Webex Accessibility tools

To enable Closed Captions



Select the **CC icon** in the lower-left of the WebEx screen

Note: CC is set individually by each person who wants to enable them.

Change font size

Select the **ellipsis** in the lower right

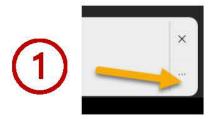
Select font size

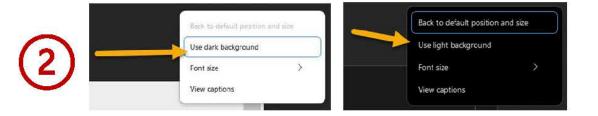
Use the slider to select the desired size



Change background contrast

- 1. Select the ellipsis in the lower right
- 2. Select the dark or light background











QUARTERLY BUSINESS REVIEW TECHNICAL WORKSHOP

November 12, 2024

AGENDA

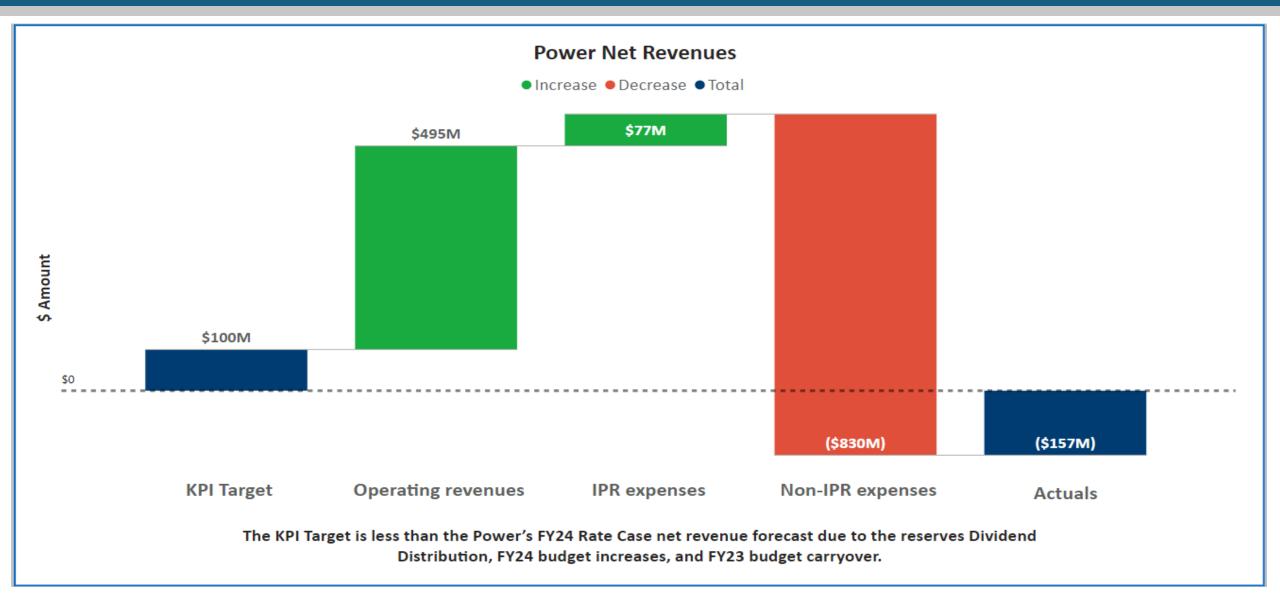
| Time | Min. | QBRTW Topic | Presenter |
|------|------|--|---|
| 1:00 | 5 | Introduction | Taryn Clouse |
| 1:05 | 15 | FY24 Results: Agency Net Revenues | Karlee Manary, Pablo Zepeda- Martinez |
| 1:20 | 10 | FY24 Results: Reserves for Risk and Reserves Distribution Clause (RDC) | Damen Bleiler |
| 1:30 | 10 | FY24 Results: Agency Capital | Heather Seibert, Gwen Resendes |
| 1:40 | 10 | Fed Hydro Capital Metrics | Wayne Todd |
| 1:50 | 10 | Transmission Capital Metrics | Jeff Cook, Mike Miller |
| 2:00 | 10 | Grid Modernization Update | Vasia Limantzakis |
| 2:10 | 15 | BPA EIM Metrics | Matt Germer, Mariano Mezzatesta, Kelii Haraguchi |
| 2:25 | 10 | Western Resource Adequacy Program (WRAP) | Matt Hayes |
| 2:35 | 15 | Columbia Generating Station (CGS) Uprate | Cherie Sonoda |
| 2:50 | 10 | Questions & Answers / Closing | Taryn Clouse |

FY24 Results: Agency Net Revenues

Presenter: Karlee Manary and Pablo Zepeda-Martinez



FY24 RESULTS: POWER NET REVENUE



QBRTW ANALYSIS: POWER NET REVENUE

FY24 results for Operating Revenues: \$495M above the target

- Gross sales were \$403M greater largely due to increases in trading floor sales driven by high prices, especially during the January cold snap.
- U.S treasury credits (4h10c) were \$147M higher than expected due to a higher forecast of modeled purchases and prices.
- Other revenues were \$42M greater due to financial swap revenues.
- Generating Inputs revenue increased by \$4M due to penalty charges, mostly from January cold snap.
- These increases are partially offset by:
 - \$77M in bookouts, which are net revenue neutral.
 - The slice true-up (included in the appendix of this presentation) is a credit to customers of \$24M, mainly due to higher revenue credits (e.g., 4h10c).

FY24 results for Integrated Program Review Operating Expenses: \$77M below target

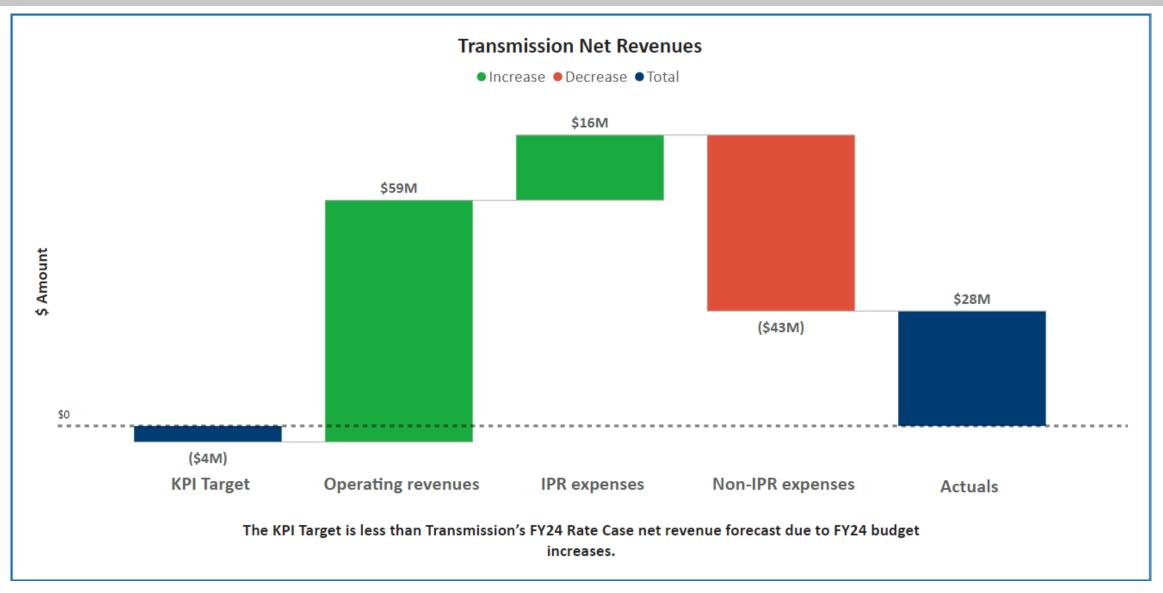
- Asset management expenses decreased \$6M primarily due to delayed invoicing from long-term funding agreement recipients, including tribes and states, as well as other delays in inter-agency costing for Fish and Wildlife. These lower costs were slightly offset by higher costs for Energy Northwest, Bureau of Reclamation and CRFM Studies.
- Operations expenses decreased \$31M primarily due to lower wind output for renewable energy purchases, lower staffing, travel and training, and lower Conservation Infrastructure program spending.
- Commercial activities decreased \$24M primarily due to Conservation Purchases program spending resulting from lower work performed in FY24.
- Enterprise Services programs decreased \$15M mainly driven by lower staffing levels than planned.

QBRTW ANALYSIS: POWER NET REVENUE (cont.)

FY24 results for Non-IPR Program expenses: \$830M above target

- Power purchases increased \$1,020M driven by the January cold snap and dry conditions leading to increased market purchases at higher prices. In addition, actual water supply was 24% less than expected, resulting in lower hydro generation.
- Depreciation and amortization, a non-cash item, were \$11M higher due to more federal and Columbia Generating Station capital being placed into service than anticipated.
- Fish & Wildlife and Lower Snake Hatcheries program spent \$9M of the Reserves Distribution Clause funding they received, which wasn't included in the target. RDC spending since the agreements were implemented are:
 - Of the \$25M FY22 F&W RDC Funds, \$3M was spent through FY24. The remaining balance is ~\$22M.
 - Of the \$25M FY22 F&W Lower Snake Hatcheries RDC Funds, \$6M was spent through FY24. The remaining balance is \$15M.
 - Of the \$30M FY23 F&W RDC, no spending has occurred and is expected to start in FY25.
- The Colville and Spokane Generating Settlements were \$9M higher due to average power sales, the actual price per megawatt hour and inflation per the Consumer Prince Index experienced in fiscal year 2023, which are factors that increased the settlement payment made in fiscal year 2024.
- These increases are partially offset by the following:
 - There were no recorded Tier 2 power purchase expenses. The target included a rate case forecast of Tier 2 power purchases of \$112M is higher than historical years due to more customers electing to put their Tier 2 load on BPA than in the past, creating a higher Tier 2 load obligation this rate period, which is being served by the FCRPS system mix.
 - Bookouts reduce Non-IPR expenses by \$77M but are net revenue neutral due to a like amount in the revenue section.
 - Lower Transmission and Ancillary Services by \$16M, mainly driven by lower total inventory.
 - Lower 3rd Party GTA wheeling expense by \$14M due to lower rate increases than expected.

FY24 RESULTS: TRANSMISSION NET REVENUE



QBRTW ANALYSIS: TRANSMISSION NET REVENUE

FY24 results for Operating Revenues : \$59M above target

- \$73M increase in sales driven primarily by:
 - Increased ancillary service revenues because of a significant increase in EIM sub-allocated charges mainly due to substantial activity during January's cold snap.
 - Increased Southern Intertie short-term revenues resulting from increased wheeling due to favorable market prices.
- \$11M increase in other revenues driven by increased reimbursable and other revenues.
- Partially offset by:
 - \$25M decrease in Inter-Business Unit revenues from Power Services driven by:
 - Lower hydro inventory than forecast in rate case resulting in a lower Short-Term Point-to-Point purchases from Transmission Services by Power Services.
 - Increased EIM Sub-allocated revenue to Power Services which experienced significant activity during January's cold snap.

FY24 results for Integrated Program Review Operating Expenses: \$16M below target

- \$4M decrease in the Asset Management and Operations programs driven by:
 - Decrease in spending on contracts resulting from unanticipated delays in establishing them and resource constraints.
 - Decrease in supplemental labor spending because of unexpected hiring delays.
- \$14M decrease in Enterprise Services programs driven by reduced spending on personnel.
- Partially offset by:
 - \$2M increase in Commercial Activities programs driven less attrition then forecasted.

QBRTW ANALYSIS: TRANSMISSION NET REVENUE

FY24 results for Non-IPR Program Expenses: \$43M above target

- \$55M increase in the commercial activities non-IPR program primarily driven by increased EIM entity scheduling coordinator settlements charges which experienced significant activity during January's cold snap, which were largely offset by higher EIM revenues.
 - Additionally, there was an increase in external reimbursable services performed, as well as the non-transfer of the Grand Coulee switchyard. The switchyard transfer was forecasted to take place at the start of FY24 but did not occur. The forecasted transfer resulted in a lower forecast non-IPR expense to the other payments to Power Services program then actuals.
- \$6M increase in amortization expense resulting from the lease accounting change in a
 previous year. This is partially offset by a \$3M decrease in depreciation expense
 resulting from less capital being placed in service during prior periods than forecast in
 the target.
- Partially offset by:
 - \$15M decrease in net interest expense and other income primarily driven by:
 - Increased AFUDC due to a higher AFUDC rate and construction work in progress.
 - Increased interest income due to significantly higher interest rates.
 - Partially offset by: Increased interest expense on federal debt and customer advances because of higher interest rates than assumed in the target.

RESERVES

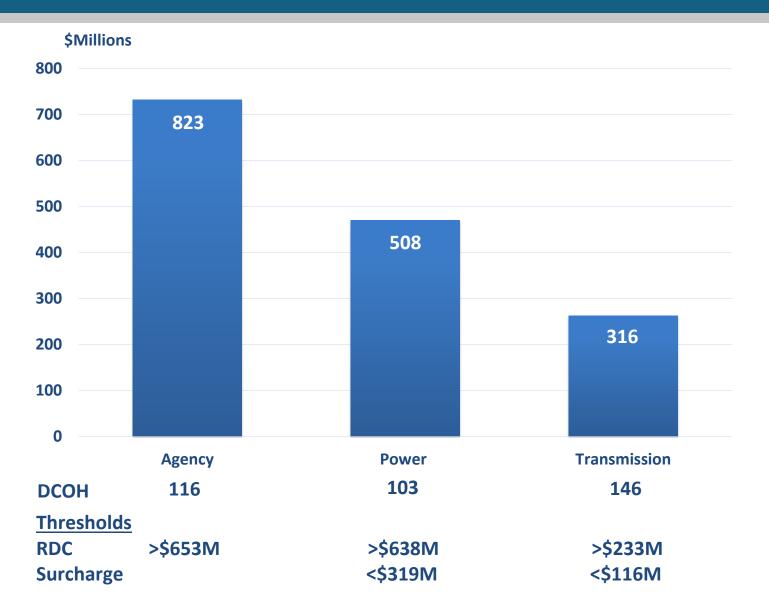
Presenters: Damen Bleiler



FY24 ACTUALS: RESERVES FOR RISK

- Share FY 2024 EOY Reserves for Risk, RFR, results by business unit
- Refresh on the Reserves Distribution Clause, RDC, process
- Review Power and Transmission RDC calculations
- Share preliminary proposal Transmission RDC amount
- Next steps

FY24 ACTUALS: RESERVES FOR RISK



FY24 ACTUALS: Reserves Distribution Clause (RDC) Process

- The Financial Reserves Policy establishes actions based on reserves levels. When reserves decline below
 established thresholds, rates increase through the Financial Reserves Policy, FRP, Surcharge and Cost Recovery
 Adjustment Clause, or CRAC. When reserves exceed established thresholds, the RDC triggers for the Administrator
 to consider repurposing them for other high-value business unit-specific purposes.
- The Power and Transmission General Rate Schedule Provisions, GRSPs, outline the RDC process and requirements. The language is the same for both business units and states:

By November 30, 2024, BPA shall complete the calculation of Power/Transmission RFR and BPA RFR as of the end of FY 2024, for use in calculating the Power/Transmission RDC applicable to rates for December through September of FY 2025.

If the Power/Transmission RDC triggers, BPA will notify customers of the preliminary Power/Transmission RDC Amount and whether the amount will be used to reduce debt, incrementally fund capital projects or other high-value Power/Transmission purposes, or reduce rates, as soon as practicable, but in no case later than November 30 of each applicable year. BPA will make available to customers the preliminary data relied upon to calculate the Power/Transmission RDC Amount.

BPA will hold at least one public meeting to discuss the calculations of Power/Transmission RFR, the Power/Transmission RDC Amount, and if applicable, the Power/Transmission DD Credit rate and Annual Power/Transmission DD Credit rate. BPA will provide customers an opportunity for comment on the preliminary data. BPA will issue the final Power/Transmission RDC Amount as soon as practicable, but in no case later than December 15 of each applicable year.

• Today we will cover: the calculations of RFR; the RDC Amount; the preliminary proposal on applying the RDC Amount; and details on the comment period.

FY24 ACTUALS: Power and Transmission FY 24 RDC

- The FY24 EOY RFR levels for Power and Transmission result in the Reserve Distribution Clause triggering for the Transmission business unit (BU) only. The RDC triggers for the lesser of:
 - The amount Agency RFR is over the Agency Threshold, set at \$653M, equivalent of 90 days cash on hand, or DCOH.
 - The amount BU RFR is over its Threshold, set at the equivalent of 120 DCOH, which is: \$233M for Transmission.
- This calculation results in a Transmission RDC as shown below.

| | Power RDC | | Transmission RDC | |
|------------------------|---------------|---------|----------------------------|--------------|
| | Agency | Power | Agency | Transmission |
| Actual RFR | \$823.3 | \$507.5 | \$823.3 | \$315.8 |
| RDC RFR Threshold | \$653.0 | \$638.0 | \$653.0 | \$233.0 |
| Amount above Threshold | \$170.3 | \$0.0 | \$170.3 | \$82.8 |
| RDC Amount | Power RDC = 0 | | Transmission RDC = \$82.8M | |

FY24 ACTUALS: Transmission RDC Preliminary Proposal

- The Transmission RDC Amount = \$82.8M
- Staff proposes to apply \$82.8M to flexible debt reduction.
 - Focus on Financial Plan goals The Sustainable Capital Financing Policy includes the goal of achieving agency and business unit debt-to-asset ratios of no greater than 60% by 2040. Transmission is now projected to be ~74% in 2040 with the inclusion of the Evolving Grid 1.0 projects.
 - Evolving Grid 2.0 projects are estimated to be an additional ~\$3B in spending.
 - Due to the combination of increased capital expenditures and slightly higher interest rates, Transmission interest expense is projected to roughly double from BP-24 to BP-26.
 - Making the additional debt payment in FY25 would reduce interest expense at current rates (~4.5%) by ~\$3.7M per year starting in FY26.

FY24 ACTUALS: RESERVES FOR RISK

RDC Timeline

- 11/12 QBR/TW announce RDC Amount and preliminary proposal for application.
- 11/22 Comment period closes.
- 12/13 Expect final RDC decisions to be announced.

Next Steps

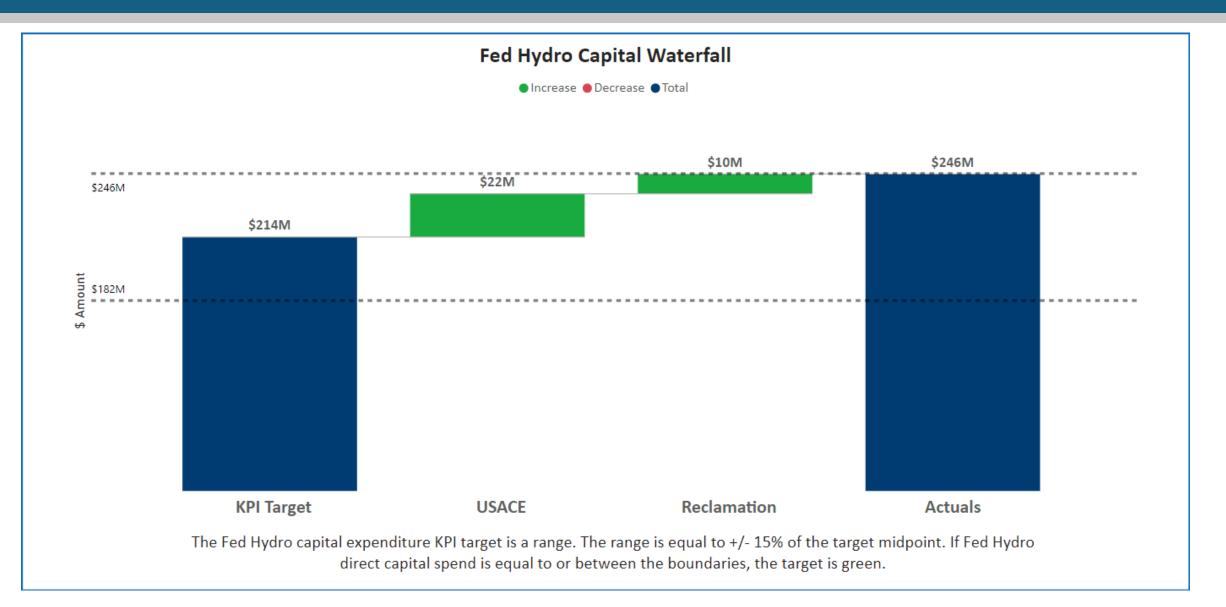
- BPA comment period closes at 5:00 p.m. on November 22, 2024. Please submit your comments at <u>Public Comments (www.bpa.gov/comment)</u>.
- If you have questions, please contact <u>Communications@bpa.gov</u> and cc your Account Executive with the subject: RDC comments.

FY24 Results: Agency Capital

Presenters: Heather Seibert and Gwen Resendes



FY24 RESULTS: FED HYDRO CAPITAL

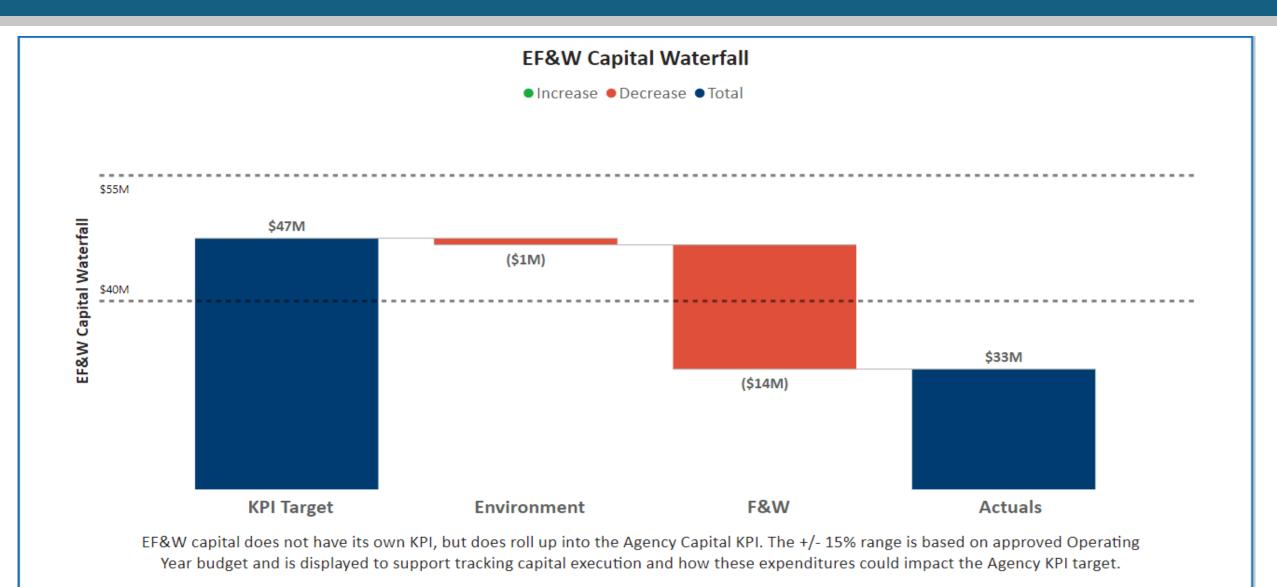


QBRTW ANALYSIS: FED HYDRO

Power Fed Hydro direct capital forecast increased \$32M overall in FY24 compared to the KPI Target midpoint primarily due to:

- \$22M increase in the United States Army Corps of Engineers due to work ramping up at McNary Dam's major projects, including turbine design and replacement, powerhouse control system upgrade, and spillway gate hoist replacement.
- \$10M forecast increase in the Bureau of Reclamation due to ramping up of large projects such as the Grand Coulee Dam K22 transformer replacement and the Chief Joseph Dam generator rewinds.
- There were 35 milestones completed, against a target of 25. There will be more on this in the Fed Hydro metrics slides later in the presentation, but a quick couple of highlights includes:
 - Six assets were placed into service in Q4, including the Bonneville Dam Power House 2 elevators and the Grand Coulee firehouse; and
 - Projects completed include the design work for the Grand Coulee K21-K24 transformer replacement.

FY24 RESULTS: EF&W CAPITAL



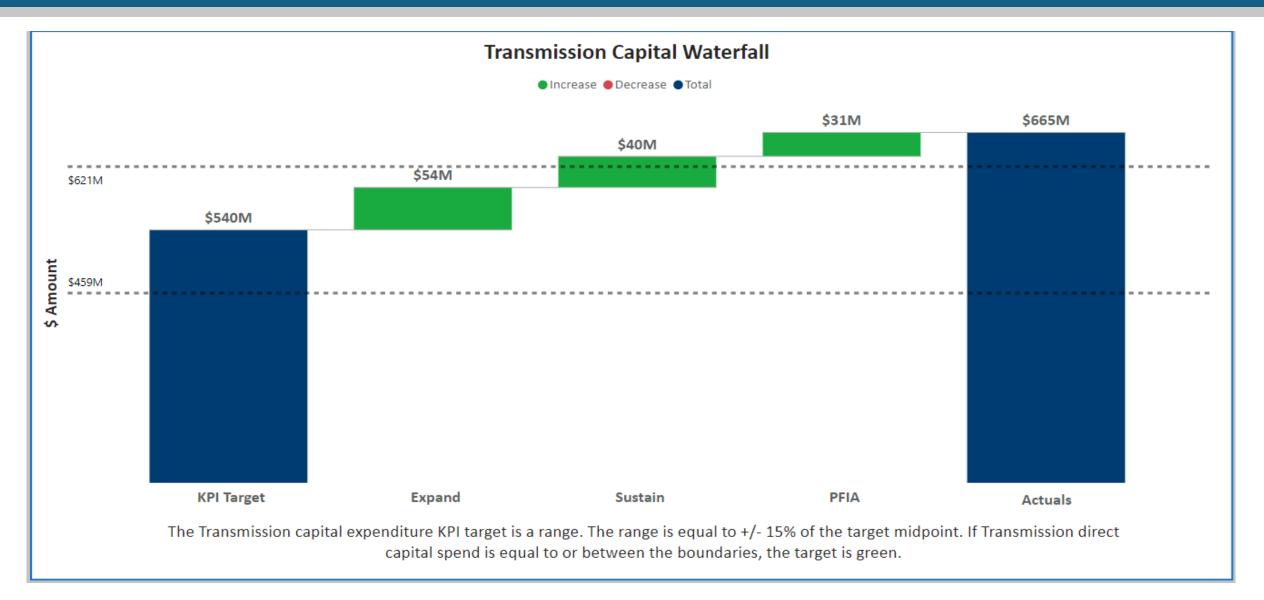
BONNEVILLE POWER ADMINISTRATION | QBRTW

QBRTW ANALYSIS: EF&W

Environment, Fish and Wildlife direct capital decreased \$15M overall compared to the target midpoint primarily due to:

- \$1M decrease in Environment.
- \$14M decrease in Fish and Wildlife due to hatchery project delays, partially balanced out by higher-than-expected land purchases.
 - F&W expects to accomplish this work in FY25 in addition to other work planned for FY25.

FY24 RESULTS: TRANSMISSION CAPITAL

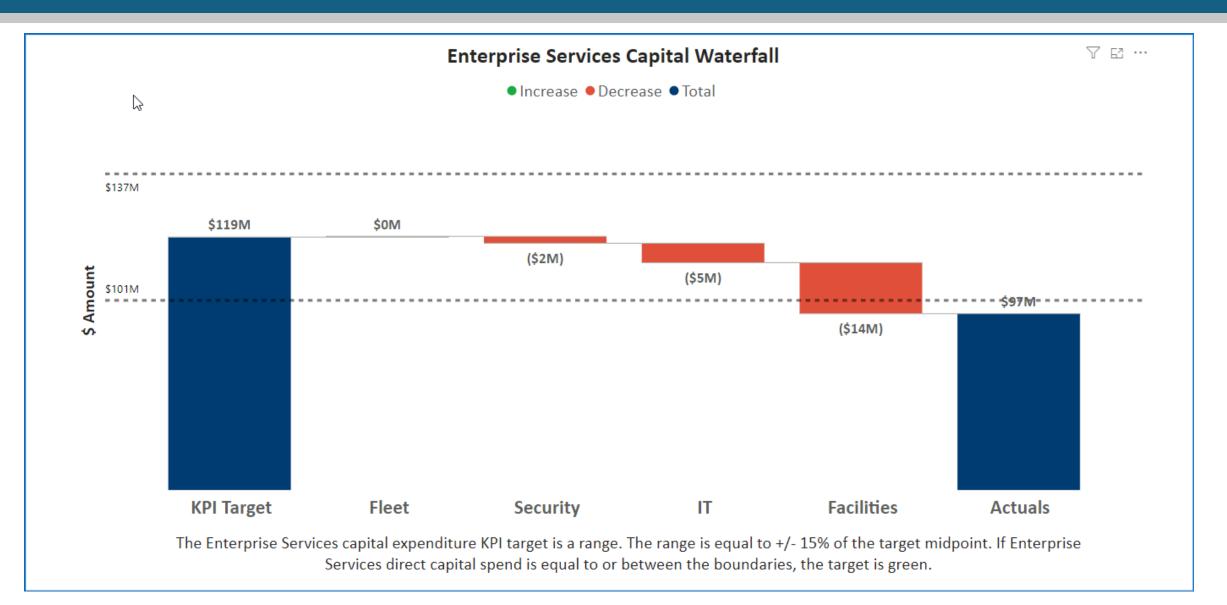


QBRTW ANALYSIS: TRANSMISSION

Transmission's direct capital end-of-year actuals were \$125M higher than the KPI target midpoint broken down as follows:

- Transmission's Expand program finished the year \$54M higher than the target. This was primarily due to success in multiple projects including Longhorn and Midway-Ashe, which ended the year slightly ahead of schedule, as well as the Schultz Wautoma Series Capacitor project which energized earlier this year increasing our Available Transfer Capacity, or ATC, and enabling Transmission Service Requests that have been waiting on its energization.
- Transmission's Sustain program finished the year \$40M higher than the target. Most of this work was in substation replacements which included critical infrastructure projects, wood pole replacements, mission critical IT, and outage management systems. Transmission also invested in access roads, telecommunications, fiber upgrades, as well as a replacement aircraft which was purchased in May.
- Transmission's PFIA ended the year \$31M higher than the target. This is primarily driven by the customer funded work on the Longhorn project which accounted for 60% of PFIA expenditures. Additionally, Transmission also invested in the PGE Keeler-Horizon line, the customer funded portion of Midway-Ashe, as well as investments in support of our customers' wind and solar projects.

FY24 RESULTS: ENTERPRISE SERVICES CAPITAL



QBRTW ANALYSIS: ENTERPRISE SERVICES

Enterprise Services direct capital end-of-year actuals were \$22M below than the KPI target midpoint broken down as follows:

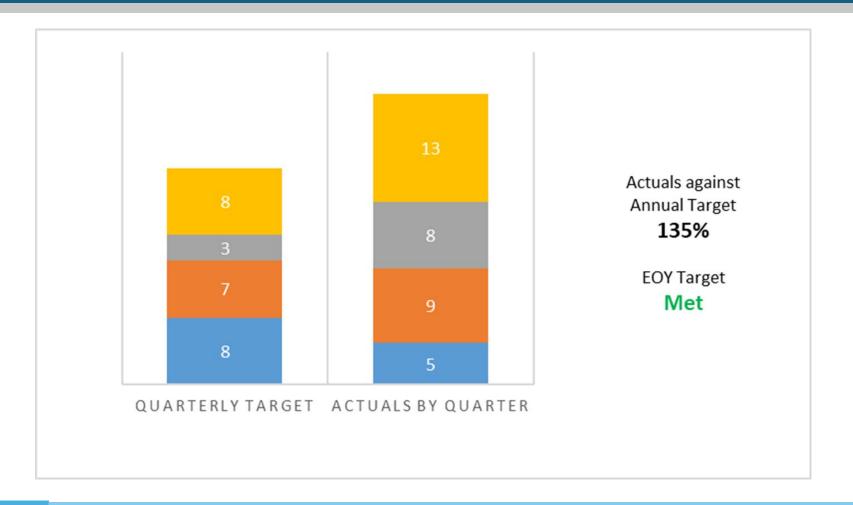
- Security ended the year \$2M below their target. Major investments were within the Keeler and Marion projects which accounted for 92% of Security's total expenditures for FY24.
- IT ended the year \$5M below their target. The variance to the target is primarily driven by a shift in direction on several Transmission and Power specific projects. Most investments were seen within the corporate category, primarily the Customer Billing Center, Financial Planning and Analysis Cloud projects and Simple Capital Procurement program, which accounted for 91% of IT's total expenditures.
- Facilities ended \$14M below their target. Vancouver Control Center and the Ampere demo were the two largest projects, accounting for 78% of Facilities total expenditures for the year. The variance to target was primarily due to the Ross Fuel Island and Stormwater projects not moving forward in FY24.

FEDERAL HYDRO CAPITAL METRICS

Presenter: Wayne Todd



FED HYDRO CAPITAL MILESTONES



Key Takeaway: End-of-year target met. This year, we added 'Design Completion' and 'Contract Award' milestones rather than only tracking 'Assets Placed Into Service'.

FED HYDRO CAPITAL PROJECT MILESTONES

| Capital Projects | Target Milestone | Status |
|--|--|-----------------|
| TDA Thrust Bearing Oil Coolers | Physical Completion | Delayed to FY25 |
| BCL CERCLA | Award Contract | Delayed to FY25 |
| BCL CERCLA | Physical Completion | Delayed to FY25 |
| BON 1 Main Unit Breaker Replacement | Award Contract | Delayed to FY25 |
| DEX Intake Gantry Crane | Physical Completion | Delayed to FY25 |
| JDA Generator Cooling Water System | Award Contract | Delayed to FY25 |
| BON 2 Bradford Island Service Building PRQ Switchgear Upgrade | Award Contract | Delayed to FY25 |
| GCL P1-P6 Exciters, Relays & Controls, PG7-PG12 Governors, Exciters, Relays & Controls | Physical Completion | Delayed to FY29 |
| CHJ Powerbus- Units 1-16 | Award Contract | Delayed to FY25 |
| GCL LPH/RPH Bridge Crane Replacement #3207 | Physical Completion | Delayed to FY25 |
| CHJ Exciter Replacement Units 1-16 | Award Contract | Delayed to FY25 |
| LMN Transformer T2 Oil Replacement and Bushing Repair | Physical Completion | Complete |
| MCN Intake Gantry Crane 5 Replace (McMod) | Physical Completion | Complete |
| MCN Tailrace Gantry Crane 4 Replace (McMod) | Physical Completion | Complete |
| MCN Station Service Turbine Rehab | Physical Completion, SS01 | Complete |
| GCL LPH/RPH Cyclops Semi-Gantry Crane Replacement #3917 | Complete Design | Complete |
| MCN Spillway Deck Safety Handrail | Complete Design | Complete |
| BON 1 Metering Enhancements | Complete Design | Complete |
| MCN Spillway Deck Safety Handrail | Award Contract | Complete |
| HCR Spillway Gate Rehabilitation - | Physical Completion - Gate 3 | Complete |
| GCL Radio System Modernization #3918 | Independent Estimates Contract Awarded | Complete |
| JDA Fish Pumps Emergency Repair | Physical Completion Unit 3 | Complete |
| MCN Levee Drainage Pump Station Upgrades | Award Contract - Pumps/Motors/MCCs | Complete |

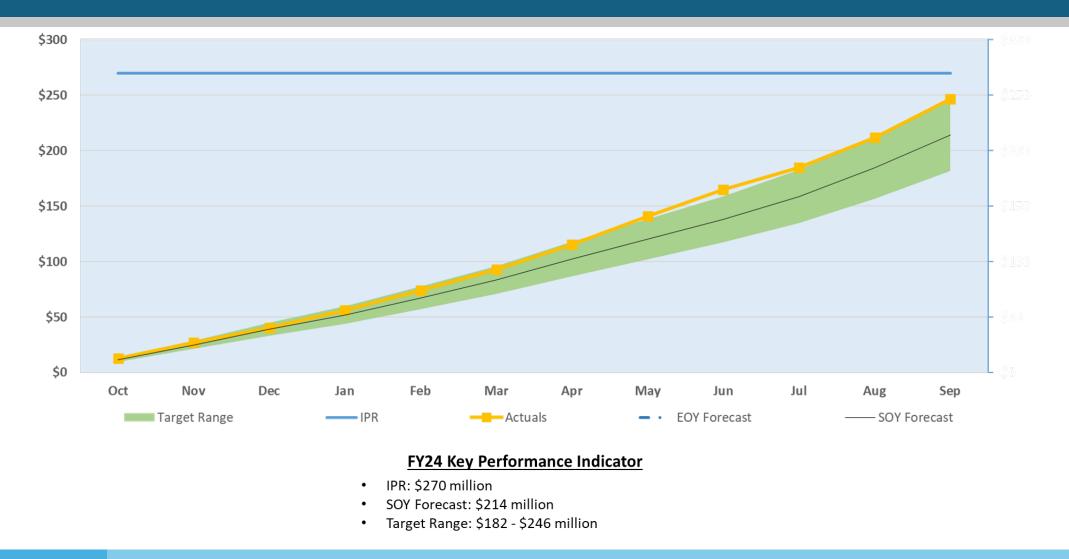
Key Takeaway: Overall a successful year regarding milestone completion.

FED HYDRO CAPITAL PROJECT MILESTONES

| Capital Projects | Target Milestone | Status |
|--|-------------------------------|----------|
| LGS Headgate Repair Pit Upgrade | Physical Completion | Complete |
| JDA Control Room Fire Protection Upgrades | Physical Completion | Complete |
| LMN PH Bridge Crane Wheel and Drive System Upgrade | Complete Design | Complete |
| CHJ Tailrace Crane | Physical Completion | Complete |
| LWG Stilling Basin Sediment Removal | Complete Design | Complete |
| LMN Stilling Basin Sediment Removal | Complete Design | Complete |
| GCL TPP K21-K24 Transformer Replacement #2976 | Complete Design | Complete |
| MCN Spillway Gate Hoist Replacements | Contract Award - Ph2a | Complete |
| LMN Fire Damaged Components Replacement | Physical Completion | Complete |
| HGH G1-4 Static Exciters | Design Complete | Complete |
| DEX Intake Gantry Crane | Physical Completion | Complete |
| BON Spillway Gate Repair & Storage Pits | Award Contract | Complete |
| LGS Trashrake Crane and Rake Upgrade | Physical Completion | Complete |
| LMN Trashrake Crane and Rake Upgrade | Physical Completion | Complete |
| LWG MU2 Blade Sleeve Upgrade and Rehab | Complete Design | Complete |
| CHJ Debris Boom | Physical Completion | Complete |
| CHJ Turbine Oil and Pipe Replacement | Physical Completion | Complete |
| GCL Powerplant Battery Replacement | Award Contract 1 | Complete |
| MCN Machine Shop Temporary Roof Repair | Complete Design | Complete |
| BON 2 Elevators Rehabilitation | Physical Completion | Complete |
| IHR Intake Gate Hydraulic System Upgrades | Complete Design | Complete |
| BON 1 Oil Accountability Inspections and Repairs | Main Unit 4 Return to Service | Complete |
| BON 1 Metering Enhancements | Award Contract | Complete |

Key Takeaway: In FY25, we will only report on "major" project milestones, those with a price tag above \$10 million.

FED HYDRO CAPITAL SPEND



Key Takeaway: Finished the year at the top of the acceptable capital execution range, just under \$246 million.

FED HYDRO CAPITAL BREAKDOWN BY PHASE OF WORK

ACTIVE PROJECTS BY PHASE OF WORK:

Phase 1a (scoping and alternatives analysis): Phase 1 (design): Phase 2 (construction): 53 (21% of projects, 5% of budget)36 (14% of projects, 9% of budget)160 (64% of projects, 86% of budget)

HIGHLIGHTS:

- Work is ramping up at McNary, making up about one quarter of total spend this FY
- Generator Windings at Chief Joseph are underway

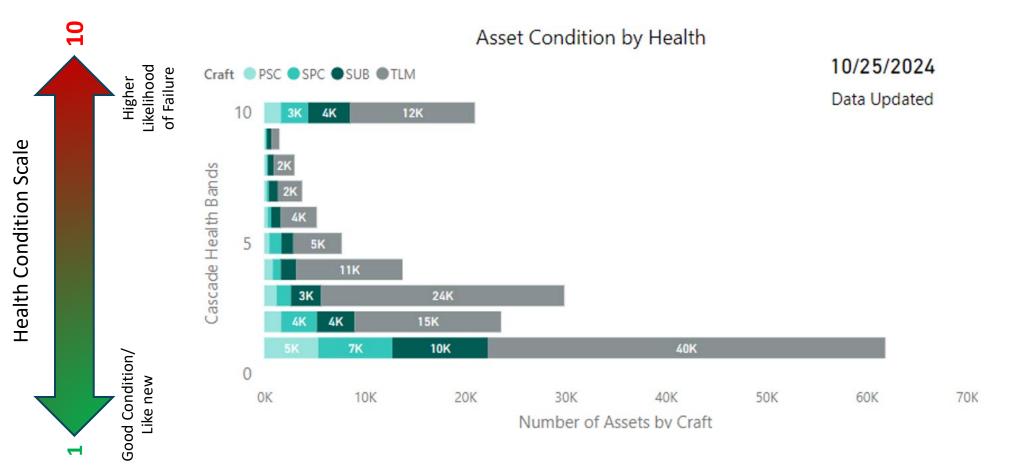
249 active projects in hydro portfolio.

Key Takeaway: Larger projects are going to create a solid floor for annual capital spend for the foreseeable future.

TRANSMISSION SERVICES CAPITAL METRICS

Presenters: Jeff Cook and Mike Miller





PSC: Power System Control, SPC: System Protection Control, Sub: Substation, TLM: Trans Line Maintenance

Transmission's health scoring methodology is most mature for substations and some lines assets, or about 40% of the assets included in Transmission's sustain program.

ASSET MANAGEMENT METRIC MATURITY

| FY24-25 | FY25+ | | |
|---|---|---|--|
| Foundation | Capabilities | Analysis & Metrics | |
| Comprehensive analysis resulting in clarity around: How many assets (350,000 +) What systems of record apply Where data elements are sourced | Developed comprehensive manual risk-based decision-making methodology to compare assets and projects against one another. Calibration and data validation activities will continue in FY25 | As the methodology is increasingly refined and applied, we will evaluate and propose portfolio, project, and/or asset metrics for internal and external tracking. | |

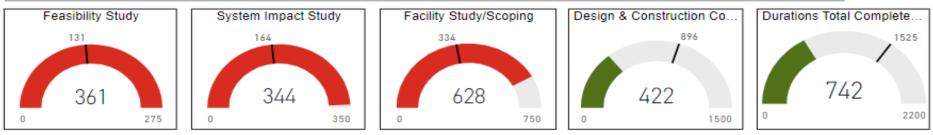
BPA will ultimately acquire a Transmission Portfolio Optimization Tool for automation of risk-based decision-making functionality that will further guide future internal and external metrics.

CUSTOMER DURATION METRIC

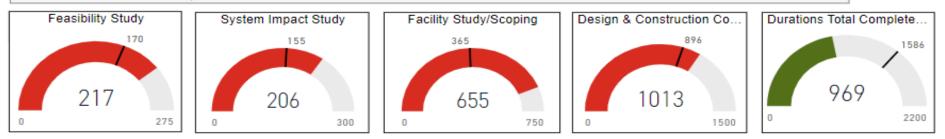
Small Generation Interconnection projects: Projects with an aggregation of generators, whose single or combined generating capacity is > than 0.2MW and = to or < 20MW



Large Generation Interconnection Projects: Projects with an aggregation of generators, whose single or combined generating capacity is greater than 20MW



Line and Load Interconnection Projects: Projects can be a customer owned line terminated at a BPA facility, a tap of a BPA owned line or other plans of service



Includes LGI, LLI, SGI projects with a Queue date on or after 01/01/2015

Optimal performance is below the lines, which denote the target ceiling levels

* Completed Projects Only

BONNEVILLE POWER ADMINISTRATION | QBRTW

CUSTOMER DURATION METRIC (NEW)

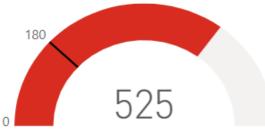
750

750

FAS Study Completion by Year

PCM Process | FAS with CDD (48 Projects)





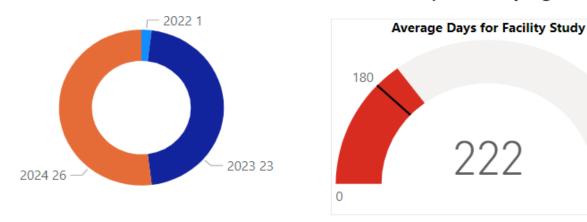
Primary Capacity Model (Internal Scoping Resources) Includes LGI, LLI, SGI projects with a Queue date on or after 01/01/2017

Optimal performance is below the lines, which denote the target ceiling levels

Completed Projects Only

Does not includes the time projects were waiting for Scoping Resources prior to New Process starting

FAS Study Completion by Year

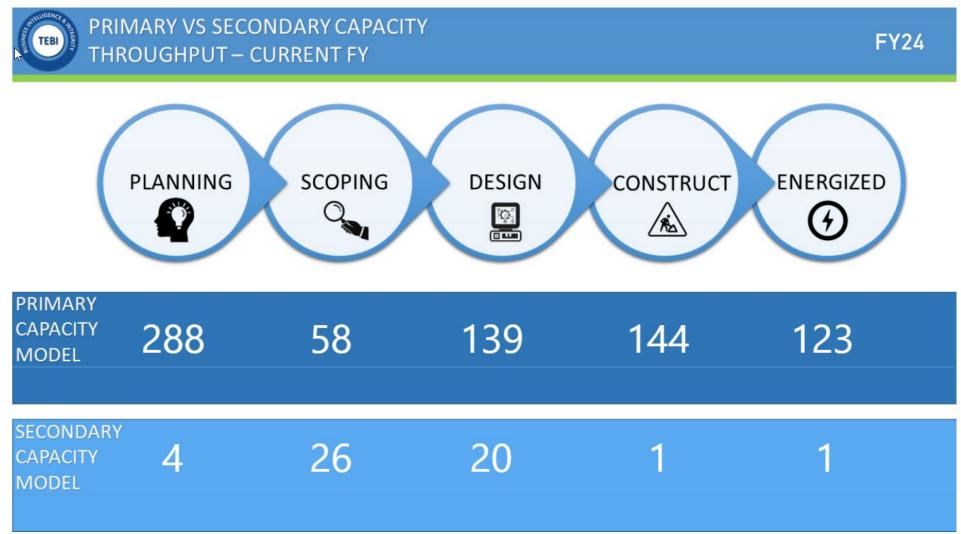


ECM Process | FAS/Scoping No CDD (40 Projects)

Engineering Capacity Model (Internal Consulting Resources)

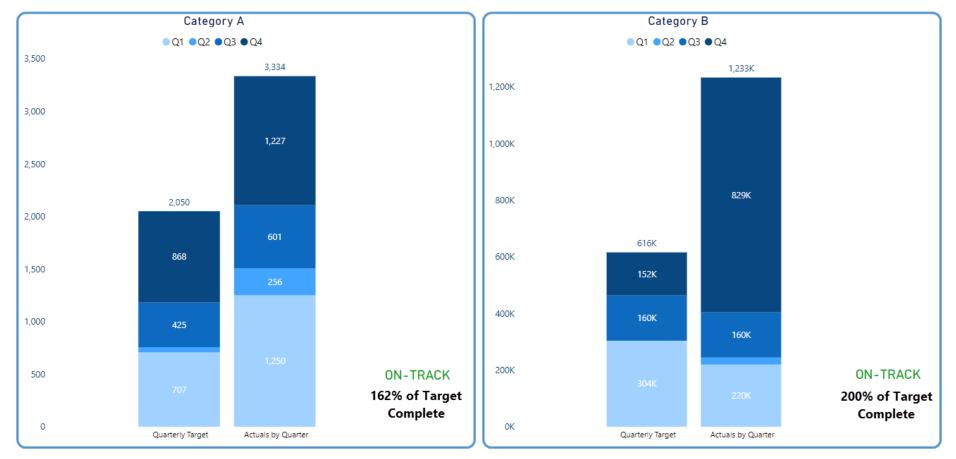
PRIMARY VS SECONDARY CAPACITY THROUGHPUT

Transmission as of FY24 Q4:



CAPITAL ASSETS PLANNED VS COMPLETED

Transmission as of FY24 Q4:



Key Takeaway: On track

WORK PLAN COMPLETE

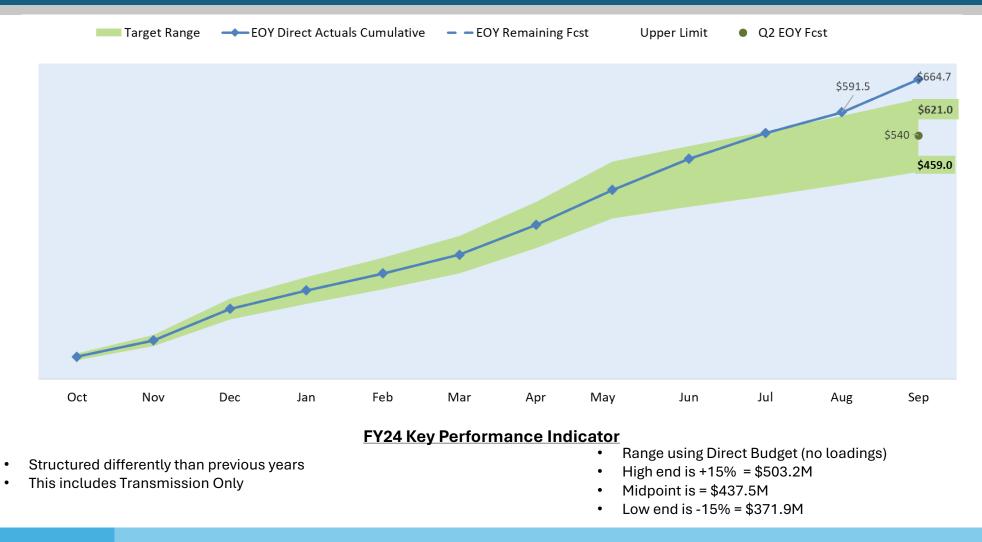
Transmission as of FY24 Q4:

FY24 Capital Work Plan Complete Project Milestones

| | Priority Projects | Target Milestones | Model | On Track |
|----|--|--|-------|----------|
| Q1 | P04342 Longhorn Substation | Substantial completion of below grade construction and start of foundation | SCM | Complete |
| | | | | |
| Q2 | P03890 Vancouver Control Center | Receive contractor estimate for VCC | PCM | Complete |
| | P05157 FIN Remediation | 80% of design complete for South Region | PCM | Complete |
| | P00621 Hot Springs-Rattlesnake rebuild | Complete Phase 1 Land Rights Analysis | PCM | Complete |
| | | | | |
| Q3 | P05847 Bonanza Substation | Award OC Scoping contract | SCM | Complete |
| | P01361 New Midway-Ashe 230 kV line | Complete tower assembly and erection | PCM | Complete |
| Q4 | P02281 Longview Integrated Project. | Cap group is Energized | PCM | Complete |
| | P04691 South Tri-Cities Reinforcement Project | Draft Environmental Review Complete | PCM | Complete |
| | P05473 Chehalis – Cowlitz Tap | Complete 20% design (scoping) | SCM | Complete |
| | P05580 Sixmile Canyon Substation (formerly West of Boardman) | Finalize preferred substation location | SCM | Complete |
| | P03999 Buckley Substation Rebuild | Complete 50% design | SCM | Complete |

Key Takeaway: On track

CAPITAL SPEND



Key Takeaway: Not on track - Transmission exceeded the top range of the targeted spend.

Grid Modernization Update

Presenter: Vasia Limantzakis



Grid Modernization Mobilization

17%

AOP & Reliability Assessment - 03.25.2025

Power Ops Log Replacement - 01.30.2025

Deliver

EIM Settlements Implementation - 12.04.2024

Agency Enterprise Portal – 06.2025

AMS Replacement - 11.30.2024

CBC Replacement - 06.2025

75%

AGC Modernization - 09.30.2023 AMS MRU Device Event Reporting - 09.13.2023 BPA Network Model – 12.13.2023 CTA Implementation – 06.30.2019 Concurrent Losses - 11.29.2023 Data Analytics - 11.29.2023 EIM Bid & Base Scheduling - 10.31.2023 EIM Real Time Operations - 08.10.2022 EIM Settlements Scoping – 10.01.2019 EIM Training Program – 08.31.2022 EIM Testing Program – 05.22.2024 ETRM & MMS Expansion – 05.13.2020 FDGDM - 09.30.2023 Load & Renewable Forecasting – 09.30.2023 Marketing & Settlements System - 06.30.2018 MCIT – Architecture – 04.22.2020 MCIT – Infrastructure – 09.29.2023 MCIT – Integration – 09.30.2020 MCIT – Service Management – 04.29.2020 One BPA Outage - 02.28.2020 Outage Management System - 10.02.2024 Outage Tracking System - 09.30.2018 Power Services Training - 12.31.2020 PRADA - 06.30.2023 RAS Automatic Arming - 08.11.2021 RC Decision, Planning & Exec. - 07.14.2021 ST Available Transfer Capability - 07.20.2022

Complete

Canceled Projects: VSA/DTC Phase 2, Real Time Ops Modernization, AEP 2, Wildfire Risk Modeling Transferred to be completed in Business Unit: MCIT-Re-Platforming (3.31.2027), Metering Review & Update (9.30.2026), Sub-Hourly Scheduling on the DC (2025)

0%

Integrate

0%

Identify

0%

Define

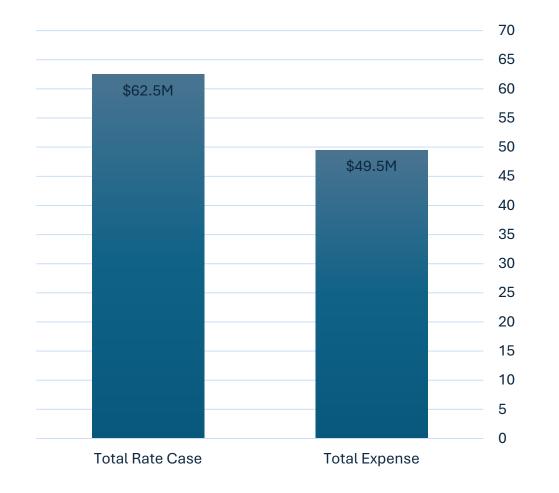
Updated: 10.11.2024 Date = Completion Date

Grid Modernization Progress Metric



- 100% of milestones for projects in deliver were complete or on track at the end of FY2024
- A milestone identifies the completion of significant events and/or key decisions associated with the grid modernization project.
 Examples include (but are not limited to) a formal project kickoff, RFO release dates, "go-live" dates for new software, targets for completing training for new processes, and project conclusion.
- The minimum to meet "green" for EOY FY24 is 90%
- Status: Green

Grid Mod Spending



BPA spent a total of \$49.5M^{*} Grid Mod Expense funding in total over the course of 5 years (FY19-FY23). Total Grid Mod expense budget was \$62.5 million.

Grid Modernization:

www.bpa.gov/learn-and-participate/projects/grid-modernization

EIM:

www.bpa.gov/learn-and-participate/projects/energy-imbalance-market

BPA EIM Metrics FY2024 Q4

> Presenters: Matt Germer Mariano Mezzatesta Kelii Haraguchi



Phase 1 Metrics

BPA committed to reporting Phase 1 metrics within six months of EIM go-live.

- 1. Report the quantity of unspecified purchases made through the EIM and the quantity of sales to California.
- 2. Report how frequently BPA passes the Resource Sufficiency (RS) balancing test, RS capacity test and RS flexibility test.
- 3. Report on EIM transfer limits and use.

Phase 2 Metrics

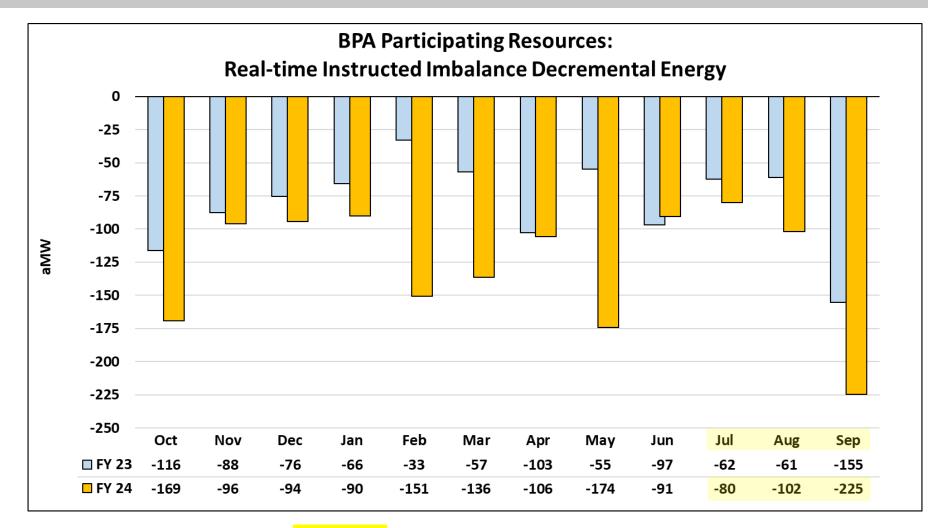
Phase 2 metrics will be reported by BP-26.

- 1. Provide data on charge code allocations.
- 2. Provide data on transmission donations and how often they are used.
- 3. Provide information on EIM impacts to BPA system carbon emission rate.
 - Reporting may transition to a different forum in the future as BPA engages on broader regional carbon issues and regulation

Metric 1: EIM unspecified purchases and sales to California

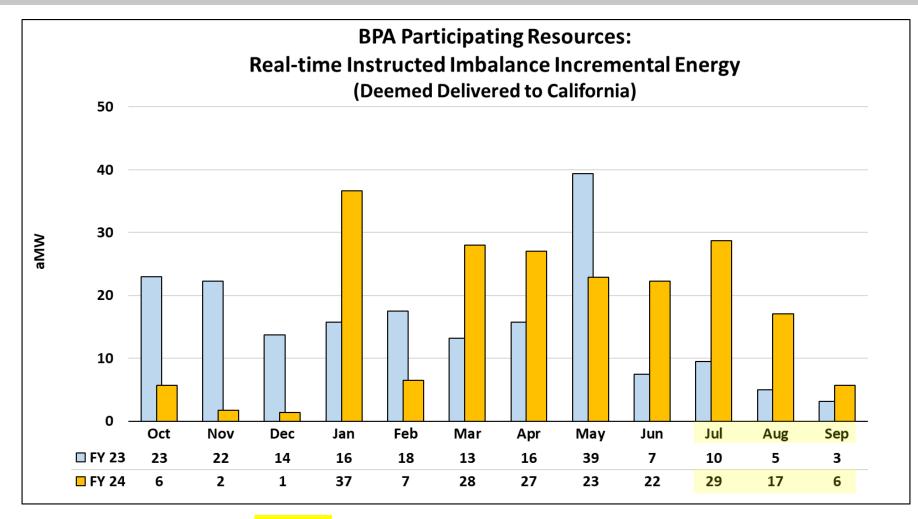


Metric 1: Unspecified purchases



- FY 24 Q4 (Jul-Sep) was -135 aMW, which compares to FY 23 Q4 (Jul-Sep) at -95 aMW
- FY 24 was -125 aMW, which compares to FY 23 at -75 aMW

Metric 1: Sales to California



- FY 24 Q4 (Jul-Sep): 15 aMW for the quarter and fiscal year
- GHG Premium: +\$16.5/MWh
- GHG Cost: -\$0.6/MWh

Metric 2: Resource Sufficiency (RS) Evaluation Pass rates



Balancing Test Results

- The Balancing Test evaluates whether the BAA scheduled within +/-1% of the CAISO area load forecast.
- A failure means the BAA scheduled outside of +/-1% of the CAISO's area load forecast.
- A failure does not mean the BAA necessarily incurred an Over/Under scheduling penalty.

Percent of hours passed/failed

| Balancing Test | Jul | Aug | Sep | Mean |
|-----------------------|--------|--------|--------|--------|
| Failed Over | 0.00% | 0.00% | 0.00% | 0.00% |
| Failed Under | 0.40% | 0.13% | 0.14% | 0.22% |
| Passed | 99.60% | 99.87% | 99.86% | 99.78% |

- The Capacity Test Over evaluates whether the BAA had sufficient upward bid range to meet the upward 15-min load imbalance.
- The over requirement is calculated as the upward imbalance between the BAA's hourly load base schedule and the 15-min CAISO area load forecast.

| Capacity Test Over | Jul | Aug | Sep | Mean |
|--------------------|---------|--------|---------|--------|
| Failed | 0.00% | 0.13% | 0.00% | 0.04% |
| Passed | 100.00% | 99.87% | 100.00% | 99.96% |

Capacity Test Under Results

- The Capacity Test Under evaluates whether the BAA had sufficient downward bid range to meet the downward 15-min load imbalance.
- The under requirement is calculated as the downward imbalance between BAA's hourly load base schedule and the 15-min CAISO area load forecast.

| Capacity Test Under | Jul | Aug | Sep | Mean |
|---------------------|---------|---------|---------|---------|
| Failed | 0.00% | 0.00% | 0.00% | 0.00% |
| Passed | 100.00% | 100.00% | 100.00% | 100.00% |

Flex Test Up Results

- The Flex Ramp Test Up evaluates whether the BAA had sufficient ramp up capability to meet the flex ramp up requirement.
- The BAA's ramp up capability depends on participating resources, non-participating resources, and net interchange.

| Flex Test Up | Jul | Aug | Sep | Mean |
|--------------|--------|--------|--------|--------|
| Failed | 0.34% | 0.50% | 0.03% | 0.29% |
| Passed | 99.66% | 99.50% | 99.97% | 99.71% |

Flex Test Down Results

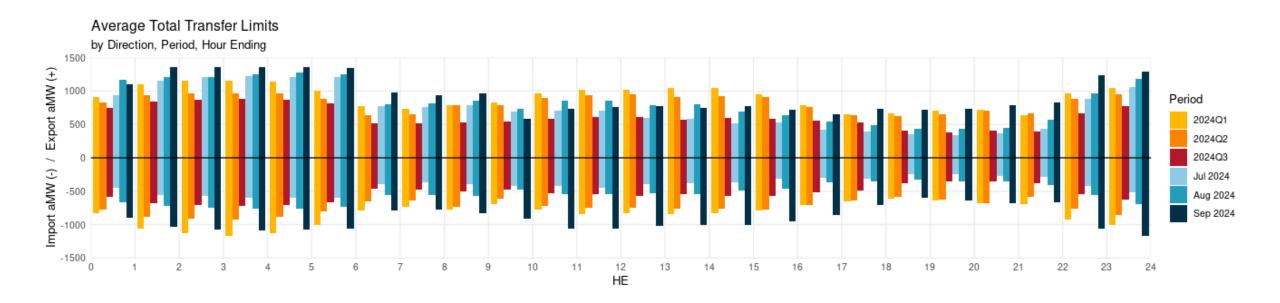
- The Flex Ramp Test Down evaluates whether the BAA had sufficient ramp down capability to meet the flex ramp down requirement.
- The BAA's ramp down capability depends on participating resources, non-participating resources, and net interchange.

| Flex Test Down | Jul | Aug | Sep | Mean |
|----------------|---------|--------|---------|--------|
| Failed | 0.00% | 0.13% | 0.00% | 0.04% |
| Passed | 100.00% | 99.87% | 100.00% | 99.96% |

Metric 3: EIM Transfers

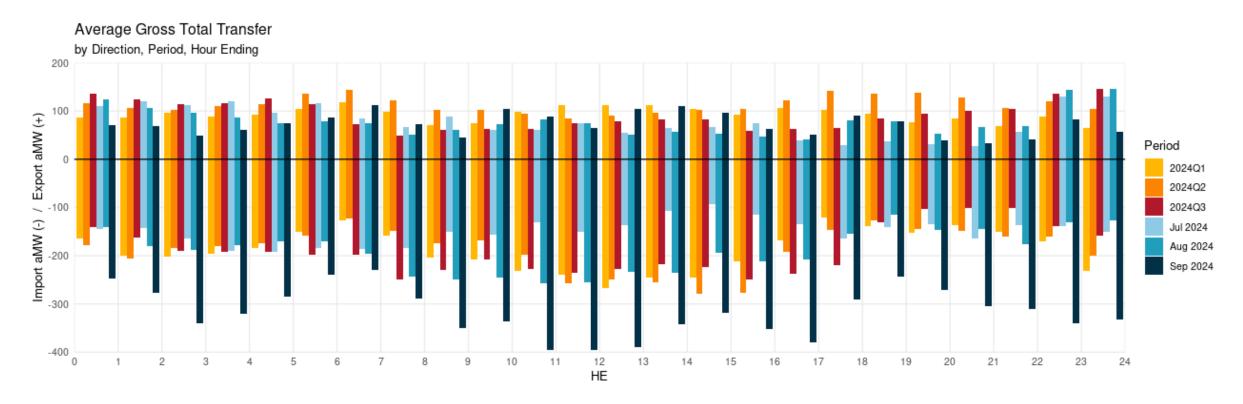


EIM Transfer Limits: Q1 2024 – Q4 2024



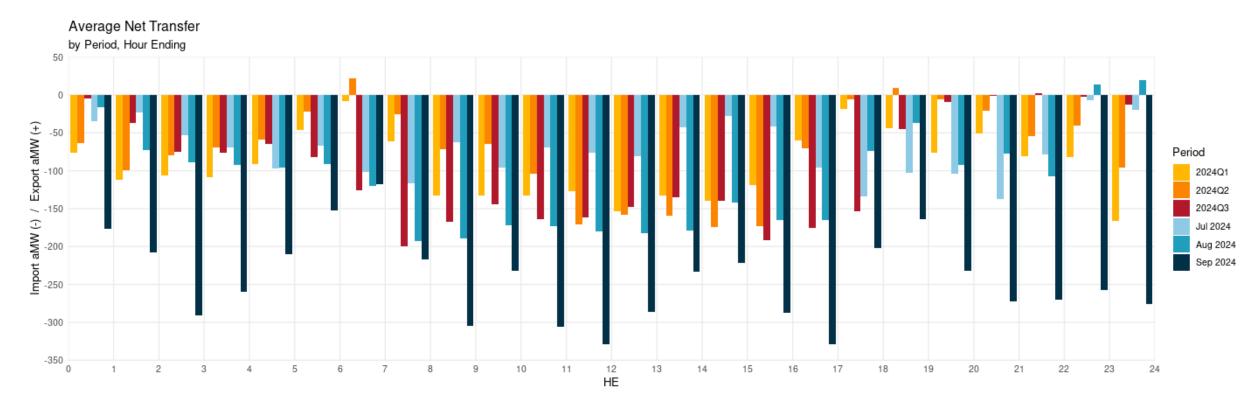
- Intra-day shape in Q4 2024 is consistent with previous quarters less donation in morning and evening peaks; more donation in LLH.
- Growth in limits in both directions across Q4 2024 in most hours; noted increase in Sep 2024..

EIM Gross Transfer: Q1 2024 – Q4 2024



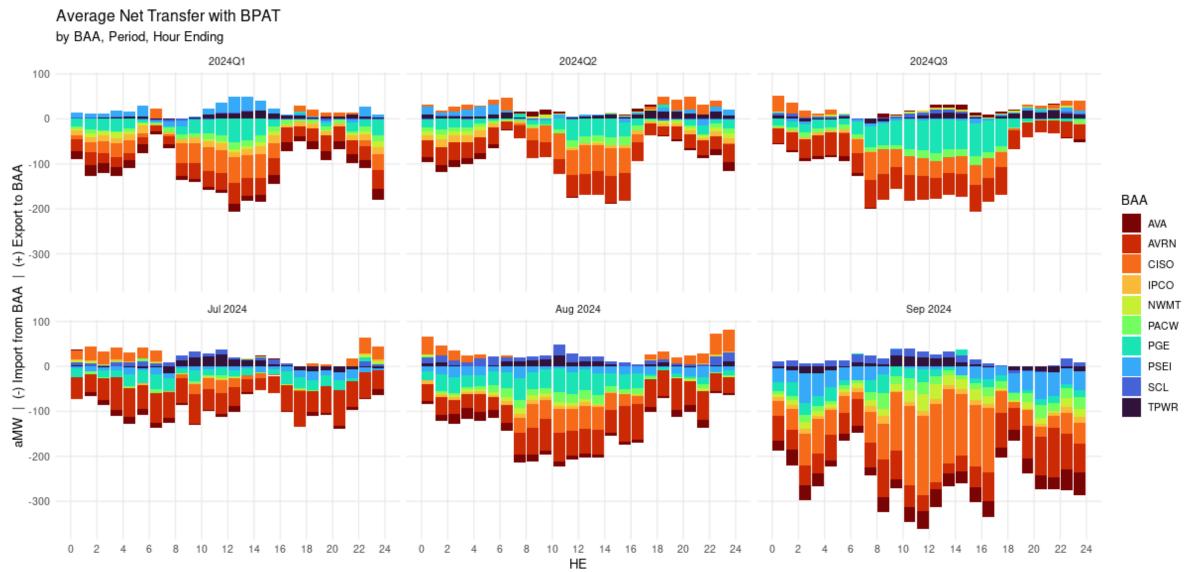
- Clear bias toward import transfers in most hours.
- Sep 2024 stands out with marked increase in imports across many hours.

EIM Net Transfer: Q1 2024 – Q4 2024



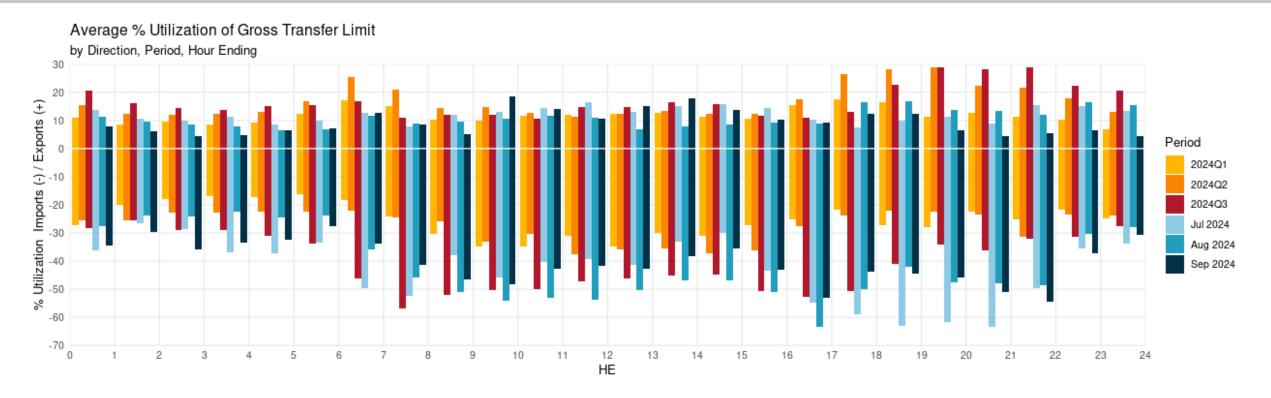
- Clear bias toward import transfers in most hours.
- Sep 2024 stands out with marked increase in imports across many hours.

EIM Net Transfer by BAA: Q1 2024 – Q4 2024



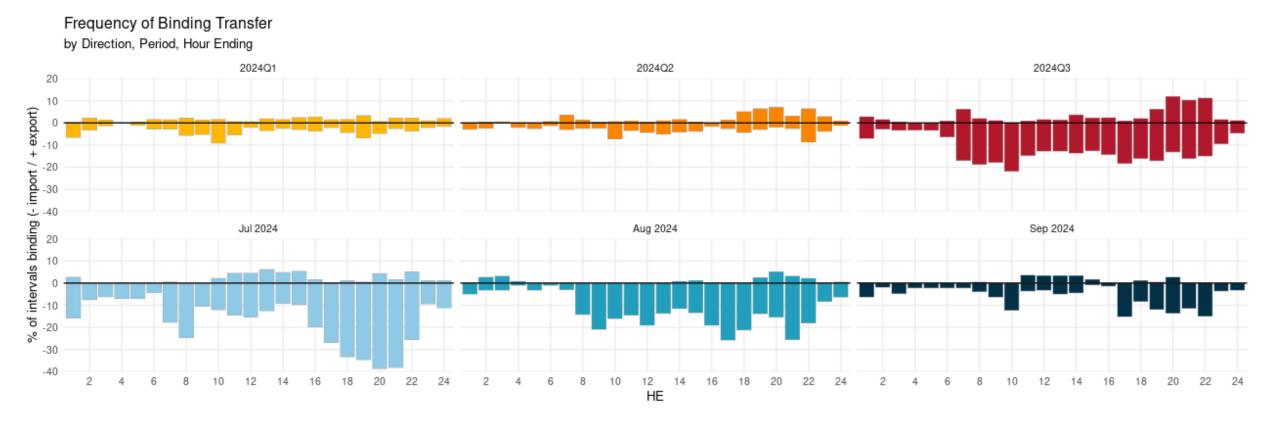
BONNEVILLE POWER ADMINISTRATION | QBRTW

EIM Utilization of Transfer Limits: Q1 2024 – Q4 2024



- Consistently high utilization in the import direction in the midday hours.
- Strong utilization in the import direction in evening peak hours in Q4 2024.

Frequency of binding EIM transfers: Q1 2024 – Q4 2024



- Generally more binding incidence in the import direction across all periods.
- Jul 2024 and Aug 2024 continued the trend of increased binding frequency observed in Q3 2024.
- Binding incidence moderated in Sep 2024 (but recall the notable increase in import donations in earlier slide).

Note: Transfers and limits include both static and dynamic transmission. Binding incidence flagged anytime gross transfer reaches gross import limit or gross export limit.

Western Resource Adequacy Program (WRAP) Update

Presenter: Matt Hayes November 12, 2024



Agenda

• What's Happening in WRAP

- WPP Implementation Plan
- Approved BPM's
- WPP/WRAP Public Meetings/Workshops

• BPA Active Work with WRAP

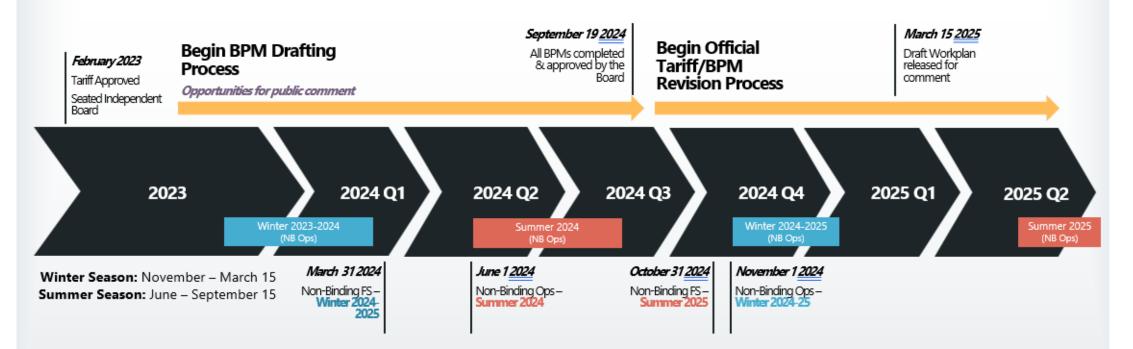
- Participation
- Business Practice Manuals (BPM's)
- BPA Technical Solution

What's Happening in WRAP



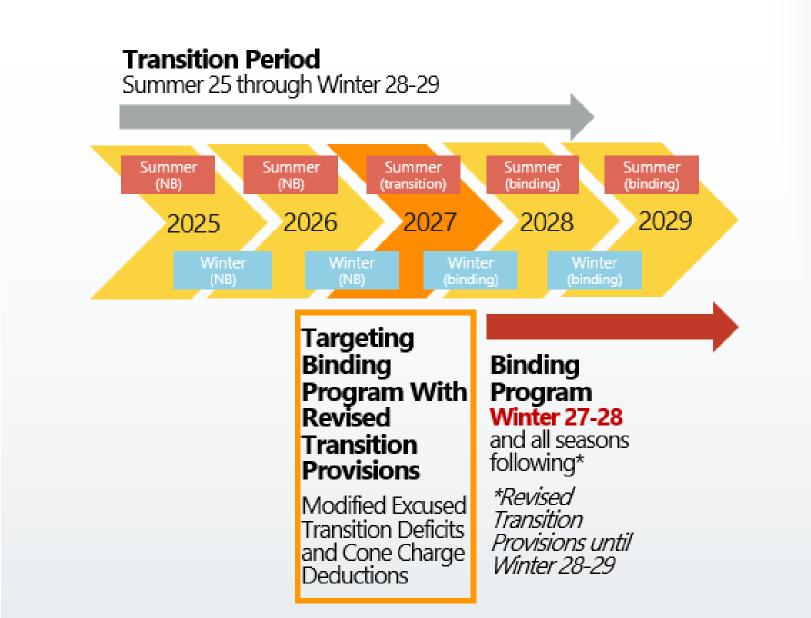
Western Power Pool WRAP Implementation Plan







Western Power Pool WRAP Implementation Plan



WRAP Approved Business Practice Manuals

• WPP Board of Directors has approved 25 BPM's

| Forward Showing | Operations Program | Stakeholder Process | Auxillary |
|--|--|---|---------------------------------|
| 101: Advance Assessment Data Collection | 201: Operations Program Timeline | <u>301: Workplan Development and</u> <u>Approval</u> | 401: New Participant Onboarding |
| 102: Forward Showing Reliability Metrics | 202: Participant Sharing Calculation | <u>302: Proposal Development and</u> <u>Approval</u> | 402: Confidentiality |
| 103: Participant Forward Showing Capacity Requirements | 203: Program Sharing Calculation Inputs | 303: Expedited Review Process | |
| <u>104: Determination of Capacity</u> <u>Critical Hours</u> | 204: Holdback Requirement | 304: Changes to Schedule 1 and WRAPA | |
| 105: Qualifying Resources | 205: Energy Deployment | | |
| 106: Qualifying Contracts | 206: Settlement Pricing | | |
| 106: Qualifying Contracts Join Contract Accreditation Form | 207: Settlement Process | | |
| <u>107: Forward Showing Deficiency</u> Charge | 209: Energy Delivery Failure Charge | | |
| <u>108: Forward Showing Submittal</u> <u>Process</u> | 210: Operations Program Transition Period | | |
| 109: Forward Showing Transition Period | | | |

WPP/WRAP Public Meetings/Workshops

• Program Review Committee, or PRC

- The sector-representative PRC will be responsible for receiving, considering, and proposing changes to the WRAP design. The PRC will also be responsible for documenting proposed changes and overseeing public and committee comments and feedback processes to inform consideration of those recommendations by the RAPC and Board. In developing recommendations, the PRC will incorporate feedback and suggestions from the public process, Participants, committees, the PA and PO, and the Board
- PRC Information and meeting schedule
- PRC has opened its first submission window for submitting change proposal concepts and or non task forced proposals (NTFPs) submission website is open until December 15th
 - <u>Submitting Concepts and NTFPs</u>

WPP/WRAP Public Meetings/Workshops

Resource Adequacy Participant Committee (RAPC)

- RAPC will be the main venue for participants in the program to engage in program implementation and compliance, as well as the highest form of participant engagement in the governance and decision-making of the program. The RAPC will be recommended changes to the program design as they relate to participation in the program and vote on all proposed changes prior to Board review. RAPC recommendations will be considered by the Board in conjunction with feedback from the public, stakeholders, and other committees.
- <u>RAPC Information and meeting schedule</u>

• General WPP/WRAP Events (WPP)

<u>All WPP Events</u>

BPA Active Work with WRAP



BPA Active Work with WRAP

WRAP participant work:

- Resource Adequacy Participants Committee (RAPC) reviewing and continuing development and design getting to full binding seasons
- Forward Showing Work Group engaged in activities and discussion for FS submittals
- Ops Work Group Submitting operations data for nonbinding winter season
- Program Review Committee (PRC) participating member, actively reviewing materials as available
- Other ongoing workgroups

BPA Active Work with WRAP

Technical Solution for WRAP Participation:

- WRAP System is Live: BPA has successfully moved the WRAP system into production, as of 09/19/2024 all necessary validation issues have been resolved, allowing for smooth operational processes.
- Data Submission is Active: Daily and hourly data submittals are now fully functional through the PCI tool, meeting WRAP program requirements.
- Ongoing Monitoring: The BPA team is actively monitoring post-production performance and managing any minor adjustments that arise to maintain data quality and operational compliance.
- Documentation Finalization: Final documentation, including user guides and training resources, is near completion and will be provided to BPA staff to ensure comprehensive support and continuous training.
- Future Enhancements: BPA is planning for future system upgrades and additional capabilities, such as enhanced monitoring and further data stream optimizations to improve operational efficiency.

Questions

• More information on BPA's participation in the Western Resource Adequacy Program can be found at

<u>Western Resource Adequacy Program - Bonneville Power</u> <u>Administration (bpa.gov)</u>



 For more information on the Western Power Pool's Western Resource Adequacy Program at https://www.westernpowerpool.org/

Columbia Generating Station (CGS) Uprate

Presenters: Cherie Sonoda



QBRTW: CGS Uprate

- Extended power uprate (EPU) is an option for U.S. commercial nuclear reactors to increase generating capability of the unit.
- An EPU of CGS will result in ~170MWe increase in output.
- Implementing an EPU at Columbia Generating Station (CGS) will require significant modification to major pieces of equipment such as the Electrical Distribution System, high-pressure turbine, condensate pumps and motors, and the main generator.
- Due to timing of CGS's current life cycle management of major equipment, EPU implementation could prove beneficial due to coinciding with planned equipment replacement.

QBRTW: CGS Uprate (cont.)

- EN and BPA are currently investigating the business case for an Extended Power Uprate (EPU)
- The EPU initiative is being completed by a collaborative BPA/EN Working Group (WG)
- The joint EN/BPA WG has established a collaborative EPU Business Case Team
 - Key participants include EN Finance, BPA Finance, and BPA Power Services among others
 - Completed overall business case project plan and analysis plan
 - Developing financial model with alignment on key inputs/assumptions
 - Business case is utilizing existing BPA/EN governing documents
- Business case finalization in 2025 to align with EN/BPA approval processes

QBRTW: CGS Uprate (cont.)

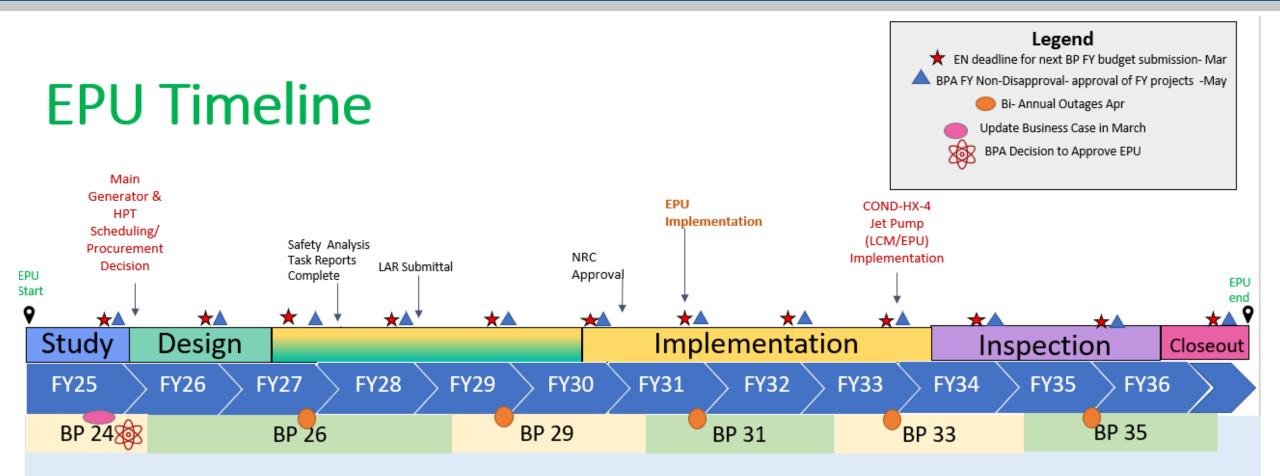
• EN FY24 Project Status

- Kicked off over fourteen detailed engineering studies and safety analyses to refine overall project scope and capital cost estimate
- Assembled project to refine scope, preliminary implementation timelines, and staffing plans
- Started developing individual project schedules, risk registers, and risk mitigation plans
- Begun updating probabilistic business case in collaboration with BPA
- Engaged Consulting services to offer counsel on the best use of the Inflation Reduction Act (IRA)

• EN FY25 Planned Activities

- Continue engineering studies, safety analyses, and refinement of scope and staffing plans
- Develop integrated project schedule and formalize cost-estimates to reduce classification uncertainty
- Finalize over-arching risk-management plan
- Finalize business case update

QBRTW: CGS Uprate (cont.)





The next QBR and Technical Workshop will be held on February 13, 2024

Didn't get your question answered? Email <u>Communications@bpa.gov</u>. Answers will be posted to <u>www.bpa.gov/qbr</u>.

FINANCIAL DISCLOSURES

This information has been made publicly available by BPA on November 7, 2024 and contains information not sourced directly from BPA financial statements.

APPENDIX





Final Closeout Letter Commitments Stakeholder Engagement Plan



Final Closeout Letter Commitments

- On December 16, 2022, BPA issued its decision to join Phase 3B. In the WRAP Final Closeout Letter, BPA committed to:
 - sharing its stakeholder engagement plan for Phase 3B participation (goal is within the first half of 2023);
 - providing program implementation updates that impact BPA and its customers; and
 - continue working with customers on outstanding items raised in comments related to WRAP implementation.

Stakeholder Engagement Plan

- Provide transparency of program design updates and information that may impact BPA and its customers, outcomes from BPA's participation in non-binding forward showing and operations program, and resolving BPA and customer raised issues in the Final Closeout Letter
- Engagement will be consistent with external WRAP engagement outside of BPA's process
- Pursue effective and efficient two-way communication between BPA and customers, stakeholders, and external interested parties
- Engage on a predictable, standardized cadence provided there is adequate content or relevant information to discuss
- Ensure engagement opportunities occur sufficiently to inform interested parties based on program timelines and information availability and applicability

Stakeholder Engagement Plan cont.

- Engagement with customers and stakeholders will consist of:
 - Public meetings with a minimum of 4 meetings, preferably through the QBR Technical Workshops
 - Short-term Issue-focused workshops, as needed
 - Customer-impacted meetings focused by topic, upon request
- BPA proposes to host meetings through the completion of BPA's first binding season (winter 2027-2028). BPA will work with customers to reevaluate its engagement plan and the need for its proposed meeting schedule on an annual basis through its first binding season
- Meetings will focus on BPA's participation, the development of the business practice manuals, and updates to the WRAP policies as determined by the WRAP project schedule

Stakeholder Engagement Plan cont.

| Public meetings | Regularly scheduled meetings four times per year, utilizing a combination of stand-alone workshops and preferably the Quarterly Business Review (QBR) Technical Workshops Typically February, May, August, and November Provide program design updates and information that may include any topics relevant to customer and stakeholder questions on BPA's WRAP participation |
|---|--|
| lssue – focused workshops | Workshops will be scheduled based on information availability from WRAP and applicability Will address topics raised in comments related to WRAP implementation |
| Customer- impacted meetings focused by topic | BPA will continue to meet with individual or groups of customers, upon request, to focus on their unique questions or needs. To the extent that there is a nexus between the implications of the WRAP and other issues of focus for customers, BPA will coordinate discussion with other BPA meetings or initiatives Resolution timing of customer identified items may depend on information availability from WRAP |

Stakeholder Engagement Topics

- Topics raised in comments related to WRAP implementation, including:
 - Considerations related to BPA's binding season (Winter 2027-2028)
 - The availability of transmission between loads in the SWEDE region and the FCRPS create risks that may create costs in the Forward Showing Program,
 - the uncertainty in details and requirements for the Operations Program,
 - identifying Bonneville system updates and business processes to support participation in the binding program, and
 - alignment with the timing for joining emerging regional markets
 - Treatment of NLSLs and AHWM loads related to BPA's WRAP participation
 - WRAP load exclusion process update / BPA load exclusion process between BPA and customers
 - Load exclusion process for AHWM loads caused by a single large consumer load and served solely with nonfederal resources
 - Resource Adequacy Incentive rates
- Updates on Business Practice Manual development
 - Future BPM on BPA's statutory preference obligations
- Updates on Forward Showing and Operations Program development

SLICE REPORTING

Composite Cost Pool Review Forecast of Annual Slice True-Up Adjustment



Q4 True-Up of FY 2024 Slice True-Up Adjustment

| | FY 2024 Forecast \$ in thousands |
|--|-------------------------------------|
| February 13, 2024 First Quarter Technical Workshop | \$(1,304)* |
| May 23, 2024 Second Quarter Technical Workshop | \$(10,353)* |
| August 15, 2024 Third Quarter Technical Workshop | \$(18,555)* |
| November 12, 2024 Fourth Quarter Technical Workshop | \$(24,220)* |

*Negative = Credit; Positive = Charge

Summary of Differences From Q4 to FY24 (BP-24)

| # | | Composite Cost Pool True-Up Table Reference | Q4 – Rate Case \$ in thousands |
|---|--|---|---|
| 1 | Total Expenses | Row 100 | \$(5,958) |
| 2 | Total Revenue Credits | Rows 119 + 128 | \$135,608 |
| 3 | Minimum Required Net Revenue | Row 156 | \$25,092 |
| 4 | TOTAL Composite Cost Pool (1 - 2 + 3) \$(5,958) - \$135,608 + \$25,092 = \$(116,474) | Row 158 | \$(116,474) |
| 5 | TOTAL in line 4 divided by <u>0.9493407</u> sum of TOCAs \$(116,474)/ <u>0.9493407</u> = \$(122,690) | Row 163 | \$(122,690) |
| 6 | QTR Forecast of FY24 True-up Adjustment 19.74071 percent of Total in line 5 0.1974071 * \$(122,690) = \$(24,220) | Row 164 | \$(24,220) |

FY24 Impacts of Debt Management Actions

| | | | | | | | Delta | from the FY24 |
|----|---|------|-------------|-------------|-------------|---------|--------|---------------|
| # | Description | FY24 | Forecast | <u>FY24</u> | Rate Case | CCP | rate c | ase |
| 1 | MRNR Section of Composite Cost Pool Table | | | | | | \$ | - |
| 2 | Principal Payment of Federal Debt | | | | | | \$ | - |
| 3 | Regional Cooperation Debt (RCD) | \$ | 114,000,000 | \$ | 341,581,000 | | \$ | 227,581,000 |
| | | | | | | | | |
| | | | | | | | | |
| 4 | Debt Service Reassignment (DSR) | | | \$ | 17,600,000 | | \$ | 17,600,000 |
| 5 | Energy Northwest's Line Of Credit (LOC) | \$ | - | \$ | - | | \$ | - |
| 6 | Rate Case Scheduled Base Power Principal* | \$ | 100,818,000 | \$ | 100,818,000 | | \$ | - |
| 7 | Repayment due to FY24 RDC (based on FY23 results) | | | \$ | - | | \$ | - |
| 8 | Total Principal Payment of Fed Debt | \$ | 214,818,000 | \$ | 459,999,000 | row 131 | \$ | 245,181,000 |
| | | | | | | | | |
| 9 | Prepay | \$ | 24,905,736 | \$ | 24,905,736 | | \$ | - |
| | | | | | | | \$ | - |
| 10 | Nonfederal Bond Principal Payment | \$ | 169,172,379 | \$ | 27,167,200 | row 133 | \$ | (142,005,179) |

Composite Cost Pool Interest Credit

| | Allocation of Interest Earned on the Bonneville Fund (\$ in thousands) | |
|---|--|----------------|
| | | <u>Q4 2024</u> |
| 1 | Fiscal Year Reserves Balance | 570,255 |
| 2 | Adjustments for pre-2002 Items | <u>16,341</u> |
| 3 | Reserves for Composite Cost Pool (Line 1 + Line 2) | 586,596 |
| 4 | Composite Interest Rate | 4.29% |
| 5 | Composite Interest Credit | (25,152) |
| 6 | Prepay Offset Credit | 0 |
| 7 | Total Interest Credit for Power Services | (26,744) |
| 8 | Non-Slice Interest Credit (Line 7 – (Line 5 + Line 6)) | (1,591) |

Net Interest Expense in Slice True-Up Q4

| | FY24 Rate Case | Q4 |
|---------------------------------|--------------------------|--------------------------|
| | <u>(\$ in thousands)</u> | <u>(\$ in thousands)</u> |
| Federal Appropriation | 34,236 | 39,310 |
| Capitalization Adjustment | (45,937) | (45,937) |
| Borrowings from US Treasury | 50,818 | 52,696 |
| Prepay Interest Expense | 5,694 | 5,694 |
| Interest Expense | 44,811 | 51,763 |
| | | |
| AFUDC | (17,821) | (21,414) |
| Interest Income (composite) | (2,274) | (25,152) |
| Prepay Offset Credit | 0 | 0 |
| Total Net Interest Expense | 24,716 | 5,197 |

Schedule for Slice True-Up Adjustment for Composite Cost Pool True-Up Table and Cost Verification Process

| Dates | Agenda |
|---------------------|---|
| February 13, 2024 | First Quarter Technical Workshop |
| May 23, 2024 | Second Quarter Technical Workshop |
| August 15, 2024 | Third Quarter Technical Workshop |
| October 2024 | BPA External CPA firm conducting audit for fiscal year end |
| Mid-October 2024 | Recording the Fiscal Year End Slice True-Up Adjustment Accrual |
| End of October 2024 | Final audited actual financial data is expected to be available |
| November 12, 2024 | Fourth Quarter Business Review and Technical Workshop Meeting Provide Slice True-Up Adjustment for the Composite Cost Pool (this is the number posted in the financial system; the final actual number may be different) |
| November 14,2024 | Mail notification to Slice Customers of the Slice True-Up Adjustment for the Composite Cost Pool |
| November 18, 2024 | BPA to post Composite Cost Pool True-Up Table containing actual values and the Slice True-Up Adjustment |
| December 10, 2024 | Deadline for customers to submit questions about actual line items in the Composite Cost Pool True-Up Table with the Slice True-Up Adjustment for inclusion in the Agreed Upon Procedures (AUPs) Performed by BPA external CPA firm (customers have 15 business days following the BPA posting of Composite Cost Pool Table containing actual values and the Slice True-Up Adjustment) |
| December 26, 2024 | BPA posts a response to customer questions (Attachment A does not specify an exact date) |
| January 13, 2025 | Customer comments are due on the list of tasks (The deadline can not exceed 10 days from BPA posting) |
| February 4, 2025 | BPA finalizes list of questions about actual lines items in the Composite Cost Pool True-Up Table for the AUPs |

| | | | P TABLE | | | | |
|----|--|-----|-----------|----------|---------------|----|-----------|
| | | | | | Bate Case | 04 | Rate Case |
| | | | (Q4) | 60 | recast for FY | | ifference |
| | | | (\$000) | | (\$000) | | merence |
| 1 | Operating Expenses | | (+000) | | (4000) | | |
| 2 | | | | | | | |
| 2 | Power System Generation Resources | | | | | | |
| 4 | Operating Generation | \$ | 313,960 | | 000 477 | ф. | 17,48 |
| | COLUMBIA GENERATING STATION (WNP-2) | | | | 296,477 | | 17,48 |
| 5 | BUREAU OF RECLAMATION | \$ | 171,658 | | 154,364 | | |
| 6 | CORPS OF ENGINEERS | \$ | 270,658 | | 265,146 | | 5,51 |
| 7 | CRFM STUDIES | \$ | 14,175 | | 9,349 | | 4,82 |
| 8 | LONG-TERM CONTRACT GENERATING PROJECTS | \$ | 22,416 | | 16,036 | | 6,38 |
| 9 | Sub-Total | \$ | 792,866 | \$ | 741,372 | \$ | 51,494 |
| 10 | Operating Generation Settlement Payment and Other Payments | | | | | | |
| 11 | COLVILLE GENERATION SETTLEMENT | \$ | 29,101 | \$ | 22,000 | \$ | 7,10 |
| 12 | SPOKANE LEGISLATION PAYMENT | \$ | 7,275 | \$ | 5,749 | \$ | 1,52 |
| 13 | Sub-Total | \$ | 36,376 | \$ | 27,749 | \$ | 8,627 |
| 14 | Non-Operating Generation | | | | | | |
| 15 | TROJAN DECOMMISSIONING | \$ | 1,944 | \$ | 1,200 | \$ | 74 |
| 16 | WNP-1&3 DECOMMISSIONING | \$ | 1,248 | \$ | 1,141 | \$ | 10 |
| 17 | Sub-Total | \$ | 3,192 | \$ | 2,341 | \$ | 85 |
| 18 | Gross Contracted Power Purchases | | | | | | |
| 19 | PNCA HEADWATER BENEFITS | \$ | 2,778 | \$ | 3,100 | \$ | (32 |
| 20 | OTHER POWER PURCHASES (omit, except Designated Obligations or Purchases) | \$ | (25,400) | | | \$ | (25,40 |
| 21 | Sub-Total | \$ | (22,622) | | 3,100 | | (25,722 |
| 22 | Bookout Adjustment to Power Purchases (omit) | · · | () | · | | • | . |
| 23 | Augmentation Power Purchases (omit - calculated below) | | | | | | |
| 24 | AUGMENTATION POVER PURCHASES | \$ | | \$ | | \$ | |
| 25 | Sub-Total | * | - | | - | | |
| 26 | Exchanges and Settlements | | | <u> </u> | | • | |
| | | • | 074 500 | | | • | (07 |
| 27 | RESIDENTIAL EXCHANGE PROGRAM (REP) | \$ | 274,506 | | 274,777 | | (27 |
| 28 | OTHER SETTLEMENTS | \$ | | \$ | | \$ | (0.7) |
| 29 | Sub-Total | \$ | 274,506 | \$ | 274,777 | \$ | (271 |
| 30 | Renewable Generation | | | | | | |
| 31 | RENEVABLES (excludes KIII) | \$ | 9,015 | | 17,809 | | (8,79 |
| 32 | Sub-Total | \$ | 9,015 | \$ | 17,809 | \$ | (8,794 |
| 33 | Generation Conservation | | | | | | |
| 34 | CONSERVATION ACQUISITION | \$ | 52,864 | | 69,027 | • | (16,16 |
| 35 | CONSERVATION INFRASCTRUCTURE | \$ | 20,861 | | 26,044 | • | (5,18: |
| 36 | LOW INCOME VEATHERIZATION & TRIBAL | \$ | 4,306 | \$ | 6,005 | \$ | (1,69: |
| 37 | ENERGY EFFICIENCY DEVELOPMENT | \$ | - | \$ | | \$ | |
| 38 | DISTRIBUTED ENERGY RESOURCES | \$ | 44 | \$ | 215 | \$ | (17 |
| 39 | LEGACY | \$ | 521 | \$ | 590 | \$ | (6 |
| 40 | MARKET TRANSFORMATION | \$ | 11,703 | \$ | 11,800 | \$ | (9 |
| 41 | Sub-Total | \$ | 90,300 | | 113,681 | | (23,38 |
| | Power System Generation Sub-Total | \$ | 1,183,634 | - | 1,180,830 | - | 2.804 |

| | | | | | Rate Case | Q4 | - Rate Case |
|----|--|----------|------------------|----|------------------|----|--------------------|
| | | | (Q4) | fe | precast for FY | | Difference |
| | | | (\$000) | | (\$000) | | |
| 44 | Power Non-Generation Operations | | | | | | |
| 45 | Power Services System Operations | | | | | | |
| 46 | EFFICIENCIES PROGRAM | \$ | - | \$ | | \$ | - |
| 47 | INFORMATION TECHNOLOGY | \$ | - | \$ | 2,376 | \$ | (2,376) |
| 48 | GENERATION PROJECT COORDINATION | \$ | 3,734 | \$ | 4,443 | \$ | (709 |
| 49 | ASSET MGMT ENTERPRISE SVCS | \$ | 2,975 | \$ | | \$ | 2,975 |
| 50 | SLICE IMPLEMENTATION | \$ | 694 | \$ | 608 | \$ | 86 |
| 51 | Sub-Total | \$ | 7,403 | \$ | 7,428 | \$ | (25) |
| 52 | Power Services Scheduling | | | | | | |
| 53 | OPERATIONS SCHEDULING | \$ | 11,739 | \$ | 9,505 | \$ | 2,235 |
| 54 | OPERATIONS PLANNING | \$ | 9,548 | \$ | 9,739 | \$ | (192 |
| 55 | Sub-Total | \$ | 21,287 | \$ | 19,244 | \$ | 2,043 |
| 56 | Power Services Marketing and Business Support | | | | | | |
| 57 | GRID MOD | \$ | 314 | \$ | | \$ | 314 |
| 58 | EIM INTERNAL SUPPORT | \$ | - | \$ | | \$ | - |
| 59 | POWER INTERNAL SUPPORT | \$ | 18,915 | \$ | 28,410 | \$ | (9,495) |
| 60 | COMMERCIAL ENTERPRISE SVCS | \$ | 7,357 | \$ | 4,348 | \$ | 3,010 |
| 61 | OPERATIONS ENTERPRISE SVCS | \$ | 5,154 | \$ | 4,573 | \$ | 580 |
| 62 | POWER B&D | \$ | 1,954 | \$ | 3,537 | \$ | (1,583) |
| 63 | SALES & SUPPORT | \$ | 14,364 | \$ | 17,871 | | (3,507 |
| 64 | STRATEGY, FINANCE & RISK MGMT (REP support costs included here) | \$ | | \$ | | \$ | |
| 65 | EXECUTIVE AND ADMINISTRATIVE SERVICES (REP support costs included here) | \$ | - | \$ | | \$ | |
| 66 | CONSERVATION SUPPORT | \$ | 9,300 | | 7,045 | • | 2,256 |
| 67 | Sub-Total | \$ | 57,359 | | 65,784 | | (8,425) |
| 68 | Power Non-Generation Operations Sub-Total | \$ | 86,048 | | 92,455 | - | (6,407) |
| 69 | Power Services Transmission Acquisition and Ancillary Services | - | - | | | - | |
| 70 | TRANSMISSION and ANCILLARY Services - System Obligations | \$ | 31,933 | \$ | 32,208 | \$ | (275 |
| 71 | 3BD PARTY GTA WHEELING | \$ | 78,890 | \$ | 91,278 | | (12,389 |
| 72 | POWER 3RD PARTY TRANS & ANCILLARY SVCS (Composite Cost) | \$ | 4,099 | \$ | 3,300 | \$ | 799 |
| 73 | TRANS ACQ GENERATION INTEGRATION | \$ | 19,894 | - | 19,894 | • | () |
| 74 | EESC CHARGES (Composite) | \$ | (3,252) | | | \$ | (3,252 |
| 75 | TELEMETERING/EQUIP REPLACEMT | \$ | | \$ | | \$ | |
| 76 | Power Services Trans Acquisition and Ancillary Serv Sub-Total | \$ | 131,564 | \$ | 146,680 | \$ | (15,117) |
| 77 | Fish and Vildlife/USF&V/Planning Council/Environmental Reg | • | | • | | • | |
| 78 | Fish & Vildlife | \$ | 253,113 | \$ | 269,235 | \$ | (16,121 |
| 79 | USF&V Lower Snake Hatcheries | \$ | 33,884 | | 32,765 | • | 1,119 |
| 80 | Planning Council | \$ | 10,225 | | 11,942 | • | (1,717 |
| 81 | Fish & Vildlife RDC Funds | \$ | 2,742 | | | \$ | 2,742 |
| 82 | Lower Snake Hatcheries RDC Funds | \$ | 6,349 | | | \$ | 6,349 |
| | Fish and Wildlife/USF&W/Planning Council Sub-Total | \$ | 306,314 | \$ | 313,942 | • | (7,628) |
| | BPA Internal Support | - | 000,017 | • | 010,012 | • | (1,020) |
| 83 | | | | | | | |
| 84 | •• | \$ | 18 17 2 | \$ | 19,310 | * | (1127) |
| | Additional Post-Retirement Contribution Agency Services GtA (excludes direct project support) | \$ \$ | 18,173 78,771 | | 19,310 84,662 | • | (1,137) (5,891) |

| _ | | | | | Rate Case | Q4 - | Rate Case |
|-----|---|----|-----------|----------|---------------|------|-----------|
| | | | (Q4) | fo | recast for FY | Di | fference |
| | | | (\$000) | | (\$000) | | |
| 88 | Bad Debt Expense | \$ | 5 | \$ | | \$ | 5 |
| 89 | Other Income, Expenses, Adjustments | \$ | (1,201) | \$ | | \$ | (1,201 |
| 90 | Depreciation | \$ | 144,701 | \$ | 139,703 | \$ | 4,998 |
| 91 | Amortization | \$ | 318,906 | \$ | 312,487 | \$ | 6,419 |
| 92 | Accretion (CGS) | \$ | 39,742 | \$ | 40,043 | \$ | (302 |
| 93 | Total Operating Expenses | \$ | 2,306,656 | \$ | 2,330,112 | \$ | (23,456) |
| 94 | | | | | | | |
| 95 | Other Expenses and (Income) | | | | | | |
| 96 | Net Interest Expense | \$ | 224,187 | \$ | 203,494 | \$ | 20,694 |
| 97 | LDD | \$ | 34,558 | \$ | 37,701 | \$ | (3,143 |
| 98 | Irrigation Rate Discount Costs | \$ | 21,718 | \$ | 21,770 | \$ | (53 |
| 99 | Sub-Total | \$ | 280,463 | \$ | 262,964 | \$ | 17,498 |
| 100 | Total Expenses | \$ | 2,587,119 | \$ | 2,593,077 | \$ | (5,958 |
| 101 | | | | | | | |
| 102 | Revenue Credits | | | | | | |
| 103 | Generation Inputs for Ancillary, Control Area, and Other Services Revenues | \$ | 114,407 | \$ | 110,911 | \$ | 3,496 |
| 104 | Downstream Benefits and Pumping Power revenues | \$ | 20,367 | \$ | 20,607 | \$ | (240 |
| 105 | 4(h)(10)(c) credit | \$ | 257,831 | \$ | 111,288 | \$ | 146,543 |
| 106 | PRSC Net Credit (Composite) | \$ | (13,743) | \$ | | \$ | (13,743 |
| 107 | Colville and Spokane Settlements | \$ | 4,600 | \$ | 4,600 | \$ | - |
| 108 | Energy Efficiency Revenues | \$ | - | \$ | | \$ | - |
| 109 | PF Load Forecast Deviation Liquidated Damages | \$ | - | \$ | | \$ | - |
| 110 | Miscellaneous revenues | \$ | 10,707 | \$ | 12,104 | \$ | (1,396 |
| 111 | Renewable Energy Certificates | \$ | | \$ | | \$ | |
| 112 | Net Revenues from other Designated BPA System Obligations (Upper Baker) | \$ | 1,195 | \$ | 523 | \$ | 671 |
| 113 | RSS Revenues | \$ | 3,114 | \$ | 3,114 | \$ | - |
| 114 | Firm Surplus and Secondary Adjustment (from Unused RHVM) | \$ | 99,053 | \$ | 98,789 | \$ | 264 |
| 115 | Balancing Augmentation Adjustment | \$ | 2,358 | \$ | 2,358 | \$ | - |
| 116 | Transmission Loss Adjustment | \$ | 33,464 | \$ | 33,464 | \$ | |
| 117 | Tier 2 Rate Adjustment | \$ | 2,713 | \$ | 2,713 | \$ | |
| 118 | NR Revenues | \$ | 1 | \$ | 1 | \$ | |
| 119 | Total Revenue Credits | \$ | 536,068 | \$ | 400,473 | \$ | 135,595 |
| 120 | | - | - | - | - | - | - |
| 121 | Augmentation Costs (not subject to True-Up) | | | | | | |
| 122 | Tier 1 Augmentation Resources (includes Augmentation RSS and Augmentation RSC adders) | \$ | 10.948 | \$ | 10.948 | \$ | 0 |
| 123 | Augmentation Purchases | \$ | | ŝ | | | |
| 124 | Total Augmentation Costs | \$ | 10,948 | <u> </u> | 10,948 | | 0 |
| 125 | · ······ | Ť | | | | - | |
| 126 | DSI Revenue Credit | | | | | | |
| 127 | Revenues 12 aMV @ IP rate | \$ | 4,011 | \$ | 3,998 | \$ | 13 |
| | Total DSI revenues | \$ | 4,011 | | 3,998 | \$ | 13 |

| | | (6.0) | | Rate Case | | Rate Case |
|------------|--|-----------------|-----|--------------|----|-----------|
| | | (Q4) | for | ecast for FY | Di | ifference |
| | | (\$000) | | (\$000) | | |
| 130 | Minimum Required Net Revenue Calculation | | | | | |
| 131 | Principal Payment of Fed Debt for Power | \$ 214,818 | | 459,999 | \$ | (245,181) |
| 132 | Repayment of Non-Federal Obligations (EN Line of Credit) | \$ - | \$ | - | \$ | - |
| 133 | Repayment of Non-Federal Obligations (CGS, WNP1, WNP3, N. Wasco, Cowlitz Falls) | \$ 169,172 | \$ | 27,167 | \$ | 142,005 |
| 134 | Irrigation assistance | \$ 8,387 | | 8,067 | | 320 |
| 135 | Sub-Total | \$ 392,377 | - | 495,233 | - | (102,856) |
| 136 | Depreciation | \$ 144,701 | • | 139,703 | • | 4,998 |
| 137 | Amortization | \$ 318,906 | \$ | 312,487 | • | 6,419 |
| 138 | Accretion | \$ 39,742 | | 40,043 | • | (302) |
| 139 | Capitalization Adjustment | \$ (45,937) | \$ | (45,937) | \$ | 0 |
| 140 | Amortization of Refinancing Premiums/Discounts (MRNR - Reverse Sign) | \$ (32,294) | \$ | (34,767) | \$ | 2,473 |
| 141 | Amortization of Cost of Issuance (MRNR-reverse sign) | \$ 1,000 | \$ | 500 | \$ | 500 |
| 142 | Cash freed up by DSR refinancing | \$ | \$ | 17,600 | \$ | (17,600) |
| 143 | Gains/Losses on Extinguishment | \$ (2,031) | \$ | - | \$ | (2,031 |
| 144 | Non-Cash Expenses | \$ - | \$ | | \$ | - |
| 145 | Prepay Revenue Credits | \$ (30,600) | \$ | (30,600) | \$ | - |
| 146 | Non-Federal Interest (Prepay) | \$ 5,694 | \$ | 5,694 | \$ | (0) |
| 147 | Contribution to decommissioning trust fund | \$ (15,100) | \$ | (15,100) | \$ | 0 |
| 148 | Gains/losses on decommissioning trust fund | \$ (16,739) | \$ | (11,469) | \$ | (5,270) |
| 149 | Interest earned on decommissioning trust fund | \$ (4) | \$ | (4,335) | \$ | 4,331 |
| 150 | Revenue Financing Requirement | \$ (33,743) | \$ | (33,743) | \$ | 0 |
| 151 | Capital Financing (RCD)* | \$ (101,467) | \$ | - | \$ | (101,467) |
| 152 | Other Adjustments | \$ | \$ | - | \$ | - |
| 153 | Payments for Litigation Stay Agreements" | \$ (20,000) | \$ | - | \$ | (20,000) |
| 154 | Sub-Total | \$ 212,128 | \$ | 340,075 | \$ | (127,948) |
| 155 | Principal Payment of Fed Debt plus Irrigation assistance exceeds non cash expenses | \$ 180,249 | \$ | 155,158 | \$ | 25,092 |
| 156 | Minimum Required Net Revenues | \$ 180,249 | \$ | 155,158 | \$ | 25,092 |
| 157 | | | | | | |
| 158 | Annual Composite Cost Pool (Amounts for each FY) | \$ 2,238,237 | \$ | 2,354,711 | \$ | (116,474) |
| 159 160 | SLICE TRUE-UP ADJUSTMENT CALCULATION FOR COMPOSITE COST POOL | | | | | |
| | | (116,474) | | | | |
| 161 | TRUE-UP AMOUNT (Diff. between Rate Case and Forecast) | | | | | |
| 162 | Sum of TOCAs | 0.9493407 | | | | |
| 163 | Adjustment of True-Up Amount when actual TOCAs < 100 percent | (122,690) | | | | |

* Capital Financing (RCD)- RCD funds will be used to directly finance Power FY24 capital investments instead of repaying outstanding debt

** Payments for Litigation Stay Agreements- cash payments of \$10m each for the P2IP settlement and the CBRI settlement

Fish and Wildlife RDC & Agreements Reporting



FY22RDC F&W \$50M Set Aside - Application

- Based on FY22 financial results, \$50M of the Rates Distribution Clause (RDC) was designated to spend on certain non-recurring maintenance needs of existing Fish & Wildlife mitigation assets that (i) BPA anticipates would otherwise need to be addressed during future rate periods and (ii) will result in avoidance of those costs in future rate periods.
 - This \$50M was split evenly between the Fish and Wildlife and Lower Snake programs.
 - The fund is being spent over several years (thorough FY27) and must be separated from current year rate-funded spending in the aforementioned programs.
 - To track these costs and isolate them from rate funded projects, we created two non-IPR projects that can be seen in our detailed reports found on BPA's Quarterly Reports Portal.

Locating F&W RDC Report

Newsroom ~ Finance ~ Who We Are ~ Careers ~ Information & Reports **Annual Reports** Investor Relations BPA continues to build on its commercial success to maximize the Annual Reports benefits of the federal hydropower and transmission grid for our **Ouarterly Reports** customers. Budget Submission Debt Management **Current Annual Report** Financial Plan 2024 Annual Report Quarterly Business Review **Past Annual Reports** 2023 Annual Report 2022 Annual Report 2021 Annual Report

Environment & land

Learn & participate

About & careers

Q (2)

Energy & services

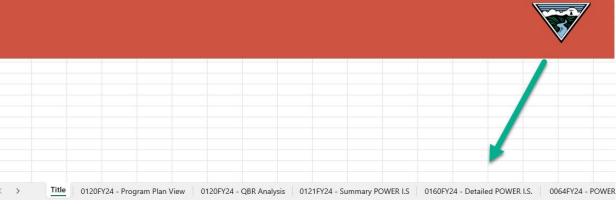
🐨 Bonneville

Annual Reports - Bonneville Power Administration (bpa.gov)



Q4 FY 2024 Quarterly Financial Package

As of September 30, 2024



FY22RDC F&W \$50M Set Aside - Application

| Report ID: 0160FY24 Power Services Detailed Requesting BL: Power Business Unit Pr | | | | | | | | |
|--|-------------------|-----------------|----------------|-----------------|-------------------------|------------------|------------------|-------------------|
| Unit of Measure: \$ Thousands Through the M | | | | | | | | |
| | This table can be | | | | | | | |
| | | | | | | | | |
| | A FY 2023 | В | C FY 2 | C | D «Nato 1 | E FY 2024 | FY 2024 | l found in |
| | 112023 | | | 024 | | | Actuals | |
| | Actuals | Rate Case | SOY Budget | Target | Current EOY Forecast | Actuals: FYTD | per Rate Case | "0160FY24 – |
| Operating Revenues | | | | | | | 0400 | Detailed POWER |
| Operating Expenses | | | | | | | | |
| Non-Integrated Program Review Programs | | | | | | | | I.S." tab of the |
| Asset Management | | | | | | | | Quartarly |
| 6 Billing Credits Generation | 5,765 1,367 | 5,300 | 5,300 1,368 | 5,300 | 6,000 1,330 | 5,775 | 109% 89% | Quarterly |
| 7 Clearwater Hatchery Generation 8 Colville Generation Settlement | 25,946 | 1,368 22,000 | 22,000 | 1,368 22,000 | 29,101 | 1,212 29,101 | | |
| 9 Cowlitz Falls Q&M | 8.946 | 8,600 | 8 600 | 8,600 | 15 462 | 14,383 | 132% 167% | Financial |
| 0 Fish & Wildlife RDC Funds | 24 | - | - | - | 1,000 | 2,742 | | Deekagee Field |
| 1 Lower Snake Hatcheries RDC Funds | 4,106 | - | - | - | 10,000 | 6,349 | 0% 0% | Packages – Fiscal |
| 2 Phase 2 Implementation Plan (P2IP) Agreement | - | - | - | - | - | - | 0% 0% | Year 2024 |
| 3 Resilient Columbia Basin Agreement (RCBA) | - | - | - | - | - | - | | l tear 2024 |
| 4 Spokane Generation Settlement | 6,487 | 5,749 | 5,749 | 5,749 | 7,275 | 7,275 | 127% | |
| 5 Trojan Decommissioning | 1,794 | 1,200 | 1,200 | 1,200 | 1,100 | 1,944 | 162% | mentioned in the |
| 6 WNP-1,3&4 O&M | 1,139 | 1,141 | 1,141 | 1,141 | 1,200 | 1,248 | 109% 154% | |
| 7 Sub-Total Operations | 55,576 | 45,359 | 45,359 | 45,359 | 72,467 | 70,029 | 154% | previous slide. |
| 8 3rd Party GTA Wheeling | 70,221 | 91,278 | 91,278 | 92.843 | 84,508 | 78,890 | 86% | |
| 9 3rd Party Trans & Ancillary Services | 2,217 | 3,300 | 3,300 | 3,300 | 3,940 | 4,099 | 124% | |
| 0 New Resources Integrth Wheeling | 782 | 768 | 768 | 768 | 839 | 1,046 | 136% | |
| 1 PNCA Headwater Benefits | 2,832 | 3,100 | 3,100 | 3,100 | 2,911 | 2,778 | 90% | |
| 2 Residential Exchange Program | 267,350 | 274,777 | 274,777 | 274,777 | 274,777 | 274,506 | 100% | |
| 3 Sub-Total | 343,402 | 373,223 | 373,223 | 374,788 | 366,976 | 361,319 | 97% | |

FY22RDC F&W \$50M Set Aside - Application

- Our FY24 spending was \$9M.
- Note: Based on FY23 financial results, the RDC again triggered for Power Services with \$30M of the FY23 RDC being set aside for certain F&W projects/spending. The use of these additional funds is set to begin in FY25.

Long Term Agreements Reporting

- In FY24, BPA Administrator signed a new long-term agreements with the Kalispel Tribe ("Tribe"):
 - BPA agrees to provide the Tribe with funding through BPA's Fish and Wildlife Program to implement certain projects to benefit fish and wildlife in the upper Columbia River Basin, primarily on and in the vicinity of the Tribe's reservation, to help BPA fulfill its mitigation obligations under the Northwest Power Act and Endangered Species Act. This ten-year agreement will commence on October 1, 2024 (superseding the final year of the Tribe's existing Accord) and continue through the end of fiscal year 2034. BPA's total financial commitments in the MOA over its ten-year term are \$68.25 million in expense funding and \$21 million in capital funding.