

BP-22 Integrated Program Review

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Cristina Reyff, VP Corporate Finance/CFO/CRO

Agenda

- Introductions
- Columbia Generating Station - Commitment to the Region
- BP-22 Integrated Program Review (IPR)
- Columbia Long-Range Plan
- Cost Effective Operation

Commitment to the Region

- Powering our Clean Energy Future
- Protect & Optimize Columbia Generating Station
 - Safe, reliable, predictable, and competitive generation asset
 - Long-term base load power
 - Excellence based management model
 - Regional value partner providing benefit to public power members and regional customers

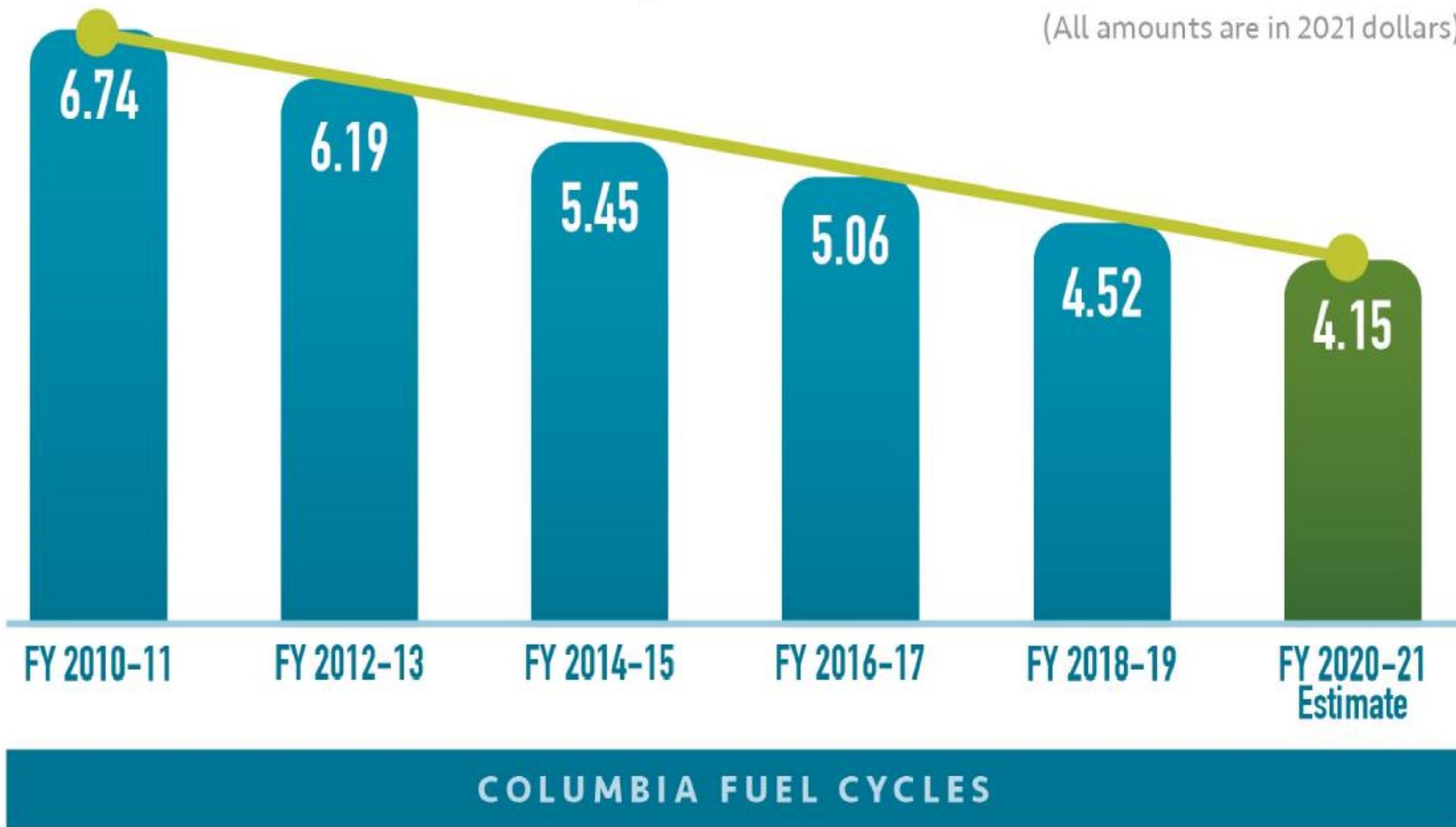
Sustainable Cost-Competitiveness

- Financial Strategy
 - Strategic long-term outlook
 - Sustainable cost reduction plan
 - Prioritized capital investment plan
 - 10-Year fuel procurement strategic plan
 - Innovation
- Benchmarking
- Long-Term Forecasting
- Education



Columbia Generating Cost of Power Trend - cents per kilowatt-hour

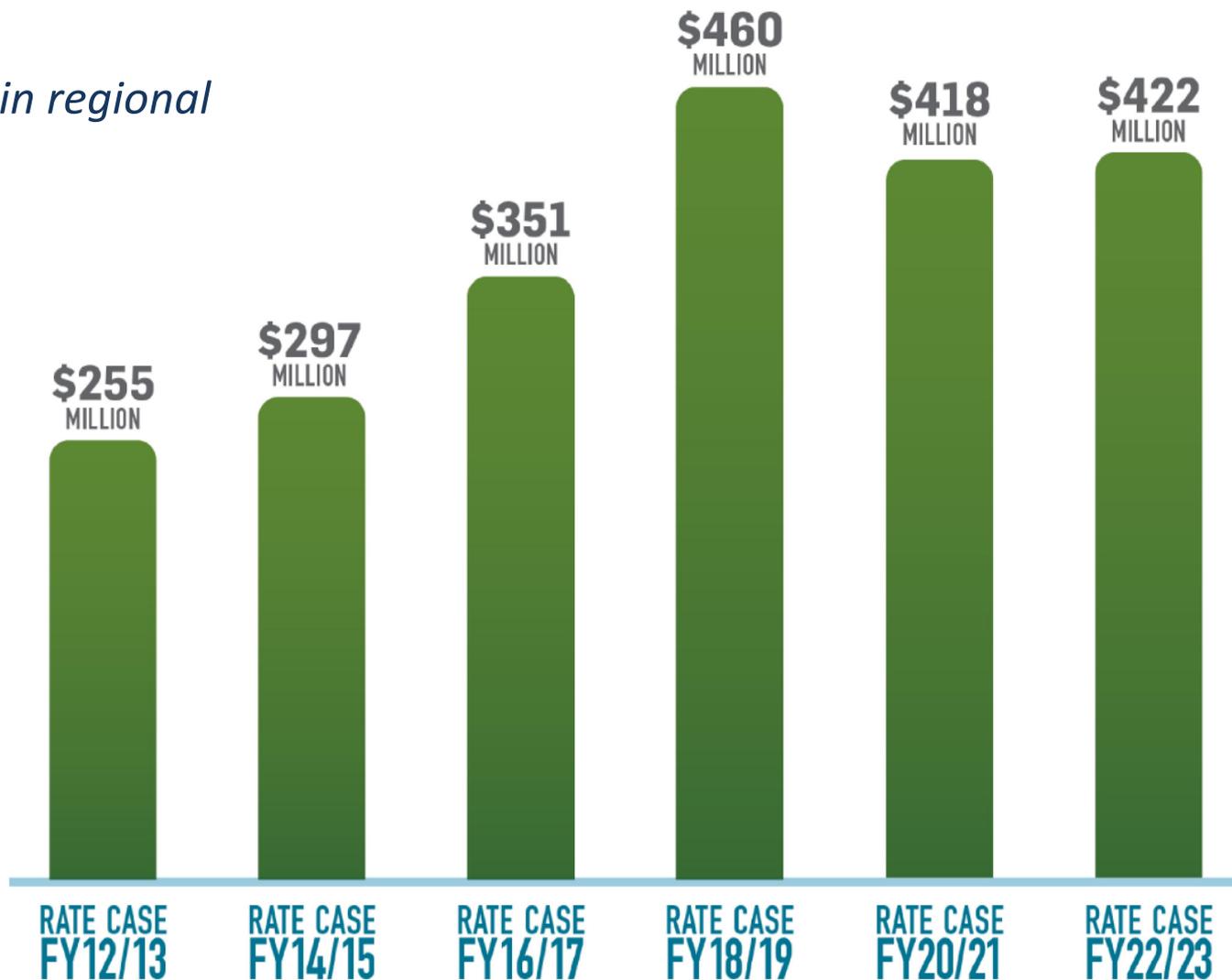
(All amounts are in 2021 dollars)



COLUMBIA FUEL CYCLES

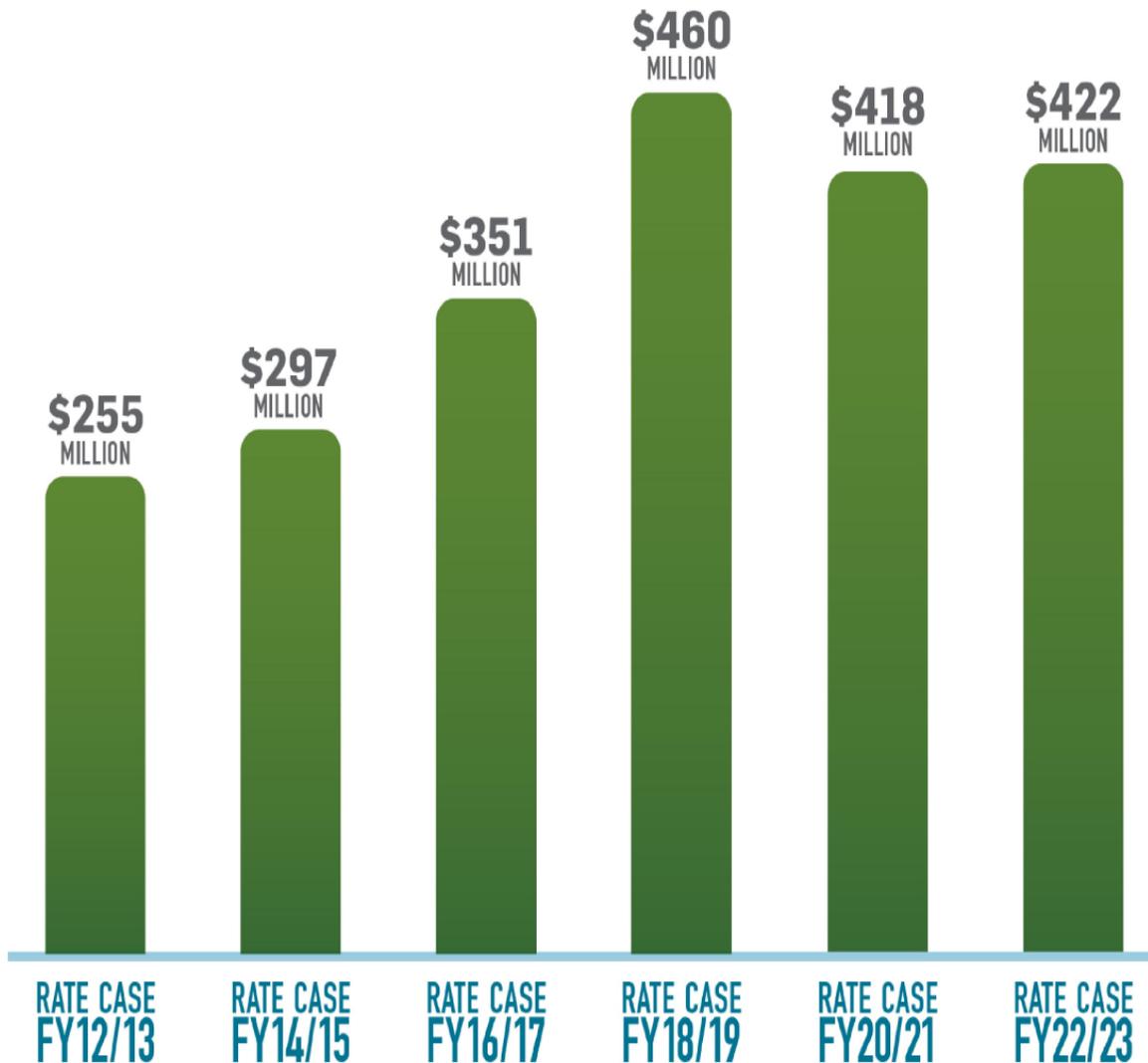
Regional Savings

*More than \$2.2 billion in regional savings over 12 years (2012-2023)**



Regional Savings – rates*

**6.4% – 11.5% savings in rates per period – based on estimate that every \$40 million in savings equals 1% reduction in wholesale electricity rates*



BP-22 IPR

Johnathan Hicks, Budget & Project Performance Manager

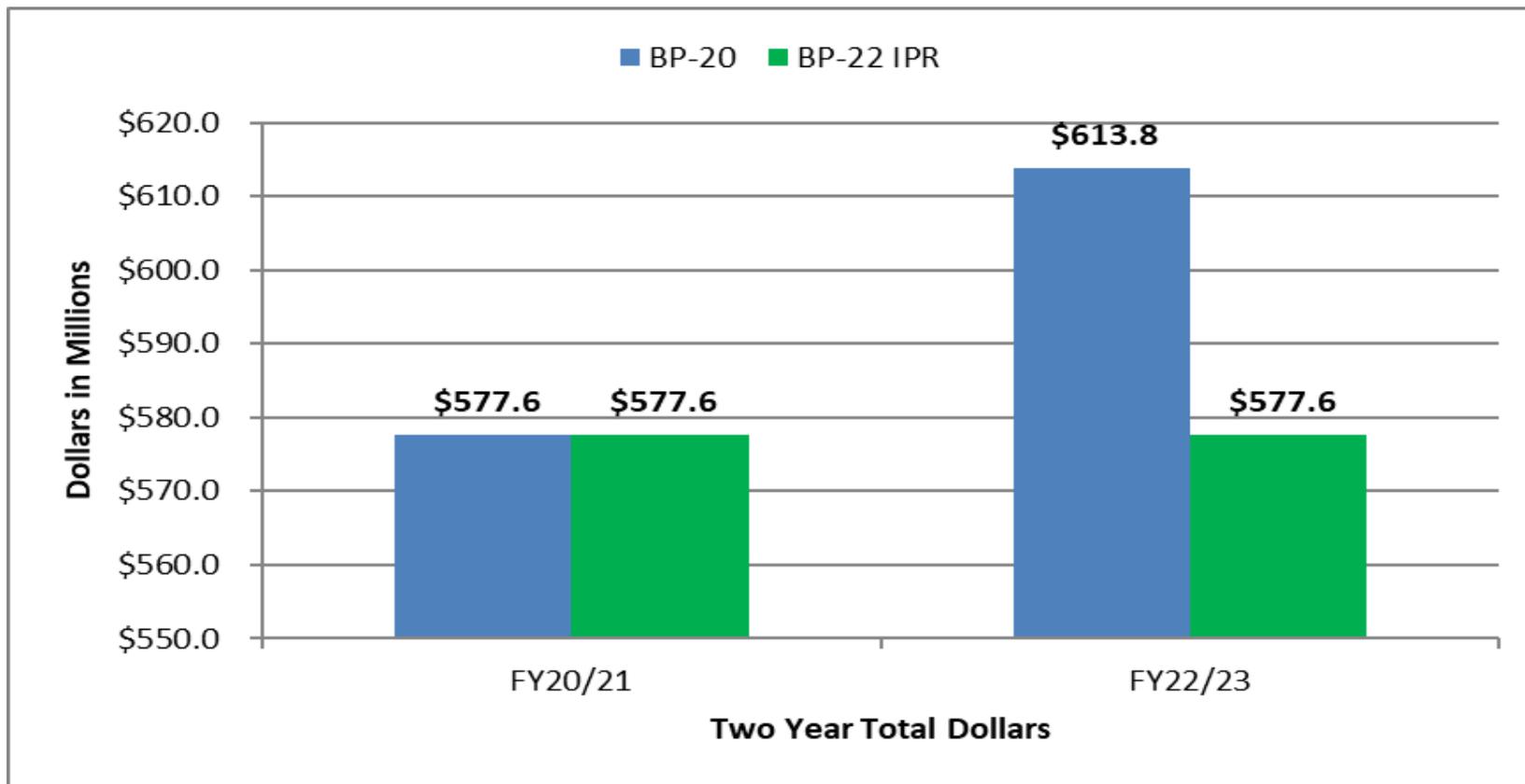
Columbia IPR Cost Elements

- Operations & Maintenance (O&M) Costs
- Spares/Inventory Adjustments
- Generation Taxes
- Fuel Procurement
- Independent Spent Fuel Storage (ISFSI)
Decommissioning Fund
- ISFSI Settlement Claim Submittal Costs

Columbia Commitment

- Hold Costs at BP20 Amount of \$577.6 Million for BP-22 IPR (\$288.8 Million 2-Year Average)
 - Have absorbed inflation
 - Accelerated staffing reductions through attrition
 - Cost-effective Operation Initiatives
 - Managed Service Provider
 - Zero-Based Spending Level
 - Adjusted Capital Plan by approximately \$70 million
 - Pulled forward approximately \$58 million in planned capital projects
 - Increase generation by approximately 24 MW
 - Reduce labor and benefits by approximately \$1.9 million yearly starting FY23
 - Moves approximately \$12 million from O&M to capital as a result of the updated corporate indirect allocation

Columbia Changes to IPR*



*This is a comparison of Columbia’s planned Long Range Plan during BP-20 to Columbia’s commitment for BP-22 IPR.

Fiscal Year 20/21 Comparison to Rate Cases

Dollars in Thousands

BPA FY	BP-20	BP-22 IPR	Total Delta
Columbia O&M	\$501,386	\$479,972	(\$21,414)
Spares/Inventory Adj	\$12,225	\$12,225	\$0
Generation Tax	\$13,228	\$13,228	\$0
Subtotal O&M	\$526,839	\$505,425	(\$21,414)
Fuel	\$71,326	\$71,326	(\$0)
Fuel Litigation	\$384	\$370	(\$14)
ISFSI Decomm Fund	\$463	\$463	\$0
Undistributed Reduction*	(\$21,428)	\$0	\$21,428
Total IPR	\$577,584	\$577,584	(\$0)

Fiscal Year 22/23 Comparison to Rate Cases

Dollars in Thousands

BPA FY	BP-20	BP-22 IPR	Total Delta
Columbia O&M	\$503,801	\$465,978	(\$37,823)
Spares/Inventory Adj	\$11,375	\$13,889	\$2,514
Generation Tax	\$13,807	\$13,216	(\$591)
Subtotal O&M	\$528,983	\$493,083	(\$35,900)
Fuel	\$83,958	\$83,608	(\$350)
Fuel Litigation	\$378	\$370	(\$8)
ISFSI Decomm Fund	\$523	\$523	\$0
Total IPR	\$613,842	\$577,584	(\$36,258)

Columbia Long Range Plan

Corey Olivier, Strategy & Risk Manager/Deputy CRO

Long-Range Plan (LRP) – Overview

- Complete 10-year financial forecast for Columbia (CAP/OM)
 - Operating Spending Levels
 - Projects (Plant, Facilities, and Information Technology)
 - Fuel
 - Columbia Owned Buildings
- Key Methodology and Strategy
 - Comprehensive, systematic, multi-phased and risk based
 - Proactive equipment reliability and life cycle management plan
 - Addresses known vulnerabilities and regulation
 - Incorporates necessary risk reserve and escalation
 - Incorporates cost reduction targets and rate case requirements
 - Annual update and challenge

Approved Columbia FY 2021 Long Range Plan

BPA Rate Case	RC										
Columbia Fiscal Year	FY21 (R25)	FY22	FY23 (R26)	FY24	FY25 (R27)	FY26	FY27 (R28)	FY28	FY29 (R29)	FY30	FY31 (R30)
Operations & Maintenance (O&M) Costs±											
Baseline Costs	\$ 127,726	\$ 121,748	\$ 116,605	\$ 111,299	\$ 116,158	\$ 112,046	\$ 112,414	\$ 106,708	\$ 111,200	\$ 109,916	\$ 109,180
Outage Costs (Incremental)	\$ 22,952	\$ -	\$ 21,804	\$ -	\$ 22,240	\$ -	\$ 22,240	\$ -	\$ 22,240	\$ -	\$ 22,240
Indirect Allocations ▼	\$ 79,875	\$ 73,379	\$ 74,106	\$ 76,448	\$ 75,927	\$ 74,904	\$ 77,501	\$ 78,401	\$ 79,620	\$ 78,328	\$ 79,553
Plant Projects	\$ 32,369	\$ 7,929	\$ 33,537	\$ 7,707	\$ 37,401	\$ 7,787	\$ 38,834	\$ 10,228	\$ 38,459	\$ 8,756	\$ 39,504
Facilities Projects	\$ 777	\$ 1,022	\$ 777	\$ 1,022	\$ 777	\$ 1,022	\$ 777	\$ 1,022	\$ 777	\$ 1,022	\$ 777
Risk Reserve	\$ 3,893	\$ 1,652	\$ 2,000	\$ 1,652	\$ 2,000	\$ 1,654	\$ 2,787	\$ 1,697	\$ 2,300	\$ 1,668	\$ 3,200
Subtotal O&M Costs	\$ 267,592	\$ 205,730	\$ 248,830	\$ 198,127	\$ 254,504	\$ 197,413	\$ 254,554	\$ 198,056	\$ 254,596	\$ 199,690	\$ 254,455
Escalation (3% Labor / 1% Non-Labor)	\$ -	\$ 3,439	\$ 7,692	\$ 9,992	\$ 23,792	\$ 23,992	\$ 36,403	\$ 34,232	\$ 49,626	\$ 45,411	\$ 63,250
O&M 2-year average	\$ 247,159	\$ -	\$ 227,280	\$ -	\$ 226,316	\$ -	\$ 225,984	\$ -	\$ 226,326	\$ -	\$ 227,073
Total O&M Costs (escalated)	\$ 267,592	\$ 209,169	\$ 256,522	\$ 208,119	\$ 278,296	\$ 221,405	\$ 290,956	\$ 232,288	\$ 304,222	\$ 245,102	\$ 317,705
Capital Costs±											
Plant Projects *	\$ 78,759	\$ 60,845	\$ 82,751	\$ 50,124	\$ 89,160	\$ 28,717	\$ 44,819	\$ 36,288	\$ 54,445	\$ 40,037	\$ 62,125
Risk Reserve	\$ 8,108	\$ 8,032	\$ 11,199	\$ 8,162	\$ 7,983	\$ 17,637	\$ 12,273	\$ 27,323	\$ 21,966	\$ 24,593	\$ 22,390
Facilities Projects	\$ 1,556	\$ 649	\$ 649	\$ 649	\$ 649	\$ 649	\$ 649	\$ 649	\$ 649	\$ 649	\$ 649
Information Technology Projects	\$ 4,792	\$ 6,045	\$ 6,495	\$ 8,294	\$ 6,915	\$ 5,706	\$ 7,154	\$ 7,154	\$ 7,656	\$ 8,586	\$ 7,551
Indirect Allocations ▼	\$ 16,378	\$ 18,763	\$ 17,754	\$ 12,081	\$ 13,586	\$ 13,234	\$ 12,018	\$ 10,165	\$ 10,333	\$ 10,440	\$ 10,844
Subtotal Capital Costs	\$ 109,593	\$ 94,334	\$ 118,849	\$ 79,309	\$ 118,293	\$ 65,943	\$ 76,914	\$ 81,580	\$ 95,049	\$ 84,305	\$ 103,559
Escalation (3% Labor / 1% Non-Labor)	\$ -	\$ 1,334	\$ 3,447	\$ 3,405	\$ 12,052	\$ 8,394	\$ 12,309	\$ 14,720	\$ 20,520	\$ 19,871	\$ 28,355
Capital 2-year average (unescaled)	\$ 78,570	\$ -	\$ 106,591	\$ -	\$ 98,801	\$ -	\$ 71,429	\$ -	\$ 88,314	\$ -	\$ 93,932
Total Capital Costs (escalated)	\$ 109,593	\$ 95,668	\$ 122,295	\$ 82,714	\$ 130,344	\$ 74,337	\$ 89,223	\$ 96,300	\$ 115,569	\$ 104,177	\$ 131,914
Fuel Costs											
Nuclear Fuel Amortization **	\$ 50,041	\$ 58,011	\$ 52,146	\$ 56,434	\$ 50,780	\$ 58,585	\$ 52,609	\$ 59,728	\$ 53,592	\$ 59,862	\$ 57,129
Subtotal Fuel Costs	\$ 50,041	\$ 58,011	\$ 52,146	\$ 56,434	\$ 50,780	\$ 58,585	\$ 52,609	\$ 59,728	\$ 53,592	\$ 59,862	\$ 57,129
Total Un-escalated Budget	\$ 427,226	\$ 358,075	\$ 419,825	\$ 333,871	\$ 423,576	\$ 321,941	\$ 384,077	\$ 339,364	\$ 403,238	\$ 343,857	\$ 415,143
Total Escalation	\$ -	\$ 4,773	\$ 11,138	\$ 13,397	\$ 35,844	\$ 32,386	\$ 48,711	\$ 48,952	\$ 70,146	\$ 65,283	\$ 91,605
Total Cost - Industry Basis	\$ 427,226	\$ 362,848	\$ 430,963	\$ 347,267	\$ 459,420	\$ 354,327	\$ 432,788	\$ 388,316	\$ 473,383	\$ 409,140	\$ 506,748
Generation/Cost of Power											
Total Net Generation (Gwh)	8,731	9,806	8,731	9,935	8,822	10,009	8,912	10,036	8,912	10,009	8,912
Outage Days	40		40		40		40		40		40
Cost per MW/h (Production) - escalated	\$ 36.38	\$ 27.25	\$ 35.35	\$ 26.63	\$ 37.30	\$ 27.97	\$ 38.55	\$ 29.10	\$ 40.15	\$ 30.47	\$ 42.06
Cost per MW/h (Generating) - escalated	\$ 48.93	\$ 37.00	\$ 49.36	\$ 34.96	\$ 52.08	\$ 35.40	\$ 48.56	\$ 38.69	\$ 53.12	\$ 40.88	\$ 56.86
Key Assumption/Qualifications (Revision - 4/15/20)											
Escalation Rate = Labor 3% and Non-labor 1% (FY22-FY24) 2% Non-labor (FY25-FY31)											
Net Generation 1160 Mwe; assumes 1% unplanned/ 2.5% planned loss; FY24 12Mwe increase MSR; FY26 12Mwe increase Main Turbine Upgrade; Every fourth year, generation increases slightly due to leap											
▼ Potential Financial Risk; * Includes moveable capital ** Does not include fuel costs associated with generation increases											

LRP Look Ahead –Major Capital Projects (Implementation years)

- Regulatory Projects
 - Initial Plant License Renewal (FY21/FY23)
 - Total project cost \$10 million
 - Independent Spent Fuel Storage Installation Pad Expansion (FY23-25)
 - Total project cost \$13.6 million
- Life Cycle Management Projects
 - Reactor Water Clean-up Heat Exchanger Replacement (FY21)
 - Total project cost \$16.3 million
 - Plant Process Computer Replacement (FY25)*
 - Total project cost \$20 million - \$5.8 million moved into BP-22 IPR
 - Reactor Recirculation Pump/Motor Replacement (FY21/FY25)
 - Total project cost \$31.7 million
 - Low Pressure Turbine Replacements (FY21)
 - Total project cost \$13.2 million
 - High Pressure Turbine Replacement (FY25)*
 - Total project cost \$25 million - \$7.7 million moved into BP-22 IPR
 - Approximately 12 MW gain in generation
 - Moisture Separator Reheater Replacement (FY23)*
 - Total project cost \$38 million - \$35.3million moved into BP-22 IPR
 - Approximately 12 MW gain in generation

**capital funding increase in 2022 IPR planning years to support*

LRP Look Ahead – Strategic Initiatives

- Capital projects support improved efficiency and/or O&M cost reduction efforts
 - Advanced Remote Monitoring
 - Foundation for condition based preventative maintenance
 - Total project cost \$0.7 million
 - Fire Probabilistic Risk Assessment
 - Total project cost \$0.4 million
 - 10 CFR 50.69: risk-informed categorization and treatment*
 - Total project cost \$1.8 million - \$1.2 million moved into BP-22 IPR
 - Security Boundary Wall*
 - Total project cost \$7.0 million - \$5.3 million moved into BP-22 IPR
 - Reduces O&M labor and benefits by approximately \$1.9 million each year starting FY23
- Workday Enterprise Tool
 - Total project cost \$5.4 million
 - Reduces future O&M software license fees and costs to maintain current financial enterprise tool
- Facilities Configuration Improvements
 - Total project cost \$0.9 million
- Second License Renewal Study
- Extended Power Uprate Study
 - Total project cost for both Second License Renewal Study and Extended Power Uprate Study \$2.8 million

**capital funding increase in 2022 IPR planning years to support initiatives*

Cost-effective Operation

David Jordan, Financial Planning & Analysis Manager

Cost-effective Operation



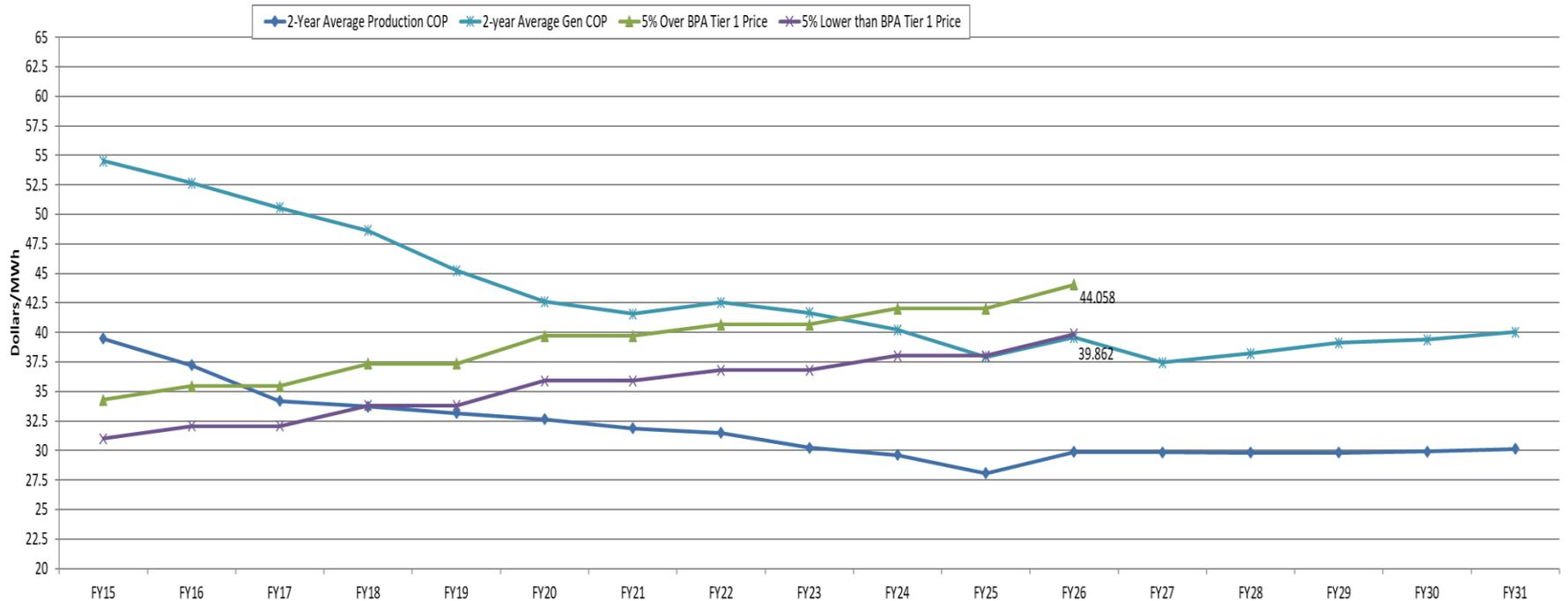
Purpose: Purpose is to ensure continued competitiveness in the region while ALSO ENSURING safe, reliable, and predictable operation of Columbia for the extended future.

- Delivering the Nuclear Promise
- Lowering Cost of Power
- Allocating Resources & Eliminating Low-Value Work

Cost-effective Project Initiatives

- Staffing and Attrition Management
- Managed Service Provider
- Zero-based Spending Levels – O&M
- Zero-based Spending Levels – Outage
- Cost Savings Idea program
- Inventory Control

Cost-effective Operation – Columbia’s LRP



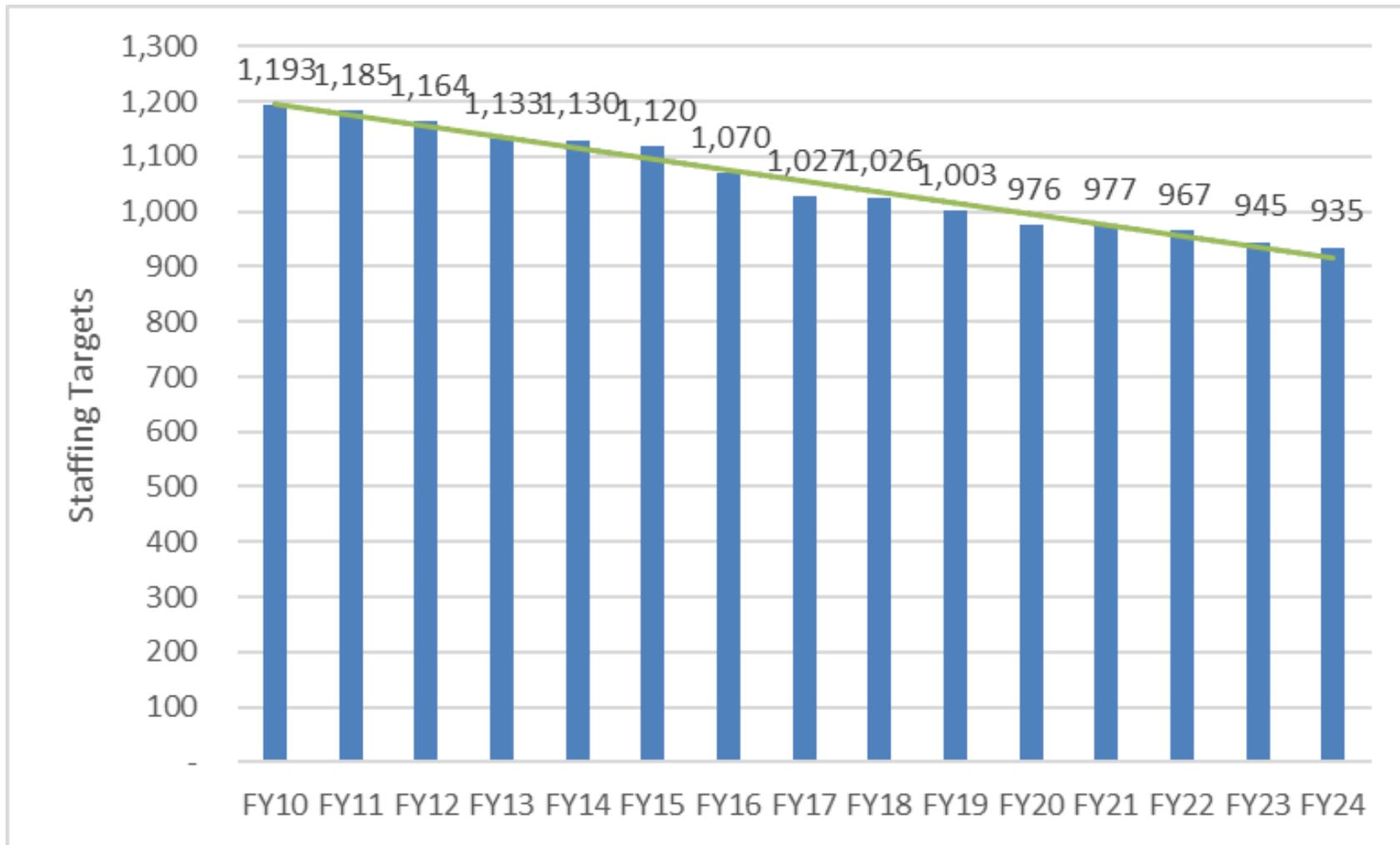
Production COP – O&M+Fuel/Generation
Generating COP – O&M+Capital+Fuel/Generation

Trajectory and targets assessed annually

Staffing and Attrition Management

- Oversight by Senior Leadership
- Staffing targets reviewed bi-weekly as part of hiring
- O&M Spending Level reviewed monthly
- Project, temp, and intern utilization
- Capital project – direct
- Staff augmentation utilization & control (ex: managed service provider)
- Optimization – do new things / span of control

Staffing and Attrition Management



Managed Service Provider

- Energy Northwest Contingent Worker service program
 - In FY18 transitioned station contractors to Volt Services
 - Reduction of staff augmentation costs
 - Implementation is expected to continue to reduce cost in the future
 - Benchmarked from Bonneville Power Administration

Zero-Based Spending Level – O&M

- Corporate Asset Management established spending level targets for Department Managers to adhere to
- Challenge Meetings set-up with each Department Managers
- Achieved \$1.5M reduction in FY21, currently reflected in Columbia's Long Range Plan

Zero-Based Spending Level – Outage Incremental

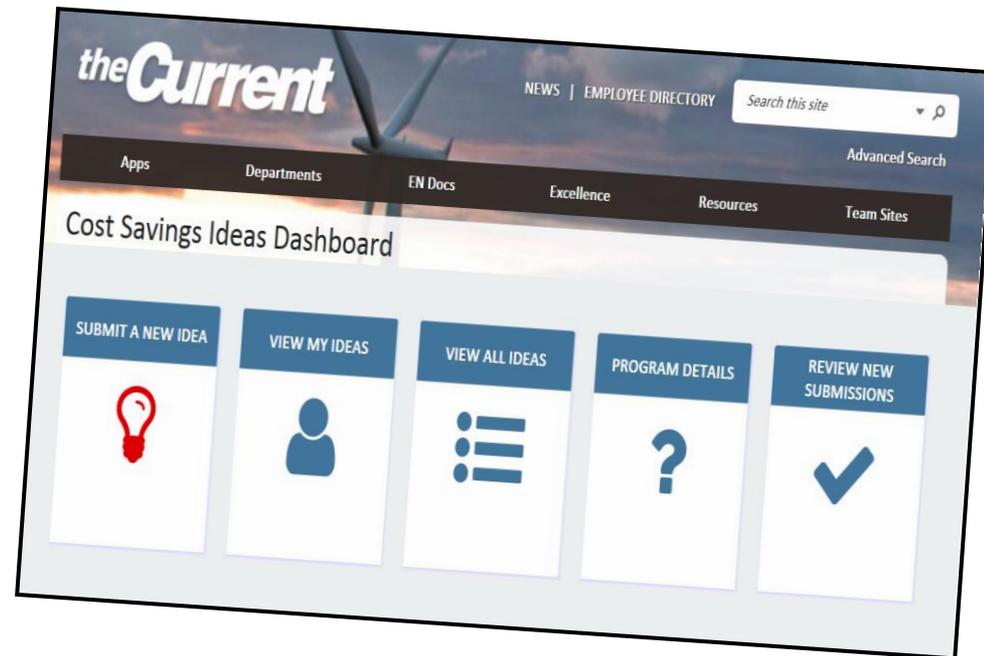
- Spending Level Challenges established to meet Outage Milestone PO.8 “Complete Preliminary Outage Cost Estimate”
- Spending Level managed by Outage Manager with support from Corporate Asset Management
- Spending Level challenges up to, and during, the Refueling Outage



Cost Savings Ideas (CSI) SharePoint

Your idea could reinvent the way we do our jobs.

- Program initiated in June 2018
- Identify opportunities to reduce cost or “stop doing” something that is no longer needed
- Supervisor Led Committee to review submissions

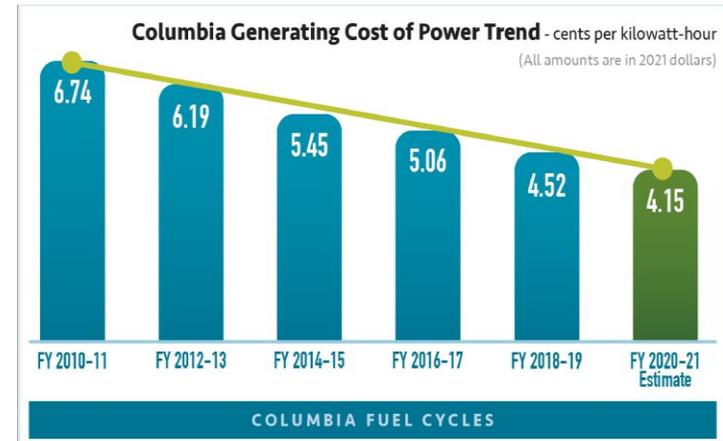


Inventory Control

- Program initiated in June 2019
- Objective = reduce inventory without impacting plant operations
- Collaboration with Supply Chain
- Communication plan to the site

Achieving the Target

- Columbia continues to demonstrate a strong cost-improvement culture
- New targets are evaluated annually



Questions