

## IPR Follow Up Questions

### IPR Kick-off – Overall Proposal

1. **Can BPA confirm that cost management is the over-arching framework for budgeting not inflation targeting?**
  - a. **Nobody knows what inflation will be in 2024 and BPA should neither be too aggressive with its inflation forecast or too conservative in its cost projections, but both should be developed using the best available information and reflect the culture of systematic cost management achieved in previous rate cases. We don't want to lose that, just because markets and inflation are flipped. There seems to be both a chance that inflation will stay high and a chance that a recession will lead to much lower inflation and if that is case, cost management may be essential for BPA customer utilities.**

BPA can confirm that cost management is the overarching framework for budgeting and this rate case forecast. Consistent with our Financial Plan, BPA sets a target for IPR costs at the beginning of the budgeting process by inflating the previous IPR forecast levels to the time period for the upcoming rate case. BPA uses the results of those calculations as high-level guideposts. Parallel to this process, BPA holistically looks at program costs and identifies areas which need additional funding and areas where costs can be reduced. While inflation is a key cost driver in many of BPA's IPR costs, extensive effort is taken to limit any cost increases. For the 2024-2025 period, the Power Business Line's costs are increasing below the rate of inflation while the Transmission Business Line's costs are increasing above the rate of inflation. The main driver for the Transmission Business Line's increase above the rate of inflation are labor costs which are increasing above the rate of inflation and also critical new work for cyber security and wildfire mitigation.
  
2. **What would the current proposal be if the inflation forecast were much higher or much lower?**
  - a. **Would BPA propose up to that increase and still consider that superior performance on the long-term inflation goal?**

BPA's cost forecasts are partly linked to inflationary trends. For example, BPA's labor costs generally grow similarly to inflation, although the trajectory is generally higher. BPA expects its costs to increase at a rate similar to its inflation forecast, and uses inflation as a metric to benchmark the IPR forecast against. However, BPA does not look at inflation in isolation as the primary reason IPR costs should increase. BPA also examines program costs to identify where costs can be reduced or further increases are needed.
  - b. **Customers might expect an increase given higher inflation, but it seems that the increase is to spend up to a high inflation forecast instead of forecasting spending and**

**inflation separately based on need and historical. If BPA had forecast inflation target at 8% would BPA have forecast a budget increase of 8%?**

No BPA would not and did not force cost projections up to the inflation forecast. Many of the cost drivers BPA examines are driven by inflationary factors so if inflation was forecast at a higher level the BPA cost forecasts would have been higher, but we do not increase budget projections to hit the target, it is intended to act as a guidepost to ensure our cost forecasts are reasonable.

- c. If BPA had given the historical expense data to one analyst and the historical inflation data to another analyst, there is no way they would produce a perfectly matching slope of the current proposal on the Kick-off presentation overview slide 6 for the forecast period 23-24. Customers understand that both inflation and budgets are under pressure, but not at the same slope if they were developed independently.** It is difficult to see the deviation from the inflationary curve on slide 6 as the dollar values are so large and slide 6 looks at the total IPR costs for both business lines. As discussed in the presentations and in the IPR detailed publication, Power Business Line's costs are increasing below the rate of inflation while Transmission's is increasing above the rate of inflation. As stated in the previous response, inflation is a driver in BPA's forecast cost increases. As such, the inflation trajectory is similar to the IPR cost trajectory.

### **Fed Hydro**

- 3. Is the hydropower value analysis completed by plant or by group, mainstem, headwaters, local support, etc.?**

The analysis that supports the Strategic Asset Management Plan (SAMP) is performed at the asset level (turbine runner, generator windings, transformer, excitation system, etc.). In total, there are about 10,000 assets for which condition, probability of failure, and risk are calculated for a 50-year planning horizon. Lost generation risk and direct cost risk profiles that are shown at the FCRPS, Strategic Class, or plant level are rolled up information from this asset-level analysis. Risks calculated are unique to each asset based on their respective condition, probability of failure, outage duration, and outage consequence. More information about this process can be found in the FCRPS Strategic Asset Management Plan in Section 10.2

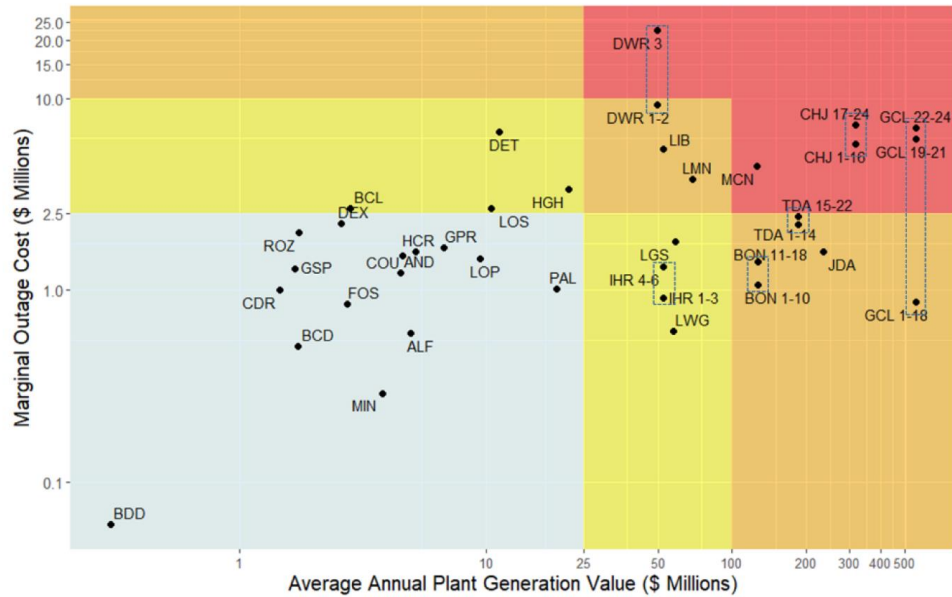
(<https://www.bpa.gov/-/media/Aep/finance/asset-management/management-plans/2022-fcrps-samp.pdf>).

- 4. Did any of the cost-benefit value ratios come out less than 1 and if so, what impact does that have on investment here?**

Costs and benefits are evaluated for prospective investments in FCRPS assets and optimized on an annual basis in the System Asset Plan (SAP). The optimization shifts the timing of projects based on their relative value to cost ratio. The value framework employed by the FCRPS includes non-financial benefits (e.g., safety and environmental) that contribute to the overall value score and influence the prioritization. This means that some investments that are ultimately approved have negative NPVs or cost-benefit ratios less than 1 from a purely cash benefit perspective but are deemed to have important non-financial value.

5. In the Fed Hydro SAMP, Figure... 7.1.1 shows a heat map of the lost generation risk and the average annual plant generation value. The lowest cost of outage and annual plant generation value is “BDD” What is the investment strategy for BDD? Are there other funding partners that place higher non-generation value for a project like BDD and how is their funding part of the analysis?

Figure 7.1-1



Lost generation and direct cost risks are calculated and investments are optimized using the same methodology across the entire FCRPS. The impact of an outage at Boise Diversion Dam (BDD) is far less than that of Grand Coulee (GCL). This is factored into the optimal replacement date calculation as assets with higher outage consequences will generally need to be replaced earlier in their lifecycle in order to minimize lifecycle costs. Additionally, when the model is making prioritization decisions under constrained budgets, it will tend to choose investments at Grand Coulee, for example, that have a higher value to cost ratio. With that said, investments at a plant like BDD are often less expensive and can occasionally be slotted in if the model finds it optimal to do so. As mentioned during the presentation, investments tend to be fairly proportional to lost generation risk across the system. Lost generation risk and planned investments are so minimal in the next 10 years at BDD that it can barely be seen on the chart on Slide 46 of the IPR presentation.

Plants in the Local Support strategic class, like BDD, often support other congressionally-authorized purposes for the Corps or Reclamation. For Reclamation, many of the smaller plants support irrigation and water delivery. In addition to revenue earned by BPA from power sales, Reclamation bills and collects revenue from its irrigation customers including those in southern Idaho for federal power made available under statutory directive. Those customers pay for energy used based on the cost of production (O&M, NREX, and capital) as calculated by Reclamation. Revenues collected from irrigation customers are deposited into the U.S. Treasury and BPA takes an annual treasury credit equal to the amount collected.

- 6. It does appear that there is a proficient level of optimization going on in the direction of fed hydro capital spending generally, but whether that is coordinated with parties is unclear. Dollars should be directed at high value assets, but does the Corps and Bureau consider taking low value assets out of service or requiring funds from non-gen sources for continued operations?**

The SAMP, formerly the Hydro Asset Strategy, has been developed every two years since 2010. Historically, this process was led by BPA with coordination from the Corps and Reclamation. In recent years, coordination on modeling assumptions and writing of the SAMP has increased. The SAP, which is a 20-year roadmap of investments in FCRPS assets, has been collaboratively developed by the Corps, Reclamation, and BPA since 2016. The analysis that supports the SAMP uses in-flight projects from the SAP as a baseline, representing the majority of the first ten years of the investment forecast. As mentioned in other responses, the processes that drive the SAMP and SAP tend to drive investments to high risk assets.

When major powertrain modernization projects are studied, FCRPS staff evaluate how many units within a plant make economic and operational sense to continue to maintain. At some facilities, these analyses have led to recommendations that fewer than the total number of units be modernized or that a number of units be included as options to be exercised at the end of the long-term project if it is economically advantageous to do so at that point in time.

BPA is always obligated to pay for the power share of costs regardless of whether it's through direct funding or repayment of U.S. Treasury appropriations.

- 7. Given past inability to execute the \$200 million capital plan, and the consideration of the \$300 million target again, we think it is still more realistic to assume at \$250 million capital plan or something closer to a doable result based on past execution, changes in staffing and economic pressures. Will a 17% lapse factor apply to the \$300 million target or some other adjustment for rate revenue obligations?**

The ability to ramp up the program relies on several large powertrain investments, specifically at Grand Coulee, McNary and Chief Joseph dams. These investments have taken longer to plan, design and execute than expected but are core to the business case for a higher level of investment. This is the primary reason that capital execution levels have not reached the \$300 million target identified in past IPRs.

The Federal Hydro capital investment levels shown in Table 10.3-1 were derived from the methodology described in Section 10.2 of the SAMP. The recommended capital investment strategy remains to ramp up the combined expand and sustain budget to \$300 million in 2024 and then increase at the rate of inflation for years beyond. Inflation has been historically low at around 2% but will likely be higher in future plans given the recent uptick in current inflation.

To accommodate for risks and uncertainties around execution, BPA uses a midpoint (obtained based on a range of capital spend) for projected future Capital Expenditures shown in Table 10.3-2 below for BP-24 IPR and rate case processes only. In the past BPA has described this as a lapse factor and it would equate to about an 11% reduction from planned levels of capital spend.

## **Energy Efficiency**

### **8. How does the budget efficiency compare between the current proposed total budget and the BP20 actuals for actual conservation achievement on a \$/kwh basis?**

BPA's final FY 2024 energy conservation goal will be determined by its Energy Efficiency Action Plan which is expected to be finalized in early calendar year 2023. As discussed in the IPR presentation, BPA's Resource Program is showing on average a need about 50 aMW per year between FY 24 and FY 27.

### **9. On slide 25, what is the projected aMW achievement for 2024, trying to compare that to what was spent and achieved in 2020 (\$99 million for 80 aMW) what's that in 2024? \$113 million gets customers how much?**

Several factors impact the change in magnitude of savings between FY 2020 and FY 2024.

- The savings portfolio in FY 20 still contained a substantial portion of low cost high yield savings like residential lighting, increasing our overall accomplishments at very low cost. BPA's savings portfolio going forward is focused on Resource Program and Power Plan targets which identify a much more constrained set of measures that are cost effective and suitable to meet BPA's system needs. This change in portfolio composition increases the cost of savings which likely reduces the amount of energy savings achievable within the proposed budget.
- The savings reported in FY 20 are significantly higher because FY 20 is near the end of an action plan period, when Momentum Savings (which tracks market change over time) tend to be the greatest. For example, compare FY20 when BPA is reporting a preliminary Momentum savings total of 15.2 aMW to FY 16 when BPA is reporting a preliminary Momentum savings total of -1.3 aMW.

## **Transmission Capital**

### **10. Lapse factors for actual execution of capital programs, have they changed from the last IPR? And what are the current assumptions. Why did BPA change this or not change this given a history of under-spend? How does this relate to the "mid-point" approach in tables 10.3.1 and 10.3.2 in the Transmission SAMP?**

During IPR2 last year, BPA used a 10% lapse factor for FY22 and FY23 for Transmission only and only for rate setting purposes. This was mainly due to a history of under-spending due to multiple issues. For this IPR, we chose to implement the same 10% lapse factor (for Transmission and Fed Hydro), mainly to account for supply chain constraints and issues with resources. The difference is that this IPR, the SAMP incorporated this lapse factor, and published the "mid-point" table in the Transmission and Fed Hydro SAMPs (Table 10.3-2) to create more transparency. The SAMPs and execution is targeting the higher values (Table 10.3-1), but the mid-point numbers are what is used in IPR and rate calculations.

### **11. Can Transmission provide historical actuals for Tables 10.3-1 and 10.3-2 in the 2022 Transmission SAMP?**

Historic actuals can be found in section 8.1 of the SAMP document, Table 8.1-1, below for convenience:

## 8.1 Historical Costs

Transmission’s historical costs along with the current approved rate case costs are depicted in the table below.

*Table 8.1-1 Historical Spend*

Capital & Expense Sub-Categories	Historical Actual Spend					SOY	Rate Case
	FY17	FY18	FY19	FY20	FY21	FY22	FY23
Sustain	\$ 200,521	\$ 159,682	\$ 139,552	\$ 145,053	\$ 158,605	\$ 180,200	\$ 212,000
Expand	\$ 70,149	\$ 71,595	\$ 84,617	\$ 61,684	\$ 100,116	\$ 81,900	\$ 115,000
PPIA	\$ 5,197	\$ 32,907	\$ 57,201	\$ 15,626	\$ 10,916	\$ 15,000	\$ 50,000
<b>Total Capital</b>	<b>\$ 275,867</b>	<b>\$ 264,184</b>	<b>\$ 281,370</b>	<b>\$ 222,363</b>	<b>\$ 269,638</b>	<b>\$ 277,100</b>	<b>\$ 377,000</b>
Maintenance	\$ 133,121	\$ 132,140	\$ 136,732	\$ 131,733	\$ 138,263	\$ 142,073	\$ 144,084
Other	\$ 88,425	\$ 84,705	\$ 85,927	\$ 94,389	\$ 105,300	\$ 107,167	\$ 108,248
<b>Total Expense</b>	<b>\$ 221,547</b>	<b>\$ 216,845</b>	<b>\$ 222,659</b>	<b>\$ 226,121</b>	<b>\$ 243,563</b>	<b>\$ 249,239</b>	<b>\$ 252,333</b>
<b>Total Transmission</b>	<b>\$ 497,414</b>	<b>\$ 481,029</b>	<b>\$ 504,029</b>	<b>\$ 448,485</b>	<b>\$ 513,202</b>	<b>\$ 526,339</b>	<b>\$ 629,333</b>

### 12. Can Transmission detail why sustain capital is increasing so much faster than expand capital?

Transmission’s capital sustain program is currently targeting a steady-state execution capability of approximately \$300M, based on many factors including asset health, technical obsolescence, and criticality, health and risk. The Capital-PPIA program is also increasing based on regional renewable portfolio standards, but at a less rapid rate based on specific execution projections of projects already in flight, as well as overall programmatic expectations based on requests in the queue. The expand program is expected to remain approximately flat based on forecasts of system expansion projects that have been identified.

### 13. Grid modernization is always a theme in Transmission IPR, but how much modernization (in \$) is complete and when will Transmission be “caught up” so to speak with industry standard technology for a normal IPR level?

Grid Mod has several projects that have and are nearing completion and aided in BPA’s ability to move the EIM. To date, we have completed approximately \$55m through FY21. However, there is more needing to be done and we anticipate completion in the FY24 timeframe.

## Fish and Wildlife

### 14. Why are the Strategic Asset Management plans split into three plans and no one coordinated SAMP for EFW funding from BPA? On the SAMPs, it just seems like a different approach than taken by all the other business units and overall, it seems like one SAMP that considers the spending against each other would have been appropriate.

Hatcheries, Lands and Screens all have distinct characteristics at an asset level and therefore require different qualitative and quantitative descriptions for each section. These differences in characteristics led the EFW team to develop individual SAMPs for each of those asset categories (hatcheries, Lands and Fish Screens) with unique recommended strategies, as well as varied source of capital and expense funding.

### 15. On slide 13, given the significant increase in funding from 2008 to 2018, did biological conditions improve overall because of the added funding or did it just cost more, can you speak to what ratepayers achieved with that increased funding, generally?

This information was made publicly available on July 1, 2022, and contains information sourced directly and not directly from BPA financial statements.

During this period, 2008 – 2018, the increase in funding was largely associated with implementing mitigation actions associated with various ESA consultations. Many of these actions were incorporated into the Columbia River Basin Fish Accord agreements, and through the Accords, the F&W Program has protected over 500 stream miles and almost 42 thousand acres of habitat for fish and wildlife. The F&W Program has also increased annual production potential by 5 million fish through hatchery construction and upgrades. This represents increased production for eight anadromous and resident fish species. Additional metrics and measurement associated with mitigation actions can be found on <http://www.cbfish.org> and, as an example, track the amount of habitat improved or made accessible using the ratepayer funds that have been identified in this and previous rate periods.

Based on the combination of actions that were proposed in 2020 by Bonneville, NMFS and USFWS determined the actions are not likely to jeopardize the continued existence of the ESA-listed species, (e.g., thirteen species of salmon and steelhead species; Kootenai River white sturgeon and bull trout) or not likely to adversely affect green sturgeon and Southern Resident killer whale. NMFS and USFWS also determined the actions were not likely to destroy or adversely modify designated critical habitat of any ESA-listed species. This conclusion was based on an analysis of actions that have previously occurred or (some under previous BiOps) and new actions included by the Action Agencies in the proposed action, such as increased spill levels and a commitment to continue hatchery and habitat improvement actions to support fish and wildlife species in the Columbia Basin.

a. **On hatcheries- we support meeting existing obligations, but overall hatcheries have limited economies of scale for biological success and over-investment in hatcheries can have negative impacts on native stocks, how is BPA balancing this funding tension?**

Numerous environmental efficiencies are available to modern aquaculturists that help reduce unintended negative impacts that have been associated with over-reliance on hatchery programs. When building new hatcheries or upgrading existing infrastructure, BPA strives to use energy efficient and cost effective equipment such as solar panels, variable frequency drives, and water reuse systems to limit the environmental impact of hatchery operations and to increase the biological effectiveness of the program. Biological success of the programs are measured in a variety of ways, dependent on the hatchery's purpose(s); however, all BPA hatchery programs undergo environmental review to ensure that they operate in a way to benefit the intended fish stock and minimize or eliminate harm to the environment.

### **Information Technology**

**16. How is IT working to bend the cost curve going forward to reduce the slope of cost escalation back to demonstrated historical cost bending success?**

In general, IT is a service organization that exists only to enable all other departments within BPA to perform their missions efficiently and effectively, and doing so while meeting requirements to keep BPA's IT assets and business information protected from cyber risks. In the end, the implementation and ongoing maintenance of any business automation adds to the IT budget while the business unit using the automation realizes the efficiencies gained.

During FY18-FY21, IT employed some specific strategies to mitigate upward pressures on IT spending:

1. We held synchronous workshops to identify and remove duplicative applications.
2. We reduced workforce through supplemental labor reductions, and deferral of federal hires.
3. We reduced the number of new automation projects starting each year.
4. We stretched the life cycle of some assets beyond recommendations.

These actions combined to form a solid baseline of IT spending and helped to mitigate the upward pressures of demands for new services and moderate market inflation. However, some areas cut too deeply and require some adjustment, such as staffing levels that now contain several single-points-of-failure that increase too sharply the risk of system outages, and catching up on life cycle replacement of existing assets.

Current upward pressures of equipment and maintenance contract inflation much higher in IT than in general markets, the scarcity of IT talent in the marketplace driving the cost of IT labor much higher, and far-reaching federal requirements regarding cyber security, is affecting IT capabilities and budgets more drastically than in recent history. Further reductions in other areas of IT budgets in order to mitigate these pressures will result in reduction of the services demanded by our internal customers to conduct their missions. However, in order to make the best financial decisions IT has also instituted Enterprise Architecture practices combined with solutions architecture to make sure we are making best use of existing IT assets to achieve business capabilities, created Strategic Business Partner relationships to work with our internal BPA departments to develop and manage priorities for departmental demand of IT products and services, and we are utilizing lease options and managed services for specific functions where cost savings can be demonstrated.

### **Columbia Generation Station**

**17. BPA - On the additional \$31 million in additional capital proposed, what would be the impacts to IPR expenses if this project were included from BPA's perspective?**

Preliminary estimate of revenue requirement impact would be approximately \$1.5M per year of interest in BP-24. The interest expense associated with the additional \$31 million of capital spending would not be IPR expenses. This cost would be largely offset by the estimated O&M reduction presented. These numbers are preliminary in nature and are still under review.

**18. BPA -- What is BPA's time horizon for evaluating the CGS additional capital proposal?**

BPA has not established a formal timeline. We are currently working in collaboration with Energy Northwest to develop a timeframe that will support both organizations constraints.

**19. Energy Northwest - Can you talk more about the Fuel Cash inflation forecast, what did you base the 24 projections on?**

Jeff Windham of Energy Northwest: As presented during the BP-24 IPR workshop, the actual amount of enrichment and fabrication completed during a given rate period can fluctuate in part driving the increase shown in BP-24. However, BP-24 includes an approximate 6% expected escalation given the current market conditions we have seen. The primary basis for fabrication services is based on Industrial Commodities and Labor through the U.S. Bureau of Labor and

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Statistics which has shown a 22.7% increase for commodities and 3.4% increase for labor over the past year. Enrichment services are tied to the Gross Domestic Product Implicit Price Deflator for GDP/IPD index which has also shown an approximate 5.3% increase over the past year.

**a. How certain are these estimates given global instability?**

Jeff Windham of Energy Northwest: Given the global and national challenges we have seen around fuel supply as well as increased inflation challenges domestically, there is uncertainty around estimates looking 2+ years into the future. While Energy Northwest maintains a robust inventory and is less exposed to changes in uranium prices over the next ten years, fabrication and enrichment services tied to specific indexes remain exposed to future economic conditions. As always, Energy Northwest will continue to look for opportunities to minimize or mitigate future impacts and maintain one of the lowest fuel costs amongst our peers.

**20. Energy Northwest - What do you estimate the impact on debt retirement, would it extend into the future and by how many years?**

Jeff Windham of Energy Northwest: is still in the process of evaluating the potential and overall value of a Subsequent License Renewal (SLR) that could extend Columbia's operations through 2063. There has been no formal evaluation or coordination with BPA or the region on the future debt management actions that could occur as a result of an SLR. However, in general, Energy Northwest has the ability to issue tax-exempt bonds to align with the life of the asset being financed. If the life of Columbia were to be extended to 2063, Energy Northwest could issue tax-exempt bonds to finance the ongoing capital needs and align the debt with the useful life of Columbia. Existing debt may or may not be impacted. Changes to existing debt, current and/or future debt management initiatives would need to go through a much more detailed evaluation and approval process to further understand the impacts and potential benefits.

**a. What are the benefits of additional borrowing authority that might result?**

Jeff Windham of Energy Northwest: The recent increase in borrowing authority has provided increased low-cost financing options and flexibility for BPA. Capital financing options are evaluated at the debt portfolio level and Energy Northwest's ability to issue tax-exempt bonds for capital related costs is an important and valuable component.