Our Road to Excellence

Brad Sawatzke, Chief Nuclear Officer
April 30, 2014
For NWCCC
Energy Northwest

A not-for-profit Municipal Corporation

Provide our public power members and regional ratepayers with safe, reliable and cost-effective power
Energy Northwest

A not-for-profit Municipal Corporation

<table>
<thead>
<tr>
<th>Asotin County PUD</th>
<th>Clark Public Utilities</th>
<th>Kittitas County PUD</th>
<th>Pend Oreille County PUD</th>
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<tr>
<td>Benton County PUD</td>
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<td>Klickitat County PUD</td>
<td>Seattle City Light</td>
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<td>Ferry County PUD</td>
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<td>Franklin County PUD</td>
<td>Mason County PUD 1</td>
<td>Snohomish County PUD</td>
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<td>City of Richland</td>
<td>Grant County PUD</td>
<td>Mason County PUD 3</td>
<td>Tacoma Public Utilities</td>
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<td>Jefferson County PUD</td>
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1957

Packwood Lake Hydro-electric Project (27 MWe)
Nine Canyon Wind Project (96 MWe)
White Bluffs Solar Station (38 KWe)
Columbia Generating Station (1,170 MWe)
Safety 1st
Safety 1st – 2012

American Public Power Association Safety Award
Safety 1st – 2013

10M Hours
Without a lost-time accident

Plus Lowest-ever OSHA Accidents – Zero
Safety 1st – 2013

10M Hours
Without a lost-time accident

Association of Washington Business Workplace Safety Award
The Northwest Energy Picture
Types of Resources

- **Baseload**
  - >80% Capacity Factor (nuclear, coal, geothermal, hydro, cogeneration and biomass)

- **Intermediate**
  - 40%-60% Capacity Factor (Natural Gas Combined Cycle, hydro)

- **Peaking**
  - <20% Capacity Factor (natural gas simple cycle, hydro)

- **Intermittent**
  - Variable Capacity Factor (solar and wind)
U.S. Power Generation (2012)

- Coal: 37%
- Natural Gas: 30%
- Nuclear: 19%
- Hydropower: 7%
- Renewables: 5%

Source: Energy Power Research Institute

- Hydro: 64%
- Renewables: 6%
- Gas: 10%
- Nuclear: 10%
- Coal: 9%
- Petroleum: 0%

Source: Energy Information Administration
Power Supply Drivers

- Past recent economic conditions have reduced load growth (Source: Bureau of Economic Analysis)
  - Historical – Robust
  - Current – Improving after dip
  - Future – ?

- All state utilities “qualified” under Initiative I-937 have met 2012 RPS requirements
  
  2012 – 3% of load | 2016 – 9% of load | 2020 – 15% of load

- Future development driven by renewable portfolio standards
Average Cost of Current Resources

- Energy Efficiency
- Hydro/Mid-Columbia
- Natural Gas Combined Cycle
- Nuclear
- Coal
- Wind
- Geothermal
- Solar

Production Costs ($/MWh) (2012$)
The Columbia Story

Reliable
Excellence Initiative

Phases of Excellence
2011-2014

Phase I – Improving Behaviors
Phase II – Demonstrating Results
**Phase III – Achieving Excellence**
Phase IV – Sustaining Excellence
Excellence Model

Nuclear Excellence
Safe, Reliable, Predictable

The Right People
Organizational Excellence
Predictable Teamwork Accountable Learning Organization

Operational Excellence
Safety Configuration Control Teamwork

Training Excellence
Teamwork Effective Accountable Model

Equipment Excellence
Zero Tolerance Reliable Predictable Pride

The Right Picture

Individual Excellence

Accident Free

Control Dose

Event Free

Meet Commitments

Attend Training

No Rework

Enablers of Excellence
Qualified Workers
Job Planning/Preparation
Procedures/Work Instructions
Verification/Validation
Supervisor Oversight
Worker Practices

The Right Process

The Right Coaching
Improving Behaviors... Demonstrating Results
Equipment Reliability

– 2011 –

Refueling Outage 20
Columbia pushed more than 9.3 million megawatt hours of electricity to the regional power grid in 2012.
A Turning Point

– 2013 –

Refueling Outage 21
Columbia pushed nearly 8.5 million megawatt hours of electricity to the regional power grid in 2013.
...operating without an unplanned shutdown.

4 ½ Years
Regional Value
License Renewal

1984 – 2043

Gov. Christine Gregoire
Regional Savings

$190,000,000

Energy Northwest and BPA collaboration on decommissioning fund and debt management provided the region $190 million in rate relief in the next rate period.
The uranium tails fuel purchase agreement will generate more than $88 million in additional BPA savings through the current and next rate case.

$88,000,000

Uranium Tails Fuel Transaction
Regional Savings

$171M – 275M

We expect total savings to be between $171 and $275 million for Northwest ratepayers.

Uranium Tails Fuel Transaction
The Way Ahead

- $160M 10-year capital increase
- Capitalize large projects
- Charge proper labor to capital
- 2014-23: increase in capital spending, reduced O&M costs

Lower costs for next four BPA rate cases
## Columbia Value Study

**Increased Costs to Consumers**

<table>
<thead>
<tr>
<th>SCENARIOS</th>
<th>Costs</th>
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<tr>
<td>$0</td>
<td>Continued Columbia Operation</td>
</tr>
<tr>
<td>$1,053,000,000</td>
<td>5-Year Columbia Outage With Replacement Power From Market</td>
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</table>
| $2,554,000,000 | Columbia Shutdown With Replacement Power From Natural Gas  
(At Expected Gas Prices, No CO₂ Costs. Note: Gas Price Forecasts May Range from $1,053,000,000 to $11,553,000,000) |
| $5,419,000,000 | Columbia Shutdown With Replacement Power From Natural Gas  
(Expected Gas Price, With CO₂ Costs) |
Small Modular Reactor Proposal

SMRs: Safe, simple, small, and economical nuclear power

www.energy-northwest.com
Thank you.