPA) - PG-5
Sent: Friday, February 24, 2023 3:05 PM
To: Spear,Daniel J (BPA) - PGB-5; Marker,Doug R (BPA) - AIR-7; Maslow,Jeffrey J (BPA) - EC-4; Dondy-Kaplan,Hannah A (BPA) - AIR-7; Baskerville,Sonya L (BPA) - AIN-WASH
Cc: Nagra,Angad S (BPA) - LN-7; Senters,Anne E (BPA) - LN-7; Biegel,Sarah T (BPA) - EC-4; Mai,Amy E (BPA) - EC-4; Sullivan,Leah S (BPA) - PGB-5
Subject: RE: Willamette Valley System Draft EIS for public review - Oregon comments

Thanks Jeff for sending and appreciate seeing Doug and Dan's thoughts also. From a quick scan I had a similar takeaway as Doug that this letter seems to either support or be neutral towards the disposition studies.
-Jesse

outlets. Depending on the results of the Disposition Study, additional options for provic
downstream passage through the dams may become available using other existing or ne
should be evaluated.

From: Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>
Sent: Friday, February 24, 2023 1:48 PM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Dondy-Kaplan,Hannah A (BPA) - AIR-7 <hadondy-kaplan@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH <slbaskerville@bpa.gov>
Cc: Nagra,Angad S (BPA) - LN-7 <ASNagra@bpa.gov>; Senters,Anne E (BPA) - LN-7 <aesenters@bpa.gov>; Biegel,Sarah T (BPA) - EC-4 <stbiegel@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>; Sullivan,Leah S (BPA) - PGB-5 <lssullivan@bpa.gov>
Subject: RE: Willamette Valley System Draft EIS for public review - Oregon comments

Hello:

A few other key items:

- Request the design of passage for lamprey (doesn't specify where) and translocution monitoring
- Money to ODFW and tribes for lamprey translocution monitoring
- Dry year storage: Assuming that the CGR/LOP/GPR drawdowns occur for quite some time, these actions will greatly reduce the amount of stored water in dry and even average water years. We got to eat our cake and eat it too at Cougar last year on account of a torrentially rainy spring. Reading between the lines, these comments indicate a concern over managing water rights and storage when there is likely to be much less of it than was contemplated in the Willamette Basin Review.
- Robust tagging RME likely = Tagging infrastructure everywhere.
- No alteration of hatchery production even with successful passage

Dan Spear

From: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Sent: Friday, February 24, 2023 11:08 AM
To: Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Dondy-Kaplan,Hannah A (BPA) - AIR-7 <hadondy-kaplan@bpa.gov>; Baskerville,Sonya L (BPA) - AIN-WASH

<slbaskerville@bpa.gov>
Cc: Nagra,Angad S (BPA) - LN-7 <ASNagra@bpa.gov>; Senters,Anne E (BPA) - LN-7 <aesenters@bpa.gov>; Biegel,Sarah T (BPA) - EC-4 <stbiegel@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>
Subject: RE: Willamette Valley System Draft EIS for public review - Oregon comments

Thanks, Jeff – I took a quick scan. I noted the focus on including passage at Hills Creek dam, with additional design and operational complexity for bull trout. The commenters raised issues about passage routes if power is deauthorized, but seem to support finding appropriate routes for volitional passage. I think they present complex objectives for passage, population connectivity and water supply, which argue for timely completion of the disposition studies. I didn't see anything contradicting the information we have presented in support of disposition studies.

From: Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>
Sent: Friday, February 24, 2023 11:13 AM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Dondy-Kaplan,Hannah A (BPA) - AIR-7 <hadondy-kaplan@bpa.gov>
Cc: Nagra,Angad S (BPA) - LN-7 <ASNagra@bpa.gov>; Senters,Anne E (BPA) - LN-7 <aesenters@bpa.gov>; Biegel,Sarah T (BPA) - EC-4 <stbiegel@bpa.gov>; Mai,Amy E (BPA) - EC-4 <aemai@bpa.gov>; Spear,Daniel J (BPA) - PGB-5 <djspear@bpa.gov>
Subject: FW: Willamette Valley System Draft EIS for public review - Oregon comments

FYI – Oregon's comment letter on the draft EIS.

From: REIS Kelly E * ODFW <Kelly.E.REIS@odfw.oregon.gov>
Sent: Thursday, February 23, 2023 5:20 PM
To: willamette.eis@usace.army.mil
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Subject: [EXTERNAL] Willamette Valley System Draft EIS for public review - Oregon comments

Please find attached Oregon's comments on the Willamette Valley System Draft Environmental Impact Statement.

Thank-you for the opportunity to comment.

Kelly Reis

Kelly Reis (she/her)

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US Army Corps of Engineers®
Portland District

WILLAMETTE VALLEY SYSTEM OPERATIONS AND MAINTENANCE

DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

APPENDIX G: POWER AND TRANSMISSION

August 29, 2022

Contents

Tables

Figures

ACRONYMS

ALT	Alternative
aMW	Average **M**ega**w**atts
Bonneville	Bonneville Power Administration
CCS	Cross Cascades South
CRS	Columbia River System
CRSO	Columbia River System Operations
CWY	Critical Water Year
DEIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
FCRPS	Federal Columbia River Power System
GEN	Generation
GENESYS	GENeration Evaluation SYStem
HYDSIM	**Hyd**ro System **Sim**ulation
IOU	Investor-Owned Utilities
IPR	Integrated Program Review
LCOG	Levelized Cost of Generation
LOLP	Loss of Load Probability
LT ATC	Long Term Available Transfer Capability
LTF	Long Term Firm
Mid-C	Mid-Columbia
MW	Megawatt
MWh	Megawatt hour
NAA	No Action Alternative
NPV	Net Present Value
NW Council	Northwest Power and Conservation Council
O&M	Operations and Maintenance
PA	Preferred Alternative
PF	Priority Firm Power
PNW	Pacific Northwest
PUD	Public utility districts
ResSim	**Res**ervoir System **Sim**ulation
SAMP	Strategic Asset Management Plan
SOA	South of Allston
WVS	Willamette Valley System

CHAPTER 1 - INTRODUCTION

The Willamette Basin contains several Federal and non-Federal hydroelectric power-generating facilities used to generate electrical energy for local and regional consumption, as well as high-voltage transmission lines and other facilities that move this energy from the generating facilities to local and regional loads.

Regarding Federal hydropower generation, the Flood Control Act of 1948 (Pub. L. No. 80-858, 62 Stat. 1175) modified the Flood Control Act of 1938 to provide for the installation of hydroelectric power-generating facilities at eight Corps' multipurpose projects throughout the Willamette Basin: Detroit, Green Peter, Lookout Point, Cougar, Hills Creek, Big Cliff, Foster, and Dexter dams. These are a subset of the Federal Columbia River Power System (FCRPS) projects. The Corps dictates the parameters for dam operations to meet their statutory requirements, and power generation is subsequently scheduled within these parameters. The Cougar, Hills Creek, Big Cliff, Foster, and Dexter projects run a flat generation schedule each day based on the water available, and the generation schedule is determined solely by the Corps. For the Detroit, Green Peter, and Lookout Point projects, Bonneville is provided an opportunity to optimize the daily timing of power generation after the Corps determines their statutory requirement needs for other project purposes such as flood control and fish and water quality operations and identifies how many hours of generation would be available within a day, as well as any constraints (e.g., cannot be more than 10 continuous hours without generation).

Bonneville is a Federal power marketing administration designated by statute to sell power and transmission services throughout the Pacific Northwest region. Bonneville sells electric power from FCRPS projects, operated and maintained by other Federal agencies (i.e., Corps or Reclamation), to its regional firm power customers (wholesale power customers) across the Pacific Northwest, including municipalities, public utility districts (PUDs), cooperatives, Federal agencies, and investor-owned utilities (IOUs) and one direct service industry customer. These wholesale power customers, in turn, serve residential, commercial, and industrial retail customers (i.e., "end users").

Bonneville also operates and maintains about 15,000 circuit miles of the high-voltage transmission system within the Pacific Northwest region (Bonneville 2018a). This system integrates and transmits electric power within the Pacific Northwest region and interconnects with external transmission systems throughout the western United States and parts of Canada and Mexico. Separate from its power sales, Bonneville sells transmission services (for the delivery of electricity from generating resources to end users) and associated ancillary services (for maintaining transmission system reliability) to regional firm power customers, independent power producers, and power marketers.

1.1 FRAMEWORK FOR THE POWER AND TRANSMISSION ANALYSIS

This appendix details Bonneville's, in coordination with the Corps, analysis of the effects of the Willamette Valley System (WVS) Operations and Maintenance (O&M) Draft Environmental

Impact Statement (DEIS) Alternatives (Alternatives 1, 2A, 2B, 3A, 3B, 4, 5 and Preferred Alternative [PA]; hereinafter referred to collectively as Action Alternatives) on federal power and transmission resources, including the models, methods, and data sources employed, and a stepwise presentation of the results for each alternative. Figure 1-1 presents the framework for the analysis.

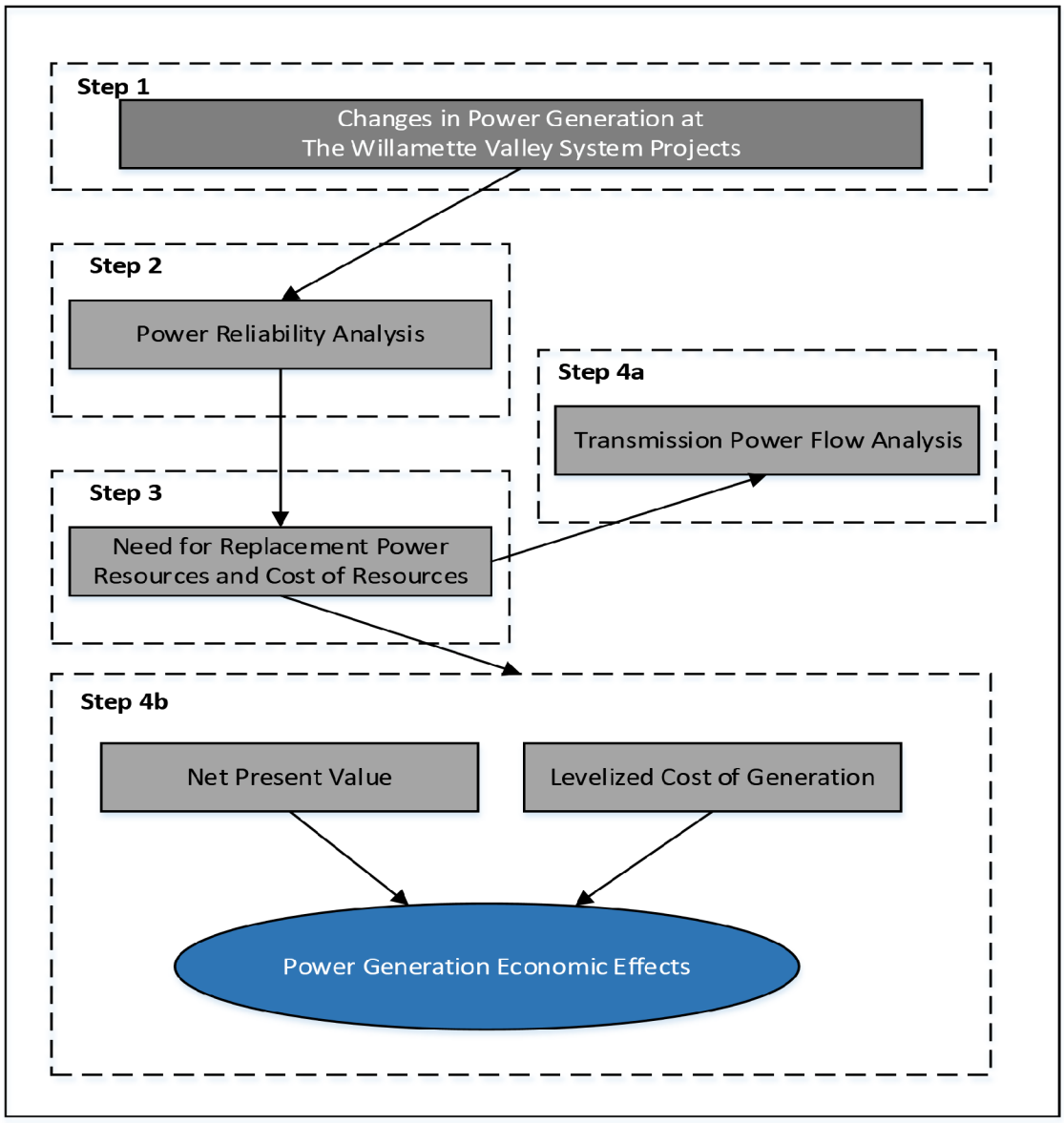

Figure 1-1. Analytical Approach for Evaluating Power and Transmission Effects of the WVS DEIS Action Alternatives.

Note: Additional power and transmission analysis occurs within each of the step boxes depicted.

Step 1 of the analysis assesses the effects of the Alternatives on hydropower generation based on average historical water conditions and for critical water conditions.[1] The amount of power generated by the system under each of the alternatives determines whether additional changes to, or investments in the system may be required to maintain Bonneville's ability to supply adequate and reliable power (both energy and capacity) to its firm power customers under 20-year contracts. Step 2 of the analysis evaluates the extent to which the alternatives would result in the need for Bonneville or other regional entities to acquire power from other resources (e.g., new or existing generating plants, wind, solar, etc.[2]) and construct new transmission infrastructure to replace the lost capability at Federal hydropower projects. To the extent Step 2 identifies a potential need to acquire resources or to build transmission infrastructure, Step 3 would identify potential replacement resources and associated costs[3]. Step 4a, the transmission analysis, estimates the incremental power flow change on Bonneville Transmission Network Paths between the No Action Alternative (NAA) and each of the other Alternatives during multiple seasons as a result of generation output changes at the federal WVS projects with hydropower facilities (Detroit, Big Cliff, Cougar, Green Peter, Foster, Hills Creek, Lookout Point, and Dexter dams).

Based on the inclusion of any new capital investments under each of the Alternatives, Step 4b of the analysis considers the Net Present Value (NPV) and Levelized Cost of Generation (LCOG) resulting from the increased costs of providing power. The NPV analysis compares the expected revenue produced by each WVS Project with hydropower facilities against their expected costs over a 30-year[4] study period for each of the Alternatives. A positive NPV indicates that power generation is economically justified while a negative NPV indicates that the costs of power production outweigh the benefits. The LCOG analysis evaluates the incremental cost of producing power, in $/MWh, for each project over the 30-year study period. This value provides a relative measure of cost-competitiveness when compared to other generating resources or market purchases.

The areas of analysis for the power and transmission resources differ as a function of Bonneville's products and services. Both the power and transmission studies focus on Bonneville's service area (Figure 1.1-2). The Bonneville Service Area is defined by the Northwest

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[1] The "critical water year" or "critical water conditions" represent the historic water year when the capability of the hydro system produces the least amount of dependable generation to serve the least amount of load while considering power and non-power operating constraints.

[2] In the context of power acquired from new resources, "existing" refers to currently operating generating plants or renewables (e.g., wind, solar, etc.) located outside of the Pacific Northwest region.

[3] To the extent Step 2 identifies potential needs to acquire power from new resources or construct transmission infrastructure, and if Bonneville proposes to take such action in the future, Bonneville would do so consistent with the Northwest Power Act and would complete additional site-specific planning and analysis in compliance with environmental laws, including the National Environmental Policy Act (NEPA).

[4] Bonneville's standard power generation economic analysis timeframe is 50 years. For consistency with other analyses in the EIS, a 30-year timeframe was used instead.

Power Act as the Pacific Northwest, which includes Oregon, Washington, Idaho, the portion of Montana west of the Continental Divide, and the portions of Nevada, Utah, and Wyoming within the Columbia River drainage basin. However, because Bonneville regularly markets its surplus power both within and outside the Pacific Northwest, the power evaluation additionally considers potential effects on power markets within the larger U.S. Portion of the Western Interconnection (Figure 1.1-2). The transmission analysis considers potential effects on multiple "paths," or routes over which power flowing from one point to another is monitored and managed (Figure 1.1-3).

1.2 ORGANIZATION OF THE APPENDIX

The following sections of this appendix are organized as follows:

Section 2 – Changes in Hydropower Generation (in aMW[5]): Section 2 focuses on Step 1 (Figure 1.1-1), describing the approach to modeling changes in power generation at the eight WVS projects with hydropower facilities[6].

Section 3 – Regional Power Supply and Replacement Resources: Section 3 focuses on Steps 2 and 3 (Figure 1.1-1), describing the approach to modeling the impacts of changes in power generation at the WVS projects on power supply (expressed in terms of loss of load probability [LOLP]), and, if needed, identifying any replacement resources and associated costs for maintaining an adequate and reliable supply of electricity.[7]

Section 4 – Transmission Paths Incremental Analysis: Section 4 describes Step 4a (Figure 1.1-1), linking changes in how and where power is generated to effects on the transmission system reliability.

Section 5 – Economic Viability of Power Generation: Section 5 describes Step 4b (Figure 1.1-1), evaluating how changes in power generation and costs affect the economic viability of WVS projects.

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[5] The average electric power created from an energy source in megawatts (MW).

[6] The eight WVS projects with hydropower facilities are Cougar, Detroit, Big Cliff, Lookout Point, Dexter, Hills Creek, Green Peter, and Foster.

[7] Loss of Load Probability under the No Action Alternative is 6.5%. The NW Council target for LOLP is 5%. *See NW* Council Document Number 2011-14, Page 4, available at: https://www.nwcouncil.org/sites/default/files/2011_14_1.pdf.

Figure 1-2. Bonneville Service Area and U.S. Portion of the Western Interconnection.

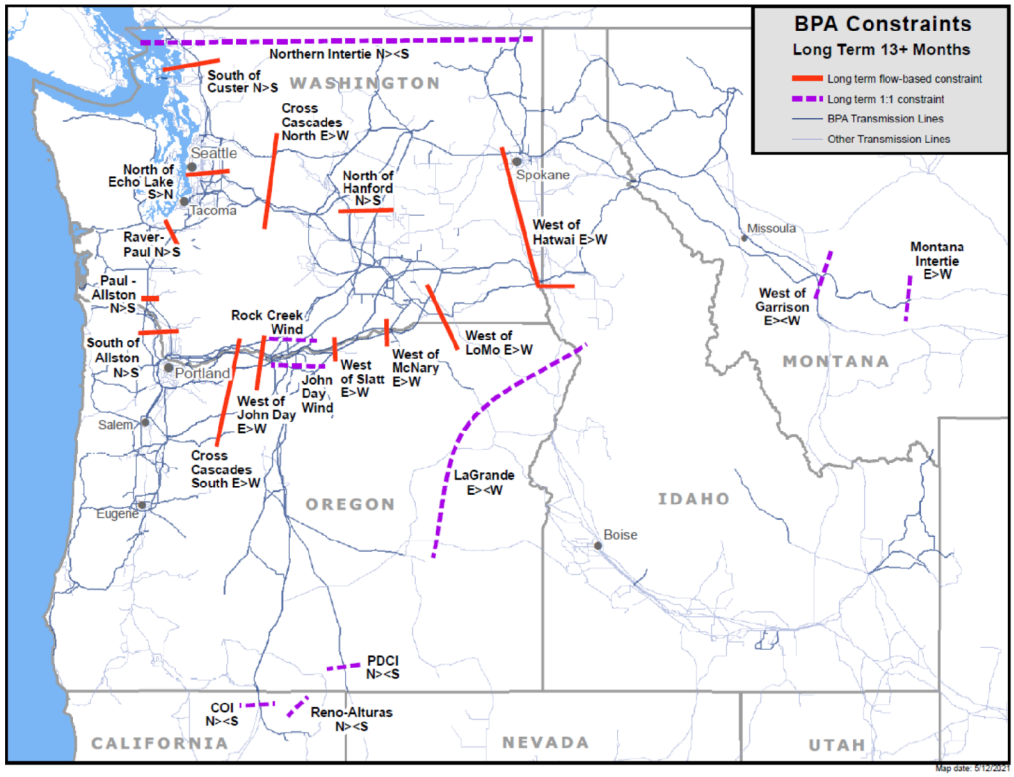

Figure 1-3. Northwest Transmission Paths.

Note: Red and purple dashed lines denote defined paths and interties (locations where power flows are monitored and analyzed).

Source: Bonneville (2021).

1.3 SUMMARY OF RESULTS FOR POWER AND TRANSMISSION ANALYSIS

Table 1.3-1 presents the summary of results for all alternatives. The following paragraphs describe results by topic for the Alternatives relative to the NAA.

1.3.1 Hydropower Generation

Under the NAA, annual average hydropower generation from the WVS projects was calculated to be 171 aMW[8] (roughly the amount of power used by 136,416 Northwest homes or used by residential customers in a city slightly more populated than Gresham, Oregon). Under Alternative 1 and 4, annual average hydropower generation from the WVS projects increased by 8 and 1.0 aMW, respectively, which reflect slight to indistinguishable increases (approximately 4.7 and 0.6 percent, respectively) relative to the NAA. Under Alternative 2A, annual average hydropower generation from the WVS projects decreased by approximately 4 aMW (-2.3 percent) relative to the NAA. Under Alternative 2B, annual average hydropower generation from the WVS projects decreased by approximately 18 aMW, or an approximate 10.6 percent decrease relative to the NAA. This annual average reduction reflects monthly reductions from November through May counterbalanced by increases in power from June through October. The annual average hydropower generation from the WVS projects under Alternative 3A and Alternative 3B decreased by 87 and 79 aMW, respectively, which are approximately 47.9 and 45.8% decreases relative to the NAA. These reductions reflect the numerous operational changes included in Alternative 3A and Alternative 3B resulting in reservoir elevations frequently being below the power pool; thereby, precluding hydropower generation for extended periods. Under Alternative 5, annual average hydropower generation from the WVS projects decreased by approximately 52 aMW, or an approximate 29.8 percent decrease relative to the NAA.

1.3.2 Regional Power Supply – Loss of Load Probability (LOLP)[9] and Replacement Resources

The best available regional hydroregulation data was used for this analysis, which includes 2021 hydroregulation data for the Willamette Valley System (WVS) projects generated by the Corps (see Appendix B), combined with 2020 hydroregulation data for all other FCRPS projects sourced from the Columbia River System Operations (CRSO) EIS' Preferred Alternative (Corps et al. 2020). Given the WVS projects represent a small subset of the FCRPS projects, the resulting NAA LOLP of 6.5 percent was indistinguishable from the CRSO EIS' Preferred Alternative LOLP of 6.4 percent (i.e., within the +/- 1 percent range of modeling accuracy).

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[8] An average megawatt is one million watts delivered continuously 24 hours a day for one year.

[9] LOLP is expressed as a percentage that reflects the probability that the system will not be able to meet the demand for electricity in a particular year. Higher LOLPs reflect the increased likelihood that the power system would be unable to meet demand, and therefore, will result in power shortages or blackouts. A high LOLP is an indication of a less reliable power system. A low LOLP reflects a low likelihood that the power system will experience a power shortage. The LOLP is a measure of the frequency of outages but not a measure of their duration or magnitude.

Without replacement resources, regional LOLP would negligibly increase under Alt 2, Alt 3A and Alt 3B, and Alt 5 (+0.1 to +0.5 percentage points for each); would negligibly decrease under Alt 1 (-0.1 percentage points), and would not change under Alt 4 relative to the NAA. Since the LOLPs for each of the Alternatives are not materially different than the NAA (i.e., differences are within the +/- 1 percent range of modeling accuracy), the Alternatives would maintain essentially the same level of regional power system reliability as the NAA; therefore, replacement resources to return the LOLP to the NAA level would not be needed for any of the Alternatives.

1.3.3 Transmission Paths Incremental Analysis

The transmission flowgate incremental analysis identifies the potential changes in power flows that may occur under each of the Alternatives. Overall, results indicate that a reduction of the Willamette Valley System power generation and the location of replacement power generation either at Upper Columbia or Lower Snake generation facilities can decrease the transmission inventory available for commercial sales on constrained network flowgates. Constrained network flowgates for commercial planning have historically included South of Allston, Raver-Paul, North of Echo Lake, Cross Cascades South, and Cross Cascades North. Constraint definitions and total transfer capabilities can be subjected to change based on the future state of the transmission system and the evolving external market landscape.

1.3.4 Economic Viability of Power Generation

This analsis identifies the potential changes in the WVS projects' NPV and LCOG that may occur under each of the Alternatives. Overall, results indicate that power generation reductions and costs of structural measures under the Alternatives would result in large reductions in NPV and increases in the LCOG compared to the NAA. All of the Action Alternatives result in a negative median NPV for all WVS projects combined ranging from approximately -$196 million (NEAR-TERM OPERATIONS MEASURE) to -$937 million (ALT4)[10], which represent -$421 million and -$1.162 billion in reductions relative to the NAA, respectively. Under the Action Alternatives, costs of generation for the combined WVS projects would be expected to exceed both current Tier 1 rates and expected energy prices with increases in LCOG from the NAA ranging from $11.65/MWh (NEAR-TERM OPERATIONS MEASURE) to $37.61/MWh (ALT3A).

[10] Bonneville's share of basin-wide costs (e.g., RME) were not included in this analysis. With inclusion of those costs, the Net Present Value would be incrementally lower and the Levelized Costs of Generation would be incrementally higher. Additionally, structural cost estimates used in the analysis of Action Alternatives were at a conceptual design level with a 50% contingency. For other projects of similar size and complexity, the conceptual design cost estimates increased by 137% to 215% upon completion of the detailed design report. Post-construction, the complexity of these systems has typically resulted in further costs to improve performance. Higher implementation costs than currently estimated would result in additional reductions of the Net Present Value and increases in the levelized costs of generation.

Table 1-1. Summary of Hydropower and Transmission Effects for All WVS DEIS Alternatives.[6]

Effect[1/]	No Action Alternative (NAA)[1]	ALT 1 Relative to NAA	ALT 2A Relative to NAA	ALT 2B Relative to NAA	ALT 3A Relative to NAA	ALT 3B Relative to NAA	ALT 4 Relative to NAA	NEAR-TERM OPERATIONS MEASURE Relative to NAA	Preferred Alternative Relative to NAA
WVS Hydropower Generation (aMW)	171.3	+8	-4	-18	-87	-79	+1.0	-52	XX
Loss of Load Probability (LOLP; percent)	6.5	-0.1	0	+0.1	+0.5	+0.5	0	+0.3	XX
Replacement Resources/Costs to return LOLP to NAA level	——2	NA3	NA3	NA3	NA3	NA3	NA3	NA3	NA3
Transmission Flow Paths (seasonal MW changes on currently congested paths Cross Cascades South [CCS] and South of Allston [SOA])	W:6475.5 CCS; 1183 SOA Sp:4100.5 CCS;732.1 SOA Su: 5862.9 CCS;2525.1 SOA	All seasons: <+10 CCS & SOA	W:+18.4 CCS; +6.9 SOA Sp:+61.3 CCS; +11.8 SOA Su: <+10 CCS & SOA	W:+21.9 CCS; +8.3 SOA Sp:+25.1 CCS; 5.1 SOA Su: <+10 CCS & SOA	W:+37.2 CCS; +13.6 SOA Sp:+113.7 CCS;+22.3 SOA Su:+28.3 CCS	W:+41.4 CCS;+15.2 SOA Sp:+94.8 CCS; +18.7 SOA Su:+25.6 CCS	W/Su: <+10 CCS & SOA Sp: +15 CCS; +3.2 SOA	W:+47.0 CCS; +17.0 SOA Sp: +59.8 CCS; +11.4 SOA Su: <+10 CCS & SOA	W/Su/SP: CCS SOA
Transmission Reliability	Same/similar to affected environment	No change	No change	No regional change/locally comprised Blue River[4]	No regional change/locally comprised Oakridge & Blue River[4]	No regional change/locally comprised Oakridge & Blue River[4]	No change	No regional change/locally comprised Blue River[4]	XX
Net Present Value5	$225M	-$1.159 B	-$863M	-$933M	-$853M	-$829M	-$1.162 B	-$421M	-$939
Levelized Cost of Generation ($/MWh)5	$26.70	+$27.14	+$20.75	+$23.96	+$37.61	+$32.72	+$27.84	+$11.65	+$24.11

Notes: The estimated Loss of Load Probability (LOLP) effects rely on the best available information regarding planned coal plant retirements as of 2017.

1/ The analysis of the NAA for these effect categories provides a baseline against which the Alternatives (ALT) are compared. Thus, the NAA results presented in this table describe the baseline magnitude of hydropower and transmission values and the ALT1 through ALT4 and PA results describe the change relative to No Action.

2/ A "——" indicates an effect category that is not relevant to the No Action Alternative because it only occurs as a result of implementing the ALTs (e.g., the need for new generation and transmission infrastructure and associated costs).

3/ The LOLP determined to be essentially the same as the NAA (within the +/- 1 percent range of modeling accuracy), so no replacement resources needed to return LOLP to the NAA level.

4/ Deep fall and spring drawdowns would compromise Hills Creek and/or Cougar dams' abilities to operate islanded and serve Oakridge and Blue River communities, respectively, under temporary storm or fire related outage conditions.

5/ Bonneville's share of basin-wide costs (e.g., RME) were not included in this analysis. With inclusion of those costs, the Net Present Value would be incrementally lower and the Levelized Costs of Generation would be incrementally higher. Additionally, structural cost estimates used in the analysis of Action Alternatives were at a conceptual design level with a 50% contingency. For other projects of similar size and complexity, the conceptual design cost estimates increased by 137% to 215% upon completion of the detailed design report. Post-construction, the complexity of these systems has typically resulted in further costs to improve performance. Higher implementation costs than currently estimated would result in additional reductions of the Net Present Value and increases in the levelized costs of generation.

6/ Alternative 5 effects are only inclusive of near-term operational measures and do not account for structural measures that have been proposed under the court order (e.g., Dexter Hatchery improvements), nor do they account for operational changes that could occur as a result of structural measure implementation.

CHAPTER 2 - HYDROPOWER GENERATION

This section provides the modeling analysis used to estimate the hydropower generation values (in aMW) resulting from the NAA and several alternatives with comparisons to the NAA. Hydropower generation results were calculated using HYDSIM (**Hyd**ro System **Sim**ulator) for the eight WVS projects with hydropower facilities including: Cougar, Detroit, Big Cliff, Lookout Point, Dexter, Hills Creek, Green Peter, and Foster dams. Two metrics were evaluated specifically for hydropower generation: average generation and critical water year (1937) average generation.

2.1 HYDROPOWER GENERATION METHODOLOGY

Bonneville and the Corps collaborated on modeling hydropower generation for the WVS DEIS alternatives. The Corps first used ResSim to model reservoir operations for the WVS DEIS alternatives (Appendix B). The resulting ResSim values for reservoir elevations, streamflows, and project spills were used as inputs for many different analyses performed for the WVS DEIS. Because ResSim does not include power drivers in operations and ResSim outputs did not provide hydropower production values for the alternatives, Bonneville produced the hydropower generation results using HYDSIM as described in section 3.1.2 below. The reservoir and streamflow conditions for each alternative over the 73-year study period in HYDSIM (Water Years 1935/36 through 2007/08) and the corresponding period in ResSim studies were closely coordinated with the Corps to minimize differences.

2.1.1 HYDSIM

HYDSIM has been in use at Bonneville for decades and is a well-calibrated hydropower generation model. HYDSIM is a monthly model, where April and August are split into half-months (e.g., April I and April II) giving 14 HYDSIM periods in each water year. The model has been used for years for hydropower planning at Bonneville and for Treaty coordination with Canada and regional utilities. Project inflows, outflows, powerhouse flows, and spills calculated by HYDSIM are period averages. Reservoir elevations and storage contents calculated by HYDSIM are end-of-period. Key study inputs include the measures listed in Chapter 2. Water Years 1935/36 through 2007/08 from the 2010 modified flows dataset spanning (BPA 2011) described in Appendix B were used as the baseline hydrology. Exhibit 1 provides additional information regarding the HYDSIM model.

Bonneville used the HYDSIM generation output to estimate and assess the impacts on two metrics, the average generation and critical water year generation, for each of the alternatives. These are standard metrics Bonneville uses in several types of studies involving the Federal Columbia River Power System (FCRPS) including Bonneville rate cases, system reliability studies, CRT planning studies, and planning studies such as the WVS EIS, and are as follows: **Average Generation (aMW)**: The average electric power created from an energy source in megawatts (MW). In this appendix, the average generation is reported either by year or by 14-period

averages wherein April and August are split into two periods. It is calculated by HYDSIM as the annual average or the 14-period average for the 73 water-years studied.

Critical water-year average generation: The generation for water year 1937 (October 1, 1936 – September 30, 1937) is calculated in HYDSIM. This dry water year is one of the lowest average Columbia River System (CRS) power generation of all years in the 73-year study period and the least amount of load can be served by the hydro system during this period. Production of this amount of hydropower could reasonably be expected if the 1937 conditions repeated under modern system conditions. It is an important metric in determining the need for additional resources (power) to meet the Administrator's load supply obligations or replace aging and retired generating resources. Bonneville's long-term firm power sales to its regional power customers are tied to this metric.

2.2 ENERGY GENERATION RESULTS

Energy generation results for each of the WVS DEIS alternatives were produced for the WVS projects with hydropower facilities and the remainder of the FCRPS system was held constant since the operations of the U.S., CRS (Federal), Mid-Columbia, and Canadian systems are not influenced by WVS operations. Generation results for each alternative are driven primarily by storage reservoir objectives for downstream flow measures and specified project operational measures for fish passage Chapter 2 of the DEIS provide details about the measures in the alternatives.

This section also compares the energy generation results between the NAA and each alternative and provides explanations for generation changes from the NAA.

2.2.1 WVS Projects Energy Generation Summaries

Energy generation from results of HYDSIM outputs for combined WVS projects are provided for 73-Year Average Generation in Table 2.2-1 and Figure 2.2-1, and for Critical Water Year (1937) Average Generation in Table 2.2-2 and Figure 2.2-2.

Table 2-1. WVS Projects 73-Year Average Generation: Differences in Generation (aMW) compared to the NAA.[11]

	NAA	ALT1	ALT2A	ALT2B	ALT3A	ALT3B	ALT4	NTOM	ALT5
Oct	134	39	38	13	-83	-77	26	-5	XX
Nov	230	46	-13	-41	-182	-187	20	-118	XX
Dec	231	-4	-53	-67	-148	-159	-8	-124	XX
Jan	235	-5	-30	-36	-60	-68	-7	-76	XX
Feb	147	-1	-7	-6	17	38	0	-20	XX

[11] 1/ HYDSIM (**Hyd**ro System **Sim**ulation) uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves. Source: HYDSIM modeling results

	NAA	ALT1	ALT2A	ALT2B	ALT3A	ALT3B	ALT4	NTOM	ALT5
Mar	143	-11	-12	-22	-28	-11	-11	-43	XX
Apr I	177	-27	-26	-39	-81	-59	-26	-96	XX
Apr II	182	-29	-36	-50	-111	-100	-37	-110	XX
May	222	-9	-21	-39	-177	-154	-22	-89	XX
Jun	162	21	27	7	-119	-106	27	-10	XX
Jul	106	30	20	9	-53	-44	19	5	XX
Aug I	114	20	14	5	-56	-54	15	-16	XX
Aug II	118	17	12	3	-52	-43	13	-18	XX
Sep	151	-9	15	6	-59	-39	-14	-19	XX
Annual Average	**171**	**8**	**-4**	**-18**	**-87**	**-79**	1	-52	**XX**

Table 2-2. WVS Projects Critical Water Year (1937) Average Generation: Differences in Generation (aMW) compared to the NAA.[7]

	NAA	ALT1	ALT2A	ALT2B	ALT3A	ALT3B	ALT4	NTOM	ALT5
Oct	119	8	17	-6	-83	-74	10	-11	XX
Nov	156	52	7	-30	-144	-142	18	-82	XX
Dec	80	-9	-16	-14	-58	-63	-21	-45	XX
Jan	47	-6	-8	-14	-26	-32	-11	-27	XX
Feb	67	-10	-10	-17	-29	-37	-8	-40	XX
Mar	121	-7	-43	-54	-65	-52	-6	-43	XX
Apr I	188	-3	-6	-25	-63	-82	-12	-82	XX
Apr II	227	24	0	-43	-89	-124	0	-140	XX
May	356	5	-26	-50	-289	-251	-31	-145	XX
Jun	264	50	27	8	-197	-180	21	-14	XX
Jul	111	20	25	12	-31	-23	23	20	XX
Aug I	115	17	7	8	-46	-39	8	-8	XX
Aug II	124	10	5	3	-58	-33	2	-22	XX
Sep	155	-12	22	24	-30	-3	-18	4	XX
Annual Average	**150**	**10**	**0**	**-14**	**-90**	**-83**	**-2**	**-42**	**XX**

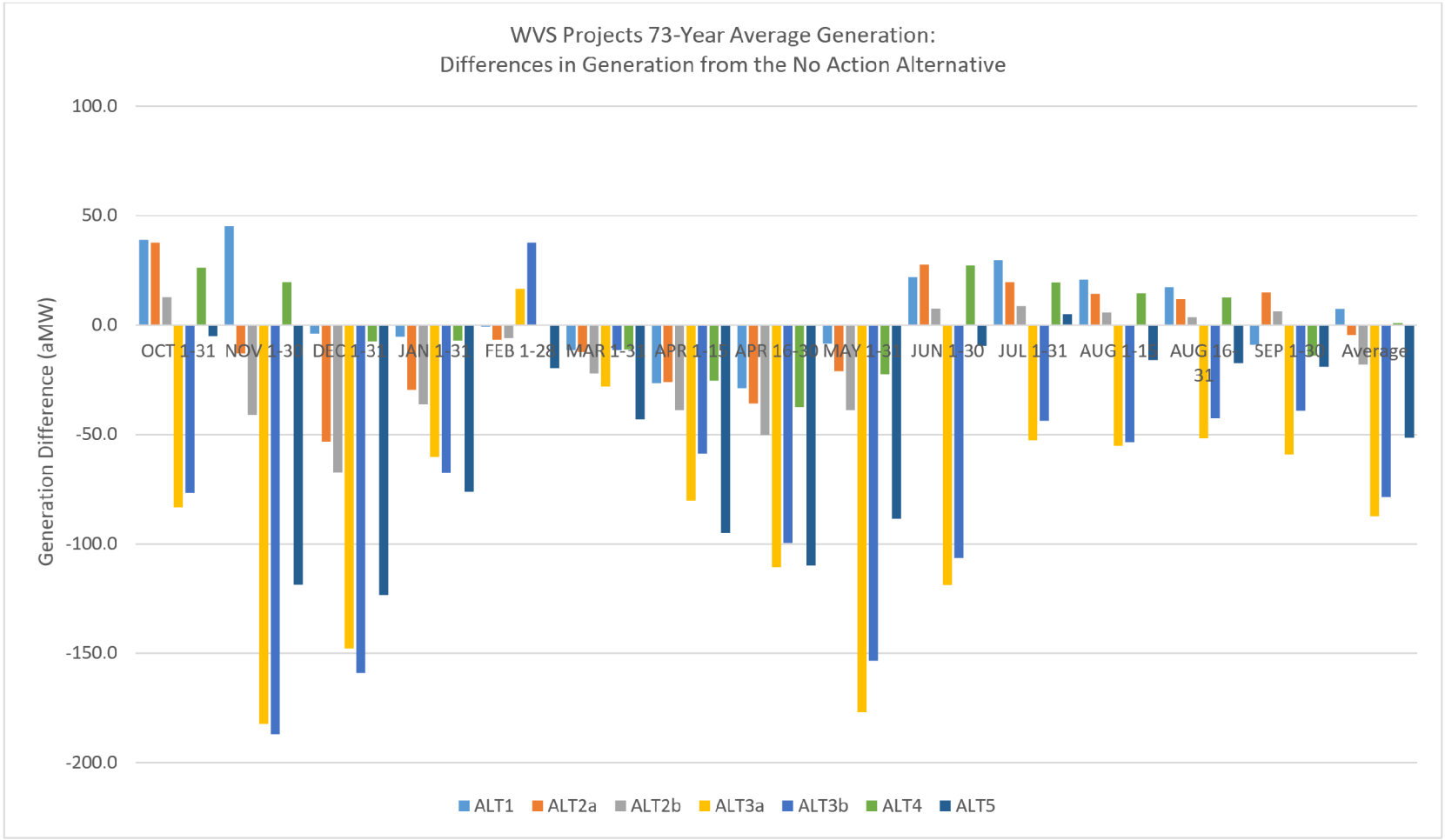

Figure 2-1. WVS Projects 73-Year Average Generation: Differences in Generation (aMW) from the No Action Alternative.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.

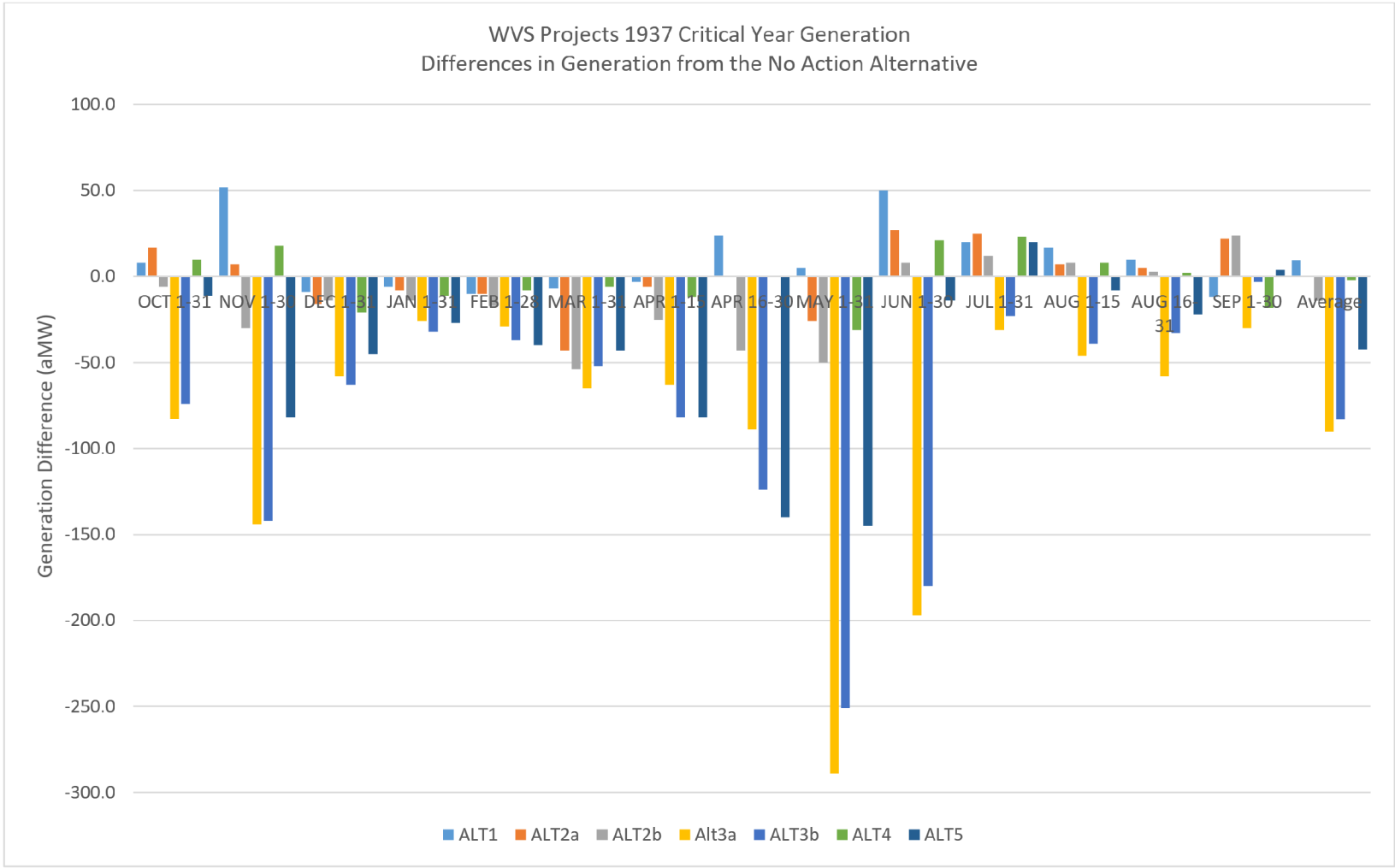

Figure 2-2. WVS Projects Critical Water Year (1937) Average Generation: Differences in Generation (aMW) from the No Action Alternative.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.

2.2.2 WVS Projects Energy Generation (aMW): Alternative Comparisons to NAA

The following energy generation comparisons of Action Alternatives with the NAA are provided for the WVS projects with hydropower facilities (i.e. Dexter, Lookout Point, Hills Creek, Foster, Green Peter, Cougar, Big Cliff, and Detroit dams). Detailed information for individual project differences is provided in Exhibit 2.

Energy: No Action Alternative

Table 2.2-1 and Table 2.2-2 depicts the 73-Year Average Generation and Critical Water Year (1937) Average Generation of the combined WVS projects under the NAA, respectively. The annual average generation for the 73-year period is approximately 21 aMW higher than the critical water year (171 aMW versus 150 aMW). Generation varies seasonally with the lowest occurring in the months of July and August (106 to 118 aMW) over the 73-year period, and in December through February (47 to 80 aMW) during the critical water year. Highest generation occurs in November through January and again in May (222 to 235 aMW) over the 73-year period and from the latter half of April through June (227 to 356 aMW) during the critical water year.

Energy: ALT1 compared to NAA

Table 2.2-3 depicts the differences between ALT1 and the NAA for the 73-Year Average Generation and Critical Water Year (1937) Average Generation of the combined WVS projects. Positive differences indicate an increase, and negative differences indicate a decrease in average generation (aMW) from the NAA.

Figure 2.2-3 and Figure 2.2-4 illustrate the differences in generation of individual WVS projects between ALT1 and the NAA for the 73-Year Average Generation and Critical Water Year (1937) Average Generation, respectively. Individual project blocks indicate the amount of change in each project's monthly average generation (aMW) from the NAA. Project blocks above the zero line indicate a project under ALT1 measures generated more than the NAA; blocks below the zero line indicate less generation under ALT1 measures than the NAA. The total line indicates the difference in monthly average generation (aMW) for all WVS projects combined from the NAA.

ALT1: 73-YEAR AVERAGE GENERATION

Table 2.2-3 indicates an average annual increase of 8 aMW for the WVS projects combined under ALT 1 compared to the NAA. Differences in the 73-year Average Generation of the WVS projects between Alt 1 and the NAA primarily resulted from the following:

OCT - NOV: Higher average generation under ALT1 during this period was largely driven by increases in outflows through turbines at Detroit and Green Peter dams. In Alt 1, temperature control towers at Detroit and Green Peter dams replace operational spills for temperature management, which allows for

increased flows through the turbines. Increased generation at these locations was somewhat offset by decreased generation at Lookout Point Dam.

Table 2-3. WVS Projects 73-Year Average Generation and Critical Water Year (CWY, 1937) Average Generation (aMW): ALT1 relative to NAA.[1]

	AVG GEN NAA	AVG GEN ALT1	AVG GEN Difference	CWY GEN NAA	CWY GEN ALT1	CWY GEN Difference
Oct	134	173	39	119	127	8
Nov	230	276	46	156	208	52
Dec	231	227	-4	80	71	-9
Jan	235	230	-5	47	41	-6
Feb	147	146	-1	67	57	-10
Mar	143	132	-11	121	114	-7
Apr I	177	150	-27	188	185	-3
Apr II	182	153	-29	227	251	24
May	222	213	-9	356	361	5
Jun	162	183	21	264	314	50
Jul	106	136	30	111	131	20
Aug I	114	134	20	115	132	17
Aug II	118	135	17	124	134	10
Sep	151	142	-9	155	143	-12
Annual Average[2]	**171**	**179**	**8**	**150**	**160**	**10**

1/ HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.
2/ The Annual Average is a weighted average to account for the different number of days in the 14 periods.
Source: HYDSIM modeling results.

DEC – FEB: Slight reductions in average generation from the NAA during this period can be attributed to increases in spill, which were offset by some increased flows through turbines that moderated the reduction in average generation during this period. At Foster Dam, for example, the spill was typically greater than the change in turbine outflows. Hence, flow offsets helped explain the extent of generation reduction.

MAR – MAY: Reduced average generation under ALT1 during these months is primarily driven by reduced generation at Hills Creek (lower flows and higher end elevations result in reduced generation), Cougar, and Lookout Point dams.

JUN – AUG: Higher average generation under Alt1 in these months is driven by structural and/or operational changes at Detroit and Lookout Point dams. A temperature tower at Detroit Dam reduces the need for spill and results in increased flows through turbines with concomitant increases in generation. At Lookout Point Dam, increased flows through turbines contribute to increased generation.

SEPT: Reduced average generation under ALT1 in September can be attributed to decreased flows at Green Peter and Foster dams resulting in lower generation. These reductions are somewhat offset by increases in generation at Detroit Dam due to decreased spill at this location.

Figure 2-3. 73-Year Average Generation: Difference in Generation of ALT1 from the NAA.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.
Source: HYDSIM modeling results.

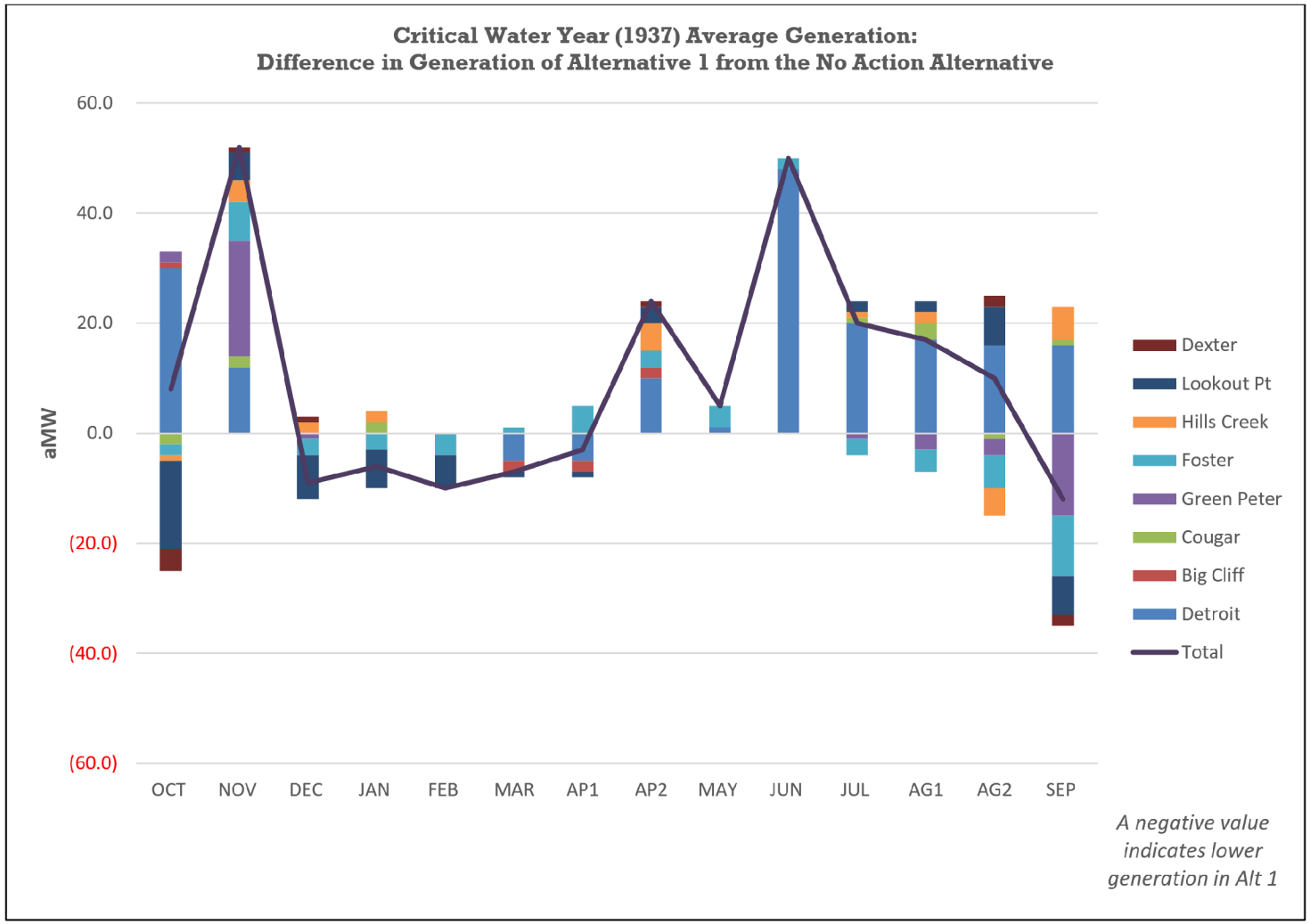

Figure 2-4. Critical Water Year (1937) Average Generation: Difference in Generation of ALT1 from the NAA.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.

ALT1: CRITICAL WATER YEAR (1937) VS. 73-YEAR AVERAGE GENERATION

Overall, the annual average generation (aMW) for the combined WVS projects under ALT1 was higher than the NAA by approximately 6.7 and 4.7 percent in the Critical Water Year (1937) Average Generation and 73-Year Average Generation scenarios, respectively (Table 2.2-3). Decreases in generation occurred during the months of December through May and September, which were offset by increased generation during other months. A similar pattern of decreased generation was seen for the critical water year with the exception that there were generation increases in May and the latter half of April.

Energy: ALT2A compared to NAA

Table 2.2-4 depicts the differences between ALT2A and the NAA for the 73-Year Average Generation and Critical Water Year (1937) Average Generation of the combined WVS projects. Positive differences indicate an increase, and negative differences indicate a decrease in average generation (aMW) from the NAA.

Figure 2.2-5 and Figure 2.2-6 illustrate the differences in generation of individual WVS projects between ALT2A and the NAA for the 73-Year Average Generation and Critical Water Year (1937) Average Generation, respectively. Individual project blocks indicate the amount of change in each project's monthly average generation (aMW) from the NAA. Project blocks above the zero line indicate a project under ALT2A generated more than the NAA; blocks below the zero line indicate less generation under ALT2A than the NAA. The total line indicates the difference in monthly average generation (aMW) for all WVS projects combined from the NAA.

ALT2A: 73-YEAR AVERAGE GENERATION

Table 2.2-4 indicates an annual average decrease of 4 aMW for the WVS projects combined under ALT 2A compared to the NAA. Differences in average generation of the WVS projects between NAA and ALT2A primarily result from the following:

OCT: Higher ALT2A generation at Detroit, Foster, and Lookout Point dams offsets reduced generation at Green Peter Dam, resulting in an increase of 37.7 aMW of generation in this period. Unlike in ALT2B (below), Cougar Dam generation is largely unchanged between the NAA and ALT2A in this period since downstream fish passage is provided through a structural measure (i.e., FSS) instead of operationally.

NOV - MAY: ALT2A has lower generation compared to NAA. In the winter and later spring months, Green Peter Dam is the primary driver of the change, whereas in early spring decreased generation at Hills Creek Dam lowers the net generation. Detroit, Cougar, and Dexter exhibit smaller decreases in generation.

JUN – SEPT: Higher generation at Detroit Dam is the main driver for the increased generation in ALT2A compared to the NAA during this period.

Figure 2-5. 73-Year Average Generation and Critical Water Year (CWY, 1937) Average Generation at the WVS Projects: ALT2A relative to NAA, in aMW.[1]

	AVG GEN NAA	AVG GEN ALT2A	AVG GEN Difference	CWY GEN NAA	CWY GEN ALT2A	CWY GEN Difference
Oct	134	172	38	119	136	17
Nov	230	217	-13	156	163	7
Dec	231	178	-53	80	64	-16
Jan	235	205	-30	47	39	-8
Feb	147	140	-7	67	57	-10
Mar	143	131	-12	121	78	-43
Apr I	177	151	-26	188	182	-6
Apr II	182	146	-36	227	227	0
May	222	201	-21	356	330	-26
Jun	162	189	27	264	291	27
Jul	106	126	20	111	136	25
Aug I	114	128	14	115	122	7
Aug II	118	130	12	124	129	5
Sep	151	166	15	155	177	22
Annual Average[2]	**171**	**167**	**-4**	**150**	**150**	**0**

1/ HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.
2/ The Annual Average is a weighted average to account for the different number of days in the 14 periods.
Source: HYDSIM modeling results.

ALT2A: CRITICAL WATER YEAR (1937) AVERAGE GENERATION VS. 73-YEAR AVERAGE GENERATION

Overall, the annual average generation (aMW) under ALT2A was lower than the NAA by approximately 2.3 percent in the 73-Year Average Generation scenario and there was no difference between the NAA and the Critical Water Year (1937) Average Generation (Table 2.2-4). Lower annual average generation in Alt2B was primarily driven by reduced generation at Green Peter Dam in the late fall through spring, especially in the winter months. Generation increases in summer and early fall months were primarily driven by increased outflows through turbines at Detroit Dam (associated with replacement of temperature management spills with a temperature control tower), which offset the extent of the annual average reduction.

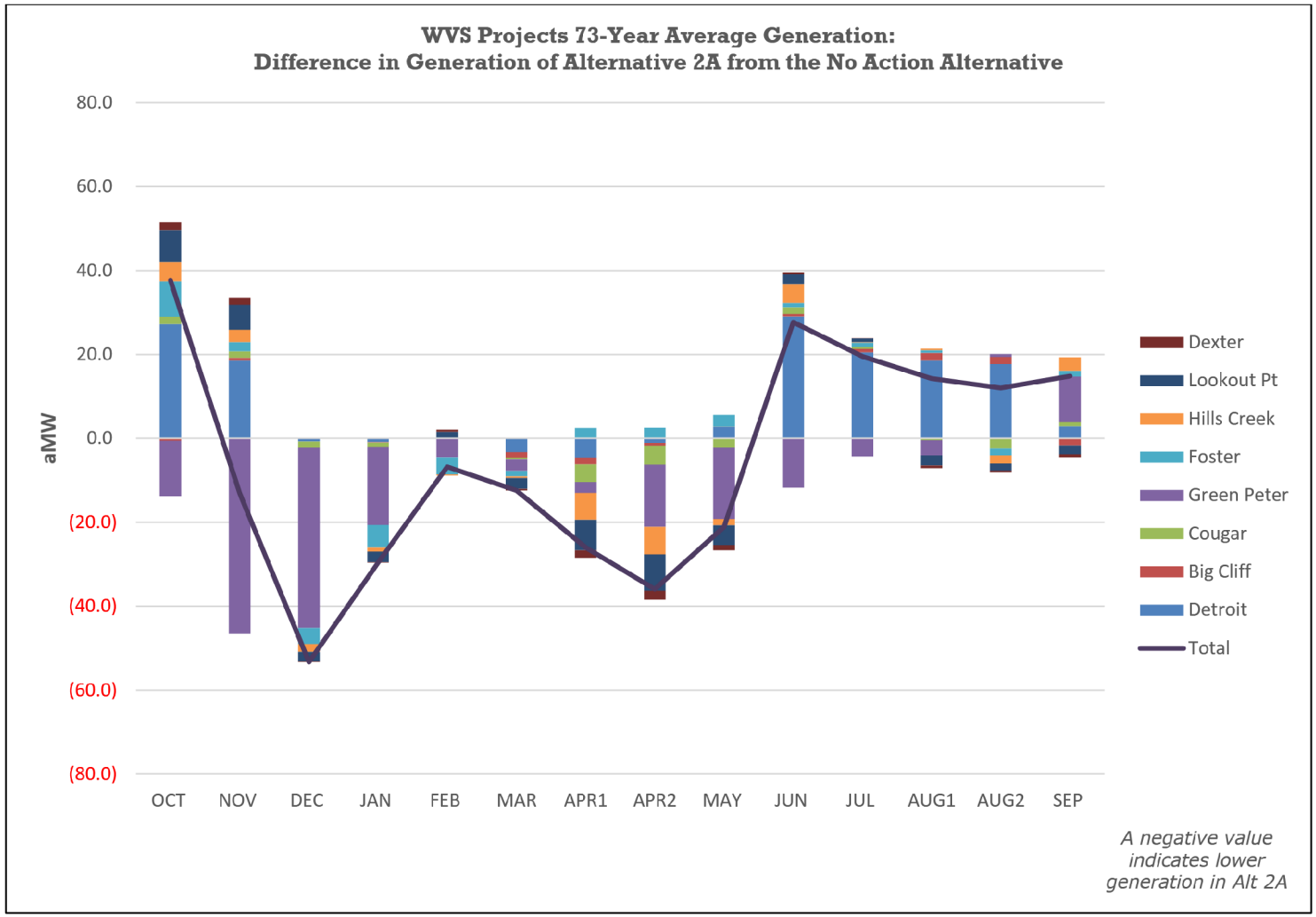

Figure 2-6. 73-Year Average Generation: Difference in Generation of ALT2A from the NAA.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.

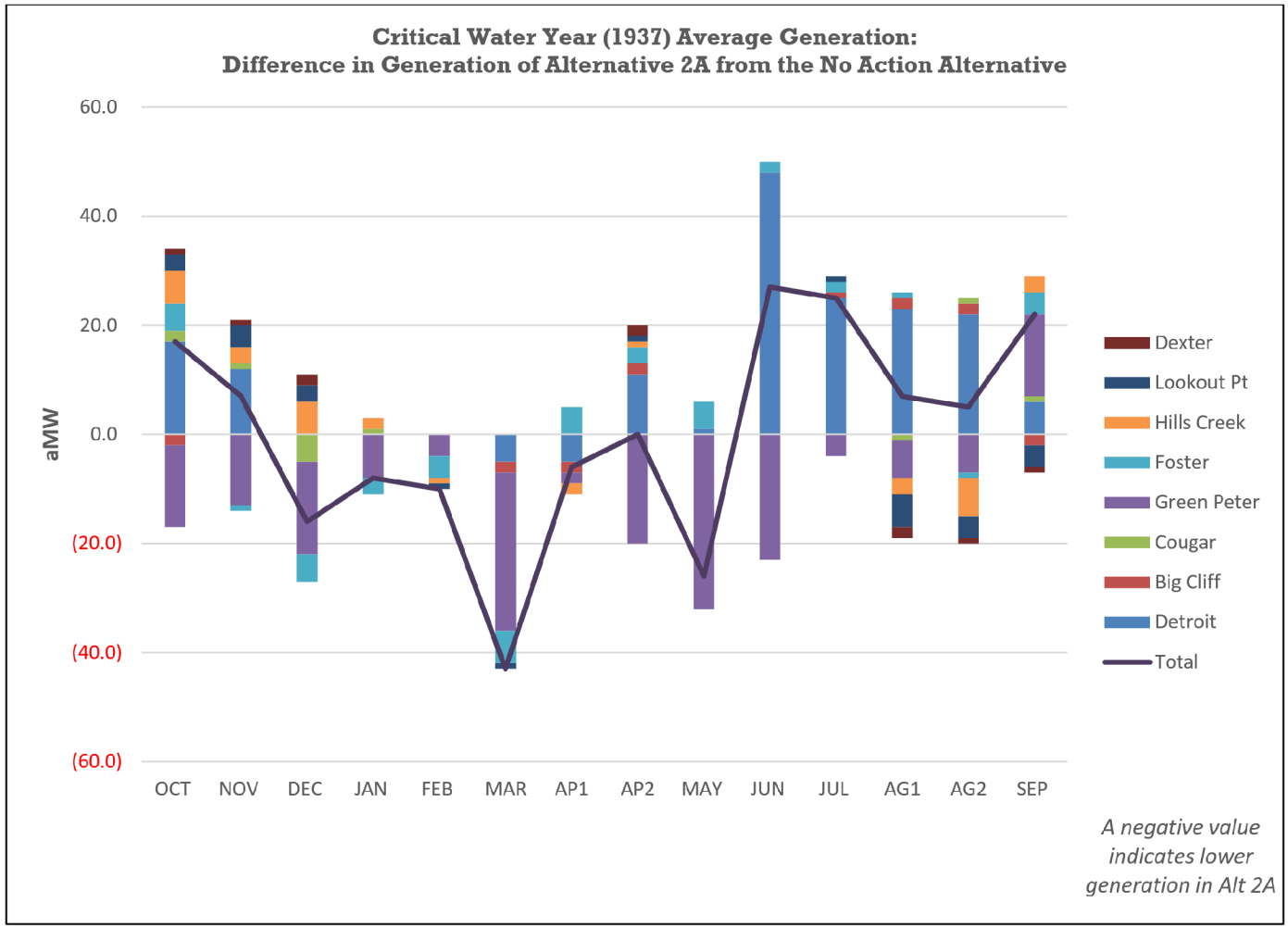

Figure 2-7. Critical Water Year (1937) Average Generation: Difference in Generation of ALT2A from the NAA.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.

Energy: ALT2B compared to NAA

Table 2.2-5 depicts the differences between ALT2B and the NAA for the 73-Year Average Generation and Critical Water Year (1937) Average Generation for the WVS projects. Positive differences indicate an increase, and negative differences indicate a decrease in average generation (aMW) from the NAA.

Table 2-4. 73-Year Average Generation and Critical Water Year (CWY, 1937) Average Generation at the WVS Projects: ALT2B relative to NAA, in aMW.[1]

	AVG GEN NAA	AVG GEN ALT2B	AVG GEN Difference	CWY GEN NAA	CWY GEN ALT2B	CWY GEN Difference
Oct	134	147	13	119	113	-6
Nov	230	189	-41	156	126	-30
Dec	231	164	-67	80	66	-14
Jan	235	199	-36	47	33	-14
Feb	147	141	-6	67	50	-17
Mar	143	121	-22	121	67	-54
Apr I	177	138	-39	188	163	-25
Apr II	182	132	-50	227	184	-43
May	222	183	-39	356	306	-50
Jun	162	169	7	264	272	8
Jul	106	115	9	111	123	12
Aug I	114	119	5	115	123	8
Aug II	118	121	3	124	127	3
Sep	151	157	6	155	179	24
Annual Average[2]	171	153	-18	150	136	-14

1/ HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.
2/ The Annual Average is a weighted average to account for the different number of days in the 14 periods.
Source: HYDSIM modeling results.

Figure 2.2-7 and Figure 2.2-8 illustrate the differences in generation of individual WVS projects between ALT2B and the NAA for the 73-Year Average Generation and Critical Water Year (1937) Average Generation, respectively. Individual project blocks indicate the amount of change in each project's monthly average generation (aMW) from the NAA. Project blocks above the zero line indicate a project under ALT2B generated more than the NAA; blocks below the zero line indicate less generation under ALT2B than the NAA. The total line indicates the difference in monthly average generation (aMW) for all WVS projects combined from the NAA.

ALT2B: 73-YEAR AVERAGE GENERATION

Table 2.2-5 indicates an annual average decrease of 18 aMW for the WVS projects combined under ALT2B compared to the NAA. Generation differences between NAA and ALT2B primarily result from the following:

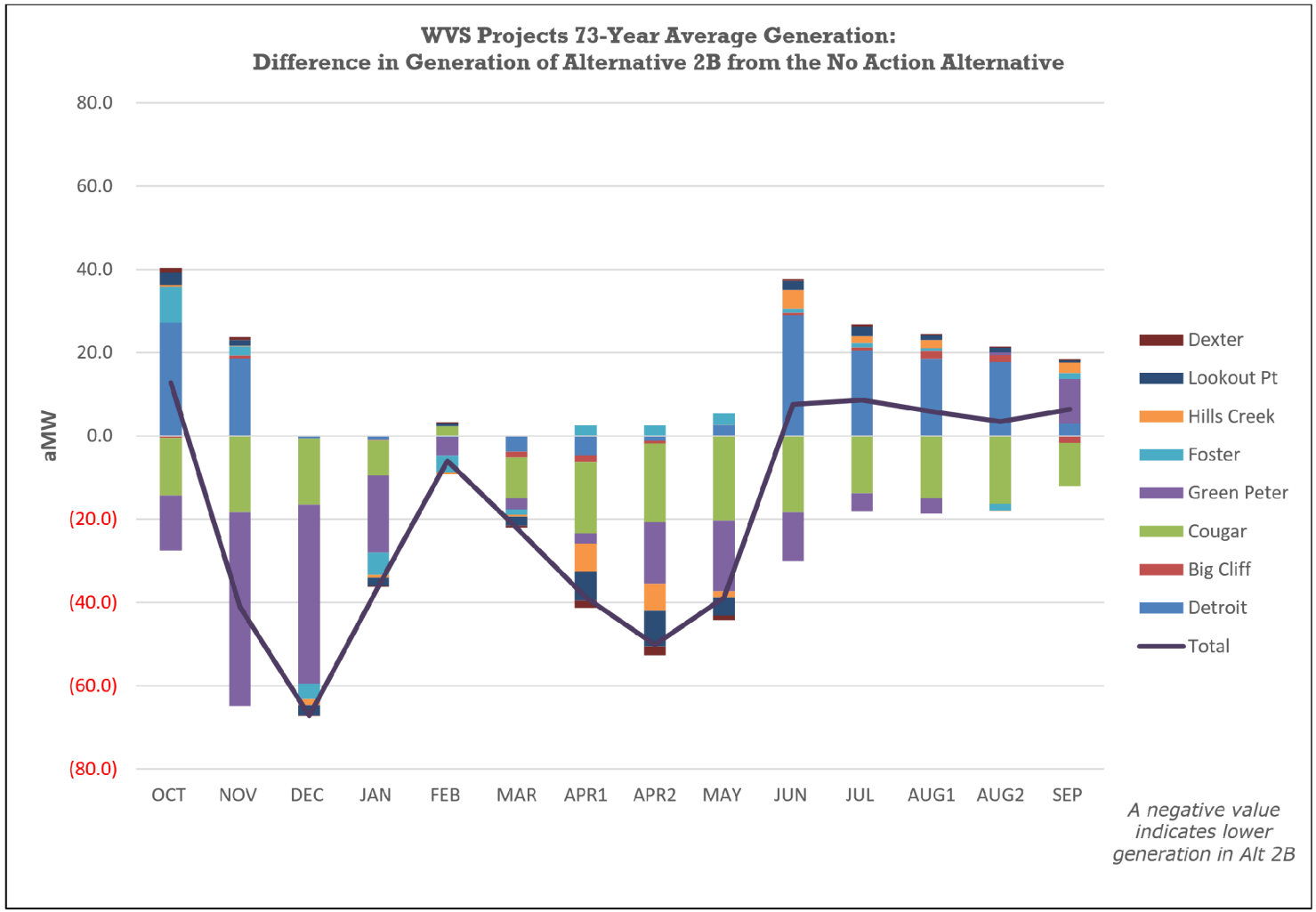

Figure 2-8. 73-Year Average Generation: Difference in Generation of ALT2B from the NAA.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.

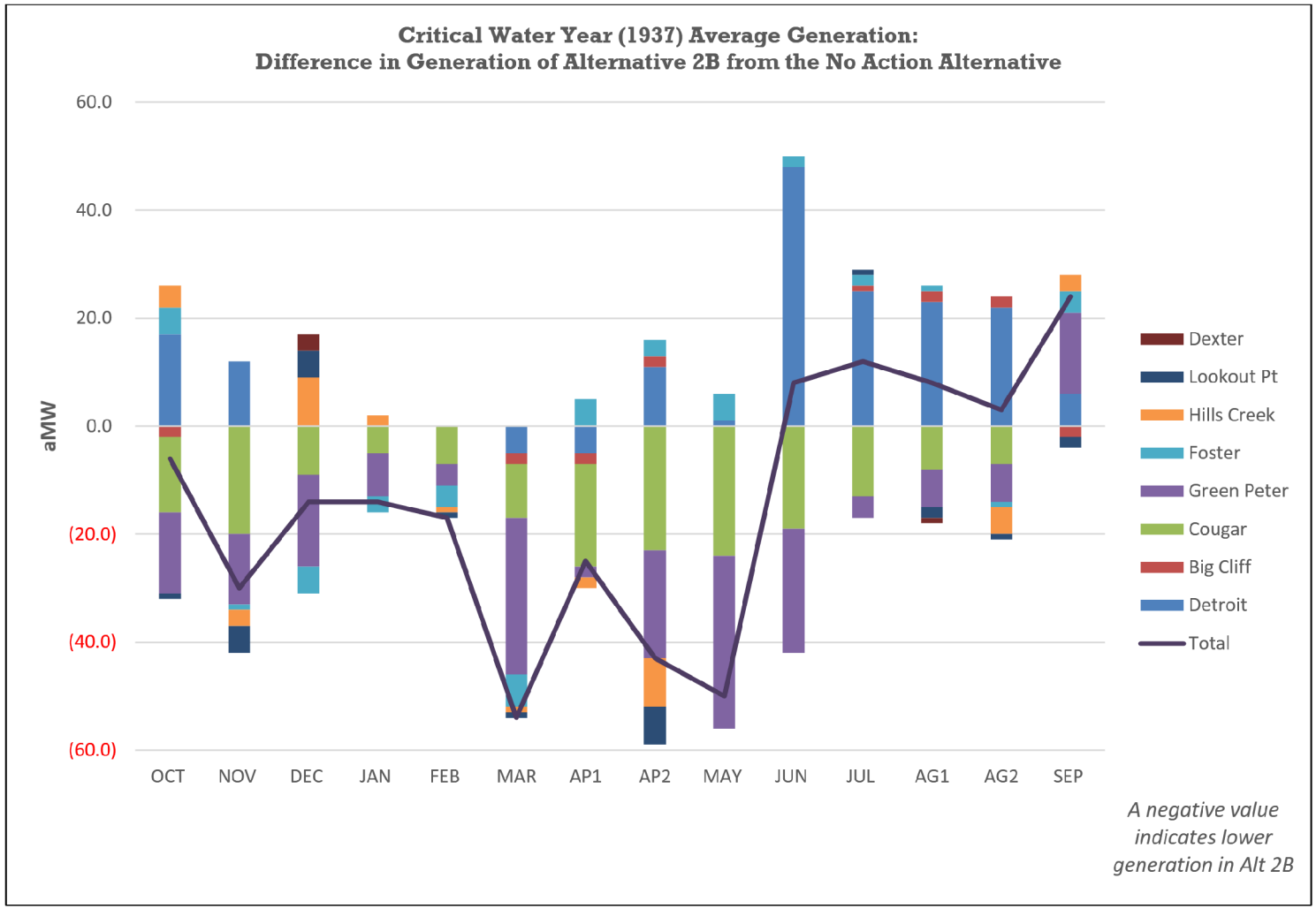

Figure 2-9. Critical Water Year (1937) Average Generation: Difference in Generation of ALT2B from the NAA.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.

OCT: Higher average generation at Detroit and Foster dams under ALT2B offset reduced generation at Cougar and Green Peter, resulting in an increase of approximately 13 aMW of generation for all WVS projects combined in October.

NOV - MAY: ALT2B has lower average generation compared to the NAA for all WVS projects combined during these months. Cougar and Green Peter dams are the primary drivers of the difference. In fact, Cougar Dam has negligible generation in all months except January and February.

JUN – SEPT: ALT2B has higher average generation compared to the NAA for all WVS projects combined during these months. Higher ALT2B average generation at Detroit and Foster dams was the largest contributor to this increase. Reduced generation at Cougar Dam and other projects moderated the increase in average generation during this period.

ALT2B: CRITICAL WATER YEAR (1937) AVERAGE GENERATION VS. 73-YEAR AVERAGE GENERATION

Overall, the annual average generation (aMW) for the combined WVS projects under ALT2B was lower than the NAA by approximately 9.3 and 10.5 percent in the Critical Water Year (1937) Average Generation and 73-Year Average Generation scenarios, respectively (Table 2.2-3). Lower annual average generation in Alt2B was primarily driven by reduced generation at Cougar and Green Peter dams in the late fall through spring, especially in the winter months. Generation increases in summer and early fall months were primarily driven by increased outflows through turbines at Detroit Dam (associated with replacement of temperature management spills with a temperature control tower), which offset the extent of the annual average reduction.

Energy: ALT3A compared to NAA

Table 2.2-6 depicts the differences between ALT3A and the NAA for the 73-Year Average Generation and Critical Water Year (1937) Average Generation for the WVS projects. Positive differences indicate an increase, and negative differences indicate a decrease in average generation (aMW) from the NAA.

Figure 2.2-9 and Figure 2.2-10 illustrate the differences in generation of individual WVS projects between ALT3A and the NAA for the 73-Year Average Generation and Critical Water Year (1937) Average Generation, respectively. Individual project blocks indicate the amount of change in each project's monthly average generation (aMW) from the NAA. Project blocks above the zero line indicate a project under ALT3A generated more than the NAA; blocks below the zero line indicate less generation under ALT3A than the NAA. The total line indicates the difference in monthly average generation (aMW) for all WVS projects combined from the NAA.

Table 2-5. 73-Year Average Generation and Critical Water Year (CWY, 1937) Average Generation at the WVS Projects: ALT3A relative to NAA, in aMW.[1]

	AVG GEN NAA	AVG GEN ALT3A	AVG GEN Difference	CWY GEN NAA	CWY GEN ALT3A	CWY GEN Difference
Oct	134	51	-83	119	36	-83
Nov	230	48	-182	156	12	-144
Dec	231	83	-148	80	22	-58
Jan	235	175	-60	47	21	-26
Feb	147	164	17	67	38	-29
Mar	143	115	-28	121	56	-65
Apr I	177	96	-81	188	125	-63
Apr II	182	71	-111	227	138	-89
May	222	45	-177	356	67	-289
Jun	162	43	-119	264	67	-197
Jul	106	53	-53	111	80	-31
Aug I	114	58	-56	115	69	-46
Aug II	118	66	-52	124	66	-58
Sep	151	92	-59	155	125	-30
Annual Average[2]	**171**	**84**	**-87**	**150**	**60**	**-90**

1/ HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.
2/ The Annual Average is a weighted average to account for the different number of days in the 14 periods.
Source: HYDSIM modeling results.

ALT3A: 73-YEAR AVERAGE GENERATION

Table 2.2-6 indicates an annual average decrease of 87 aMW for the WVS projects combined under ALT 3A compared to the NAA. Generation differences between NAA and ALT3A primarily result from the following:

SEPT – JAN: In the fall and early winter, ALT3A average generation is substantially reduced from the NAA at most projects except Foster (which had nearly double generation in October) and Dexter dams (which was unchanged). Fall deep reservoir drawdowns (Green Peter, Hills Creek, Cougar, Lookout Point, and Detroit dams) and spill operations conducted for fish passage (Green Peter, Foster, Hills Creek, Dexter, and Big Cliff dams) contribute to lower generation as a result of associated decreases in outflows through turbines.

FEB: This is the only month in which ALT3A average generation at all WVS projects combined is higher than the NAA. Higher outflows at Detroit, Big Cliff, and Cougar appear primarily

responsible for the increase in generation. Spill and reservoir drawdown operations are not in effect during this period.

MAR – AUG2: In the spring and summer, ALT3A average generation is substantially reduced from the NAA at most projects. The impact is pronounced at Detroit, Cougar, Lookout Point, and Dexter dams. In May and June, several projects have average generation values of less than 1 aMW. Deep spring reservoir drawdowns and summer surface spill operations reduce generation as a result of associated decreases in outflows through turbines. Looking at Detroit Dam operations in May over several historical water years, for example, reveals that the combination of high spill values and lower reservoir elevations in the deep drawdown regime lead to less turbine flows and less corresponding generation.

ALT3A: CRITICAL WATER YEAR (1937) AVERAGE GENERATION VS. 73-YEAR AVERAGE GENERATION

Overall, the annual average generation (aMW) under ALT3A was less than the NAA by approximately 60.0 and 50.9 percent in the Critical Water Year (1937) Average Generation and 73-Year Average Generation scenarios, respectively (Table 2.2-6). Lower annual average generation in Alt3B was primarily driven by spill operations and deep fall and spring season reservoir drawdowns, which reduced generation at several projects as a result of associated decreases in outflows through turbines. It appears that deep spring drawdown and/or summer spills in the critical water year scenario would result in greater generation reductions compared to the NAA than over the 73 year average. It is also worth noting in the ALT3A critical water year, winter generation (NOV – JAN) is less than 20 aMW for the combined WVS projects.

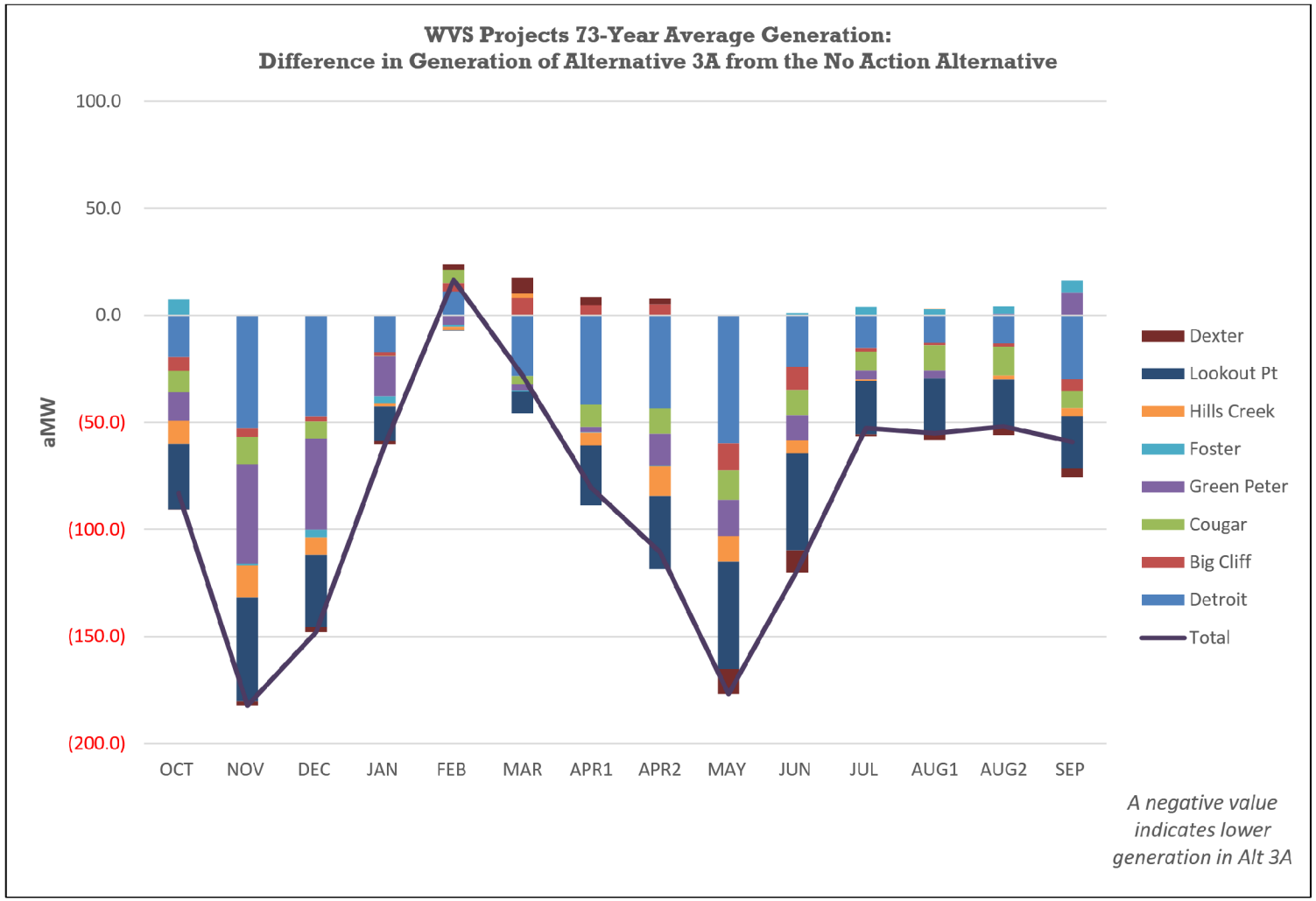

Figure 2-10. 73-Year Average Generation: Difference in Generation of ALT3A from the NAA.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.

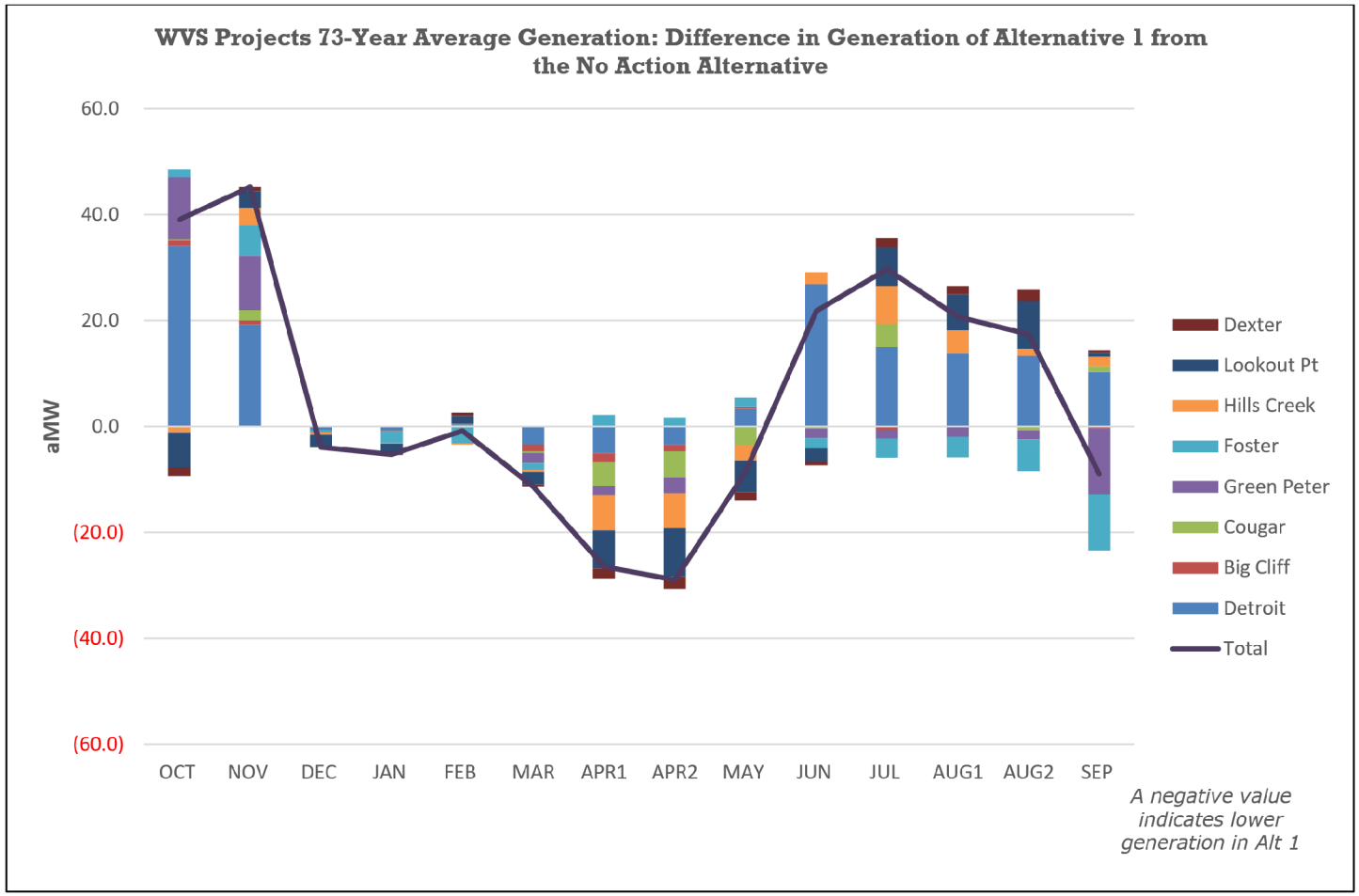

Figure 2.2-10. Critical Water Year (1937) Average Generation: Difference in Generation of ALT3A from the NAA.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.

Energy: ALT3B compared to NAA

Table 2.2-7 depicts the differences between ALT3B and the NAA for the 73-Year Average Generation and Critical Water Year (1937) Average Generation for the WVS projects. Positive differences indicate an increase, and negative differences indicate a decrease in average generation (aMW) from the NAA.

Table 2-6. 73-Year Average Generation and Critical Water Year (CWY, 1937) Average Generation at the WVS Projects: ALT3B relative to NAA, in aMW.[1]

	AVG GEN NAA	AVG GEN ALT3B	AVG GEN Difference	CWY GEN NAA	CWY GEN ALT3B	CWY GEN Difference
Oct	134	57	-77	119	45	-74
Nov	230	43	-187	156	14	-142
Dec	231	72	-159	80	17	-63
Jan	235	167	-68	47	15	-32
Feb	147	185	38	67	30	-37
Mar	143	132	-11	121	69	-52
Apr I	177	118	-59	188	106	-82
Apr II	182	82	-100	227	103	-124
May	222	68	-154	356	105	-251
Jun	162	55	-106	264	84	-180
Jul	106	62	-44	111	88	-23
Aug I	114	60	-54	115	76	-39
Aug II	118	75	-43	124	91	-33
Sep	151	112	-39	155	152	-3
Annual Average[2]	**171**	**93**	**-79**	**150**	**67**	**-83**

1/ HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.
2/ The Annual Average is a weighted average to account for the different number of days in the 14 periods.
Source: HYDSIM modeling results.

Figure 2.2-11 and Figure 2.2-12 illustrate the differences in generation of individual WVS projects between ALT3B and the NAA for the 73-Year Average Generation and Critical Water Year (1937) Average Generation, respectively. Individual project blocks indicate the amount of change in each project's monthly average generation (aMW) from the NAA. Project blocks above the zero line indicate a project under ALT3B generated more than the NAA; blocks below the zero line indicate less generation under ALT3B than the NAA. The total line indicates the difference in monthly average generation (aMW) for all WVS projects combined from the NAA.

ALT3B: 73-YEAR AVERAGE GENERATION

Table 2.2-7 indicates an annual average decrease of 79 aMW for the WVS projects

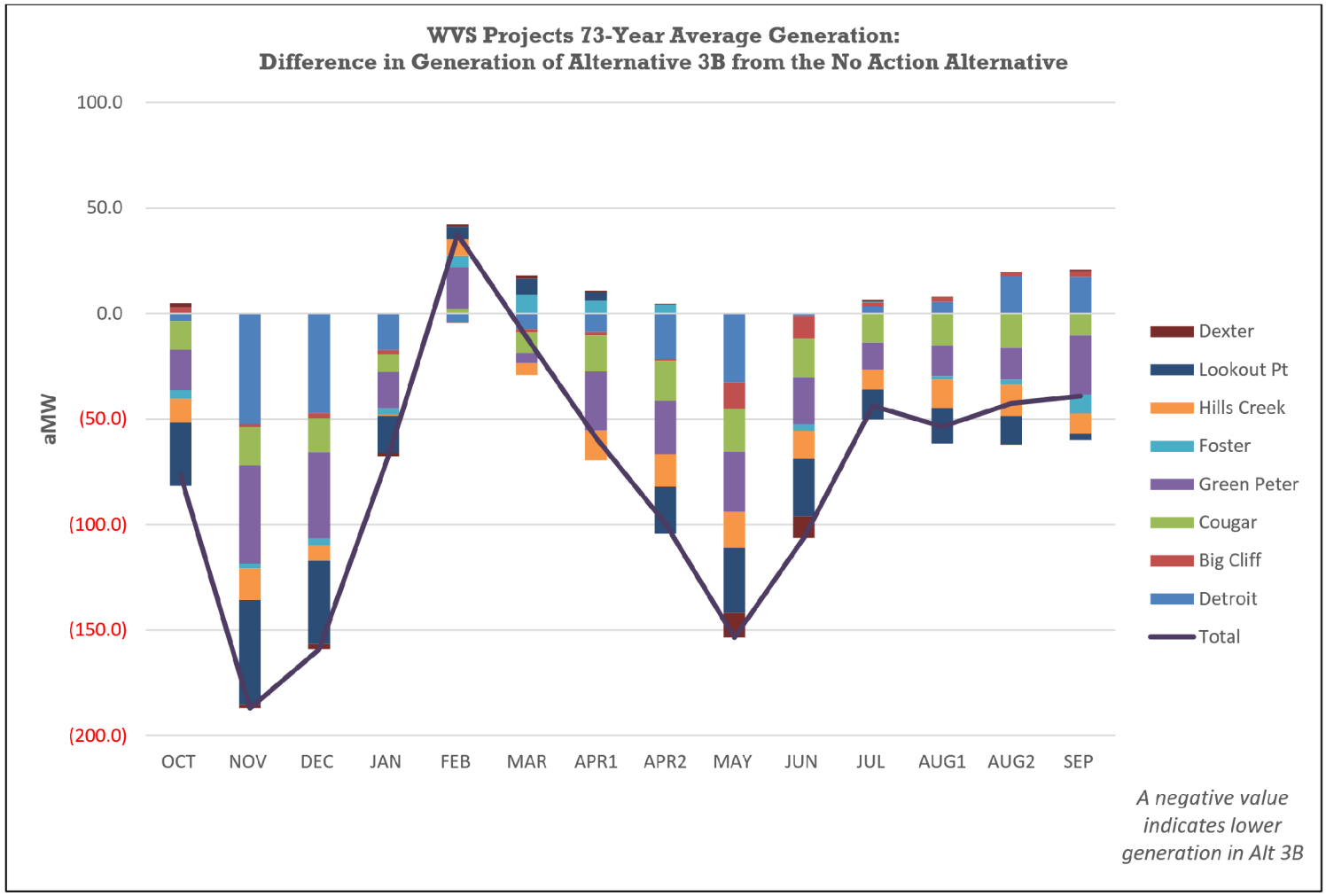

Figure 2-11. 73-Year Average Generation: Difference in Generation of ALT3B from the NAA.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.

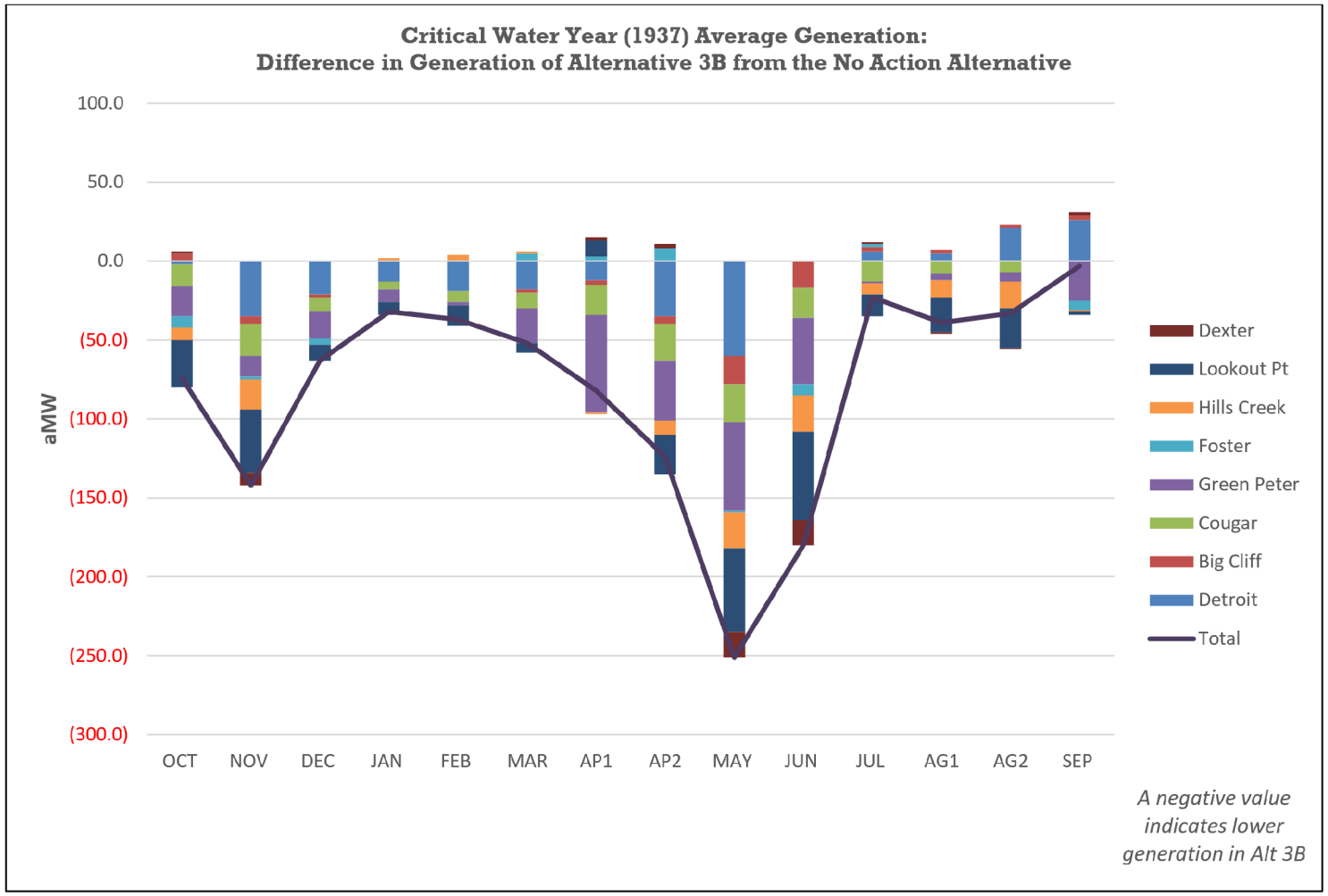

Figure 2-12. Critical Water Year (1937) Average Generation: Difference in Generation of ALT3B from NAA.

Note: HYDSIM uses a 14-period time step. April and August are split into two half-month periods because these months tend to have substantial natural flow differences between their first and second halves.

Source: HYDSIM modeling results.