Agenda

• Introductions

• Who We Are
  • Agency Performance
  • Columbia Generating Station Performance

• BP-24 Integrated Program Review (IPR)

• Looking Beyond - Columbia Long Range Plan (LRP)

• Resource Opportunity - Columbia Extended Power Uprate

• Closing Remarks
Energy Northwest

&

Columbia Generating Station

Cristina Reyff
Chief Financial & Risk Officer,
Energy Northwest
June 2022
Who We Are

• Energy Northwest is a Joint Operating Agency of the state of Washington
• Established by the state Legislature in 1957, authorized to operate generating facilities or provide energy services in any state, but our focus is on the Northwest
• Our members are all public utility districts and municipalities in Washington, but our projects have participants in six states
Leaders in Clean Energy Transformation

- **Be Safe - Always**
  - Every worker goes home safe – Everyday.

- **Protect & Optimize Our Assets**
  - We are counted on by the region for reliability, economic value and resilience.

- **Invest in Our People**
  - We foster a positive and inclusive work environment where everyone feels valued, developed and respected for their contributions.

- **Grow the Business**
  - We are the leader in providing innovative new nuclear projects, diverse services and clean energy solutions to maximize our value to the region.

- **Foster Environmental Stewardship**
  - Our daily business practices improve and protect our natural resources for a sustainable future.
Columbia Generating Station

- Top performing plant within the industry
- 3rd Largest electricity generator in Washington
- Produces ~1200 megawatts
- Available 24/7, refuels every 2 years
- Tier 1 asset provided at-cost
Columbia's operations will result in

OVER $8.9 billion
in economic benefits for Washington
between 2018 and 2043
(through current license)

*One hard hat = 1,000 jobs. NEI independent analysis conducted using the REMI Ph+ model.
Sources include: Electric Cost Utility Group, U.S. EIA, ABB Velocity Suite and Energy Northwest

NEI independent analysis conducted using the REMI Ph+ and in 2016 dollars.
Sources include: Electric Cost Utility Group, U.S. EIA, ABB Velocity Suite and Energy Northwest
Cost of Power & Net Generation

**Columbia Production Cost of Power Trend**

Cents per kilowatt-hour (All amounts are in 2023 dollars)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Cost (Cents per kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2010-11</td>
<td>5.41</td>
</tr>
<tr>
<td>FY 2012-13</td>
<td>5.20</td>
</tr>
<tr>
<td>FY 2014-15</td>
<td>4.23</td>
</tr>
<tr>
<td>FY 2016-17</td>
<td>3.66</td>
</tr>
<tr>
<td>FY 2018-19</td>
<td>3.55</td>
</tr>
<tr>
<td>FY 2020-21</td>
<td>3.42</td>
</tr>
<tr>
<td>FY 2022-23</td>
<td>3.12</td>
</tr>
</tbody>
</table>

**Columbia Generation - CWh**

Fiscal year net generation

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Generation (CWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2010-11</td>
<td>7,636</td>
</tr>
<tr>
<td>FY 2012-13</td>
<td>7,636</td>
</tr>
<tr>
<td>FY 2014-15</td>
<td>8,905</td>
</tr>
<tr>
<td>FY 2016-17</td>
<td>8,909</td>
</tr>
<tr>
<td>FY 2018-19</td>
<td>9,100</td>
</tr>
<tr>
<td>FY 2020-21</td>
<td>9,430</td>
</tr>
<tr>
<td>FY 2022-23</td>
<td>9,356</td>
</tr>
</tbody>
</table>

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Columbia Staffing & Attrition Management

Columbia Staffing & Attrition Management
Reduction = ~21.5%

<table>
<thead>
<tr>
<th>Year</th>
<th>Staffing</th>
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</thead>
<tbody>
<tr>
<td>FY 2010-11</td>
<td>1189</td>
</tr>
<tr>
<td>FY 2012-13</td>
<td>1149</td>
</tr>
<tr>
<td>FY 2014-15</td>
<td>1125</td>
</tr>
<tr>
<td>FY 2016-17</td>
<td>1049</td>
</tr>
<tr>
<td>FY 2018-19</td>
<td>1015</td>
</tr>
<tr>
<td>FY 2020-21</td>
<td>977</td>
</tr>
<tr>
<td>FY 2022-23</td>
<td>957</td>
</tr>
<tr>
<td>FY 2024</td>
<td>936</td>
</tr>
</tbody>
</table>
Fuel Cost Savings

- Columbia holds one of the lowest cost inventories when compared to industry peers.
- Strategic fuel procurements have helped maintain low costs while avoiding commodity risk.
  - Transaction in 2012 with Tennessee Valley Authority helped ensure fuel supply through the late 2020’s and lower costs by more than $250 million.
  - Strategic procurements in 2020 further reduced risk and established inventory levels into the mid-2030’s. Estimated value reduced cost by $100 million and has improved as inflation has impacted the commodity market.
20-Year Look at O&M ($ in millions)

Total O&M Reductions compared to FY12 LRP = $380.9 million
Regional Savings / Cost Avoidance

More than $2.2 billion in regional savings and avoided costs over 12 years (2012-2023)
CFO Perspective

Managing the Future
Columbia IPR Cost Elements

• Operations & Maintenance (O&M) Costs
• Fuel Procurement
• Other Cash Related Costs
  • Spares / Inventory Adjustments
  • Generation Taxes
  • ISFSI Settlement Claim Submittal Costs
  • Treasury Services Costs (Excludes Debt Service Costs)
Columbia IPR – What is new in BP-24?

• Inflation challenges

• Fuel related Impacts
  • Columbia holds robust inventory minimizing the current market exposure
  • Fabrication and enrichment services tied to indexes with significant increases driven by current market conditions

• Longer outage duration assumption (FY25)
  • Moisture Separator Reheater Project Implementation driving ~60-day outage

• Maintaining headcount following >20% reduction since FY10
  • Adjusting for labor related increases in BP-24
Columbia BP-24 IPR Summary

- Projections based on FY23 Long Range Plan
- O&M Assumes 3% future annualized inflation
- Projected level at 2.41% annualized over BP20 levels
- Looking Ahead

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>BP20</th>
<th>BP22</th>
<th>Projected BP24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columbia O&amp;M</td>
<td>482,105</td>
<td>474,888</td>
<td>520,539</td>
</tr>
<tr>
<td>Fuel Cash</td>
<td>71,372</td>
<td>82,131</td>
<td>97,451</td>
</tr>
<tr>
<td>Other</td>
<td>25,513</td>
<td>21,971</td>
<td>29,780</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>578,990</strong></td>
<td><strong>578,990</strong></td>
<td><strong>647,770</strong></td>
</tr>
</tbody>
</table>

* BP20 assumes Treasury Services costs also included at same rate as BP22 for comparison purposes

Driver / Risk Analysis:
- a) Inflation - Labor & Supplemental Labor increases; Headcount reductions have allowed labor to remain flat historically but is increasingly challenging to manage expected scope.
- b) FY25 Outage Duration
- a) Inflation - Existing fuel fabrication and enrichment contracts tied to current and future escalation
- a) Generation Taxes required by the State of Washington
- b) Spares and inventory growth to eliminate single point vulnerabilities and maintain reliability
- c) Treasury Services Costs

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Columbia Operations & Maintenance Costs

Current Labor and Non-Labor contracts being offset by temporary tradeoffs (Labor freezes, purchasing holds, delays and deferrals)

BP20: $482.1
BP22: $474.9
BP24: $474.9

BPA Rate Period

- Columbia O&M
- Escalation @ 3% (FY25 / FY26)
- Current Labor & Non-Labor Escalation
- Outage Duration Increase (FY25)
Other Columbia Related IPR Costs

Category Forecasted Trends

- Fuel
- Spares / Inventory
- Generation Taxes
- Miscellaneous

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## Columbia IPR – Compared to BP20/BP22

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>BP20*</th>
<th>BP22</th>
<th>Projected BP24</th>
<th>Difference from BP22</th>
<th>Average Annual % Increase Over BP22**</th>
<th>Average Annual % Increase Over BP20**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columbia O&amp;M</td>
<td>$482,105</td>
<td>474,888</td>
<td>520,539</td>
<td>45,551</td>
<td>3.58% <em>(4.70% With Incremental Outage Costs)</em></td>
<td>1.39% <em>(1.94% With Incremental Outage Costs)</em></td>
</tr>
<tr>
<td>Fuel Cash</td>
<td>71,372</td>
<td>82,131</td>
<td>97,451</td>
<td>15,320</td>
<td>8.93%</td>
<td>8.10%</td>
</tr>
<tr>
<td>Other</td>
<td>25,513</td>
<td>21,971</td>
<td>29,780</td>
<td>7,809</td>
<td>16.42%</td>
<td>3.94%</td>
</tr>
<tr>
<td>Total</td>
<td>$578,990</td>
<td>$578,990</td>
<td>$647,770</td>
<td>68,780</td>
<td>4.87% <em>(5.77% With Incremental Outage Costs)</em></td>
<td>2.41% <em>(2.85% With Incremental Outage Costs)</em></td>
</tr>
</tbody>
</table>

* BP20 assumes Treasury Services costs also included at same rate as BP22 for comparison purposes
** Average Annual % Increase excludes $11.0 million associated with increased incremental refueling outage duration in FY25

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Looking Ahead: Columbia Long Range Plan

Jeff Windham
Treasury & Business Planning Manager
Energy Northwest
June 2022
LRP Methodology

Rolling 10-year financial forecast for Columbia (Capital and Operations & Maintenance (O&M)) supporting safe, reliable, predictable and cost-effective operation

- Operating budgets
- Projects (Plant, Facilities, and Information Technology)
- Fuel Amortization

- Comprehensive, systematic, multi-phased and risk-based
  - Addresses known vulnerabilities and regulation
  - Incorporates necessary risk reserve and escalation
  - Annual update and challenge – monitor change
  - Avoid changes within current rate case
Key Changes to FY23 LRP

O&M Baseline & Outage
- No overall change to BP22 committed levels – Commitments are expected to be achieved!
- FY25 – FY33 increase to re-baseline resource needs in support of maintaining plant operations through equipment reliability and retention of skilled workforce in a volatile labor market.
  - Key drivers:
    - Union contracts exceed planned inflation rate; Material cost increases; Outage duration in FY25 greater than 35 days

Projects (O&M/Capital)
- Moisture Separator Reheater broken out into a 2-phased implementation schedule to avoid 80-day outage
  - Phase 1: Bio-Shield wall on turbine deck FY23 (R26)
  - Phase 2: Tube replacement FY25 (R27)
- High Pressure Turbine replacement project moved to FY27 (R28), internal evaluation of equipment health and replacement specifications scheduled in FY23 (R26)

Escalation + Risks Reserve
- Increased escalation rate to 3% due to current economic and global conditions
- Increased risk reserve to address estimate uncertainty due to project complexity and external market threats
## Columbia – Major Projects

<table>
<thead>
<tr>
<th>FY23/R26</th>
<th>FY25/R27</th>
<th>FY27/R28</th>
<th>FY29/R30</th>
<th>FY31/R31</th>
<th>FY33/R32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workday Enterprise Application</td>
<td>Reactor Recirculation Pump/Motor Replace</td>
<td>High Pressure Turbine Replacement</td>
<td>Condensate Heat Exchangers #5</td>
<td>Main Generator + Auxiliary</td>
<td>Condensate Heat Exchangers #4</td>
</tr>
<tr>
<td>Plant License Renewal</td>
<td></td>
<td>Adjustable Speed Drive Replacement</td>
<td>Digital Electric Hydraulic Control System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture Separator Reheater Replacement (MSR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant Process Computer Replacement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Transformers (Normal/Start-up/Back-up)</td>
<td></td>
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</tr>
</tbody>
</table>

**FY23 Budget and Long-Range Plan:**
Resource Opportunity: Columbia Extended Power Uprate (EPU)

Grover Hettel
Vice President, CNO

Jeff Windham
Treasury & Business Planning Manager

Energy Northwest
June 2022
Optimizing Columbia Generating Station: Extended Power Uprate

What is an EPU?
• Increased Columbia power output with higher steam flow through the core creates additional generator output
• CGS expected to achieve an increase of ~170 MWe

Why pursue an EPU?
• Increases clean, firm, non-carbon emitting energy for the region
• Anticipate 13% lower production cost of power
• Enables increase in Tier 1 power resources
• Has been widely implemented across US nuclear industry, reducing unknown risks

*Stretch Power Uprates are power increases within the existing design capacity of the plant (i.e., do not typically involve significant plant modifications). CGS previously implemented a stretch uprate of 4.9% in 1994.
Incremental EPU Projections

Extended Power Uprate Scenario

Incremental EPU Projections (120% OLTP in 2031)

Extended Power Uprate Capital Resource Addition ($ in thousands)*

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital Resource Addition ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY24 - FY26</td>
<td>$31,026</td>
</tr>
<tr>
<td>FY26 - FY28</td>
<td>$96,054</td>
</tr>
<tr>
<td>FY28 - FY30</td>
<td>$260,182</td>
</tr>
<tr>
<td>FY30 - FY32</td>
<td>$202,130</td>
</tr>
<tr>
<td>FY32 - FY34</td>
<td>$5,959</td>
</tr>
</tbody>
</table>

Plan to Request $31 million required for BP24 Rate Case

Incremental Capital Addition Financed With Tax-Exempt Bonds (Debt Service)

O&M Change reduces rate case requirements (Savings / Offset)

Extended Power Uprate O&M Resource Change ($ in thousands)*

<table>
<thead>
<tr>
<th>Year</th>
<th>O&amp;M Resource Change ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY24 - FY26</td>
<td>$(2,336)</td>
</tr>
<tr>
<td>FY26 - FY28</td>
<td>$(9,535)</td>
</tr>
<tr>
<td>FY28 - FY30</td>
<td>$(19,247)</td>
</tr>
<tr>
<td>FY30 - FY32</td>
<td>$(25,074)</td>
</tr>
<tr>
<td>FY32 - FY34</td>
<td>$1,092</td>
</tr>
</tbody>
</table>

*Cost information is commensurate with feasibility study level of design and will be refined as the project progresses.

**Values shown include allocation projections and escalations.

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EPU Estimated Impact on Cost of Power (Production)

2-Year Average Estimated Cost of Production

- Calculated by dividing the operating costs (O&M + Fuel) by the amount of energy generated (MWh)
- Decrease after implementation due to increased EPU generation off-setting increased production costs
- Both LCM and EPU plans include escalation

Note: Cost information is commensurate with feasibility study level of design and will be refined as the project progresses.
EN’s Estimated EPU Impact on Regional Power Rates

2-Year Average Estimated Rate Impact

- Scoping evaluation performed to assess potential EPU impact on regional power rates
- Rate Impact = Net annual change in incremental power sales minus incremental fuel costs and debt service
- Key Assumptions
  - Power sales assume current FY22 BPA Tier 1 rate escalated annually at 2.3% (consistent with expenditures)
  - Incorporates conservative revenue reduction factor of 20% per year
  - Percentage impact on rates assumes $20 million per year or $40 million per rate case equal to 1%
  - Debt Service is planned to be interest only during implementation period (through 2031). Debt is modeled using a 20-year life of each debt issuance

Notes: Cost information is commensurate with feasibility study level of design and will be refined as the project progresses.

BPA has not reviewed or validated the information presented. Additionally, Columbia’s existing operating license currently expires in December 2043.

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## EPU $31 million BP-24 Request

<table>
<thead>
<tr>
<th></th>
<th>FY24*</th>
<th>FY25*</th>
<th>FY26*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$7.388M</td>
<td>$12.057M</td>
<td>$11.582M</td>
</tr>
<tr>
<td>Feedwater system study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main steam piping study</td>
<td></td>
<td></td>
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<tr>
<td>Condensate filter demin study</td>
<td></td>
<td></td>
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<tr>
<td>Electrical impact study</td>
<td></td>
<td></td>
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<tr>
<td>Safety analysis and license package prep</td>
<td></td>
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<tr>
<td>Steam dryer study</td>
<td></td>
<td></td>
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<tr>
<td>BPA grid analysis</td>
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<tr>
<td>LCM project coordination</td>
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</tr>
<tr>
<td>Project planning / Oversight</td>
<td></td>
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</tr>
</tbody>
</table>

- Feedwater system study and planning
- Main steam piping planning
- Isophase bus duct cooling study
- Electrical Conceptual design
- Safety analysis and license package prep
- Steam dryer measurements
- LCM project coordination
- Project planning / Oversight

*BP-24 includes 75% of FY24, 100% of FY25, and 25% of FY26

LCM = Life Cycle Management

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**Why EPU**

- EPU can assist the region’s need for **additional firm, non-emitting capacity** sources while also **meeting CETA** requirements
- EPU is expected to **lower** the **overall cost of production** of Columbia while having a **minimal rate impact** for the region

**When**

- EPU target implementation is FY31
- EPU project studies slated for Rate Case BP 24 (FY24, FY25, and FY26) to meet this implementation target
  - Refine cost projections and update business case
  - Identify and mitigate implementation risks
- Funding of ~$31 million in BP-24 keeps the FY31 EPU implementation on-track – if delayed, FY31 implementation would be in jeopardy
Why Nuclear?

- Nearly 20% of the nation's electricity is generated by 93 reactors in 28 states.
- More than 50% of our nation's carbon-free electricity is generated by nuclear reactors.
- 24/7 Nuclear energy produces 24/7, emission-free energy.
Closing Remarks

Cristina Reyff
Vice President, CFO / CRO
Energy Northwest
June 2022
Closing Message

• EN has consistently supported regional strategic initiatives
  • Debt Management Programs including Regional Cooperation Debt Initiative
  • Fuel Procurements leading to one of the lowest fuel costs in the industry
  • Columbia cost optimization – absorbing of inflation

• BP-24 Financial Resource Needs
  • Looking Ahead
    • Managing long-term impacts of inflation
    • Looking to expand innovations to further reduce long term operating costs
  • Extended Power Uprate
    • EN is seeking approximately $31 million to be financed during BP-24
    • Position EN & Region for future carbon free power needs
    • Focus on mitigating risk of implementation and stay on track for potential 2031 implementation
Questions?

- Questions
- Commitment Recap
- Presentation Feedback
Thank you!