



2009 Integrated Resource Plan Advisory Council Meeting

November 5, 2009





Analysis Results

Rick Haener



Updated Assumptions

Shoshone Falls

- Moved from 2014 to October 2015
- Expected number of RECs revised

Transmission

- Included transmission back bone upgrade costs for resources internal to Idaho Power's system
- Aurora model transmission capacity only increased for portfolios which contained market purchases
- Included “bi-directional” transmission costs in expected case
- 3rd party transmission sales are treated as a benefit in the risk analysis

Resource Portfolios

(2010-2019)

2009 Integrated Resource Plan

Portfolio Summary

1st Ten Years

Year	<u>1-1 Solar</u>		<u>1-2 Gas Peaker</u>		<u>1-3 Gas Peaker/B2H</u>		<u>1-4 B2H</u>	
	Resource	MW	Resource	MW	Resource	MW	Resource	MW
2010								
2012	Wind	150	Wind	150	Wind	150	Wind	150
	CCCT (Langley)	300	CCCT (Langley)	300	CCCT (Langley)	300	CCCT (Langley)	300
	Geothermal	20	Geothermal	20	Geothermal	20	Geothermal	20
2015	Shoshone Falls	49	Shoshone Falls	49	Shoshone Falls	49	Shoshone Falls	49
	Large Aero	200	Frame Peaker	170	B2H	250	B2H	250
2016	Geothermal	20	Geothermal	20	Geothermal	20	Geothermal	20
2017	Solar PT w/St	100	Frame Peaker	170	Large Aero	100	B2H	175
2019	Solar PT w/St	100			Large Aero	100		
	Total	939	Total	879	Total	989	Total	964

Note: Committed resources are shown in gray font

Portfolio Impact on Rates

(2010-2019)

2009 Base Year

Portfolio	Annual Avg.	Cumulative
1-1 Solar	3.08%	35.06%
1-2 Natural Gas Peakers	1.98%	21.45%
1-3 Gas Peakers & B2H	2.04%	22.19%
1-4 Boardman to Hemingway	1.87%	20.08%

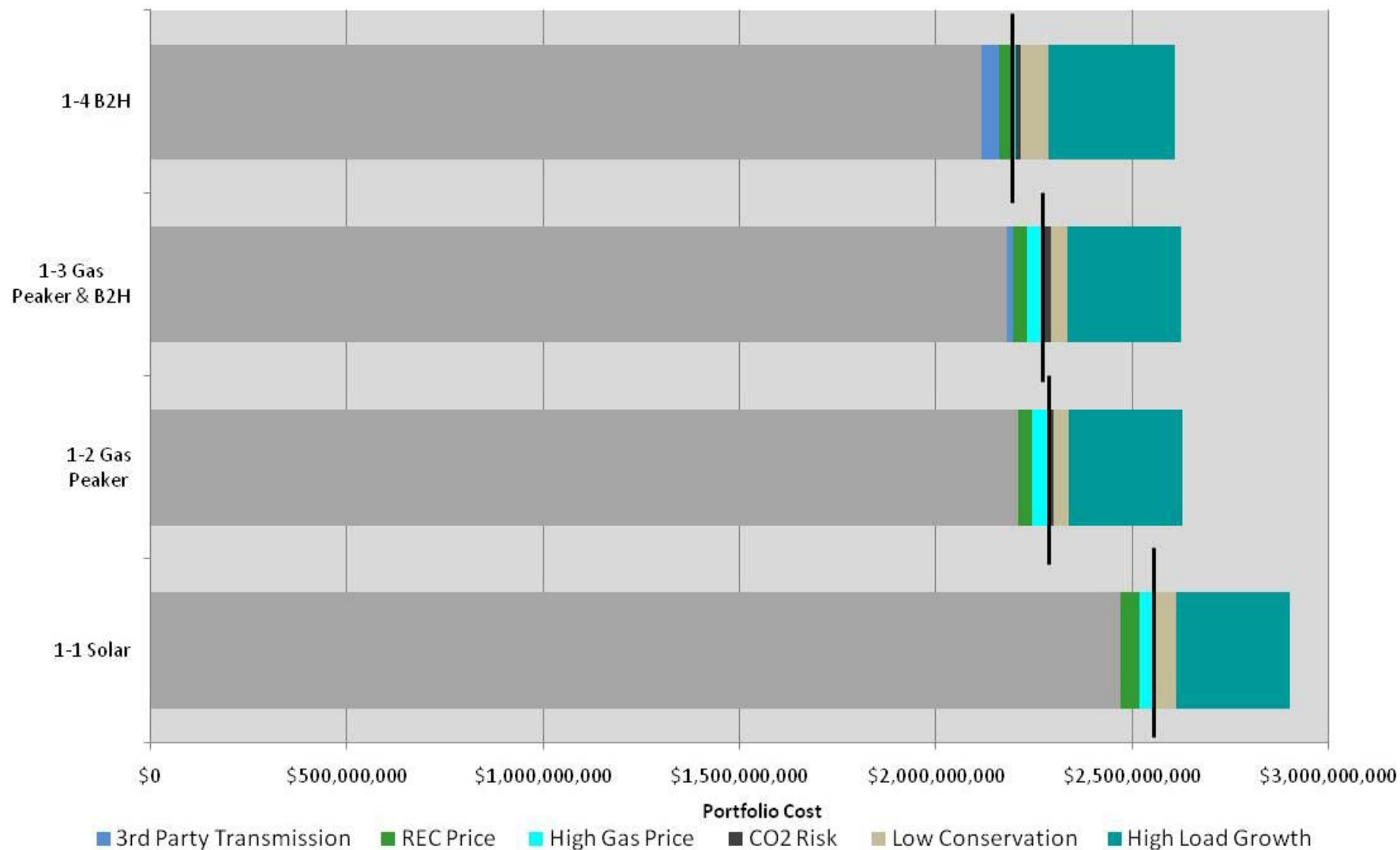
Risk Analysis

(2010-2019)

- High load growth and low conservation cases don't provide differentiation between portfolios, but do quantify cost increase
- Portfolio length can be a benefit due to additional operational flexibility
- Gas price risk is correlated to market power prices
- Portfolios with B2H have an upside potential if bi-directional capacity can be sold
- CO2 risk is due to high allowance price applied to emissions above and beyond allocated allowances

Expected Portfolio Cost

(2010-2019)



Preferred Portfolio

(2010-2019)

- The preferred portfolio for the first ten years is 1-4 B2H
 - Lowest expected case cost
 - Substantial upside risk potential
- If 3rd party subscription in the B2H project does not materialize, portfolio 1-2 Gas Peakers is the alternate portfolio
 - Portfolio 1-3 Gas Peaker and B2H is not the alternate portfolio because it still relies on the construction of B2H

Resource Portfolios

(2020-2029)

2nd Ten Years

Year	<u>2-1 Nuclear/Green</u>		<u>2-3 Gateway West</u>		<u>2-3 IGCC</u>		<u>2-4 Wind & Peakers</u>		<u>2-5 Existing Coal</u>	
	Resource	MW	Resource	MW	Resource	MW	Resource	MW	Resource	MW
2020	Solar PT w/St	100					Large Aero	100		
2021	Wind	100	Wind	100					Wind	100
2022	Solar PT w/St	100	Gateway West	200	Solar PT w/St	100	Wind	100	Large Aero	100
2023	Nuclear	270								
2024	Geothermal	52			IGCC w/Seq.	600	Large Aero	200		
2025	Solar PT w/St	100	Gateway West	200			Gateway West	100	Existing Coal	350
2026		W	ind	100		Large	Aero	200	Large Aero	100
2027	Geothermal	52	Gateway West	400	Solar PT w/St	100	Wind	400	Wind	200
2028	Nuclear	400	Gateway West	600	Large Aero	400	Large Aero	400	Existing Coal	700
2029	Gateway West	250			Solar PT w/St	100	Large Aero	500		
	Total	1,424	Total	1,600	Total	1,300	Total	2,000	Total	1,550
	Gateway West (MW)	1,020		900		600		600		300
	MSTI (MW)			700						

Portfolio Impact on Rates

(2020-2029)

2019 Base Year

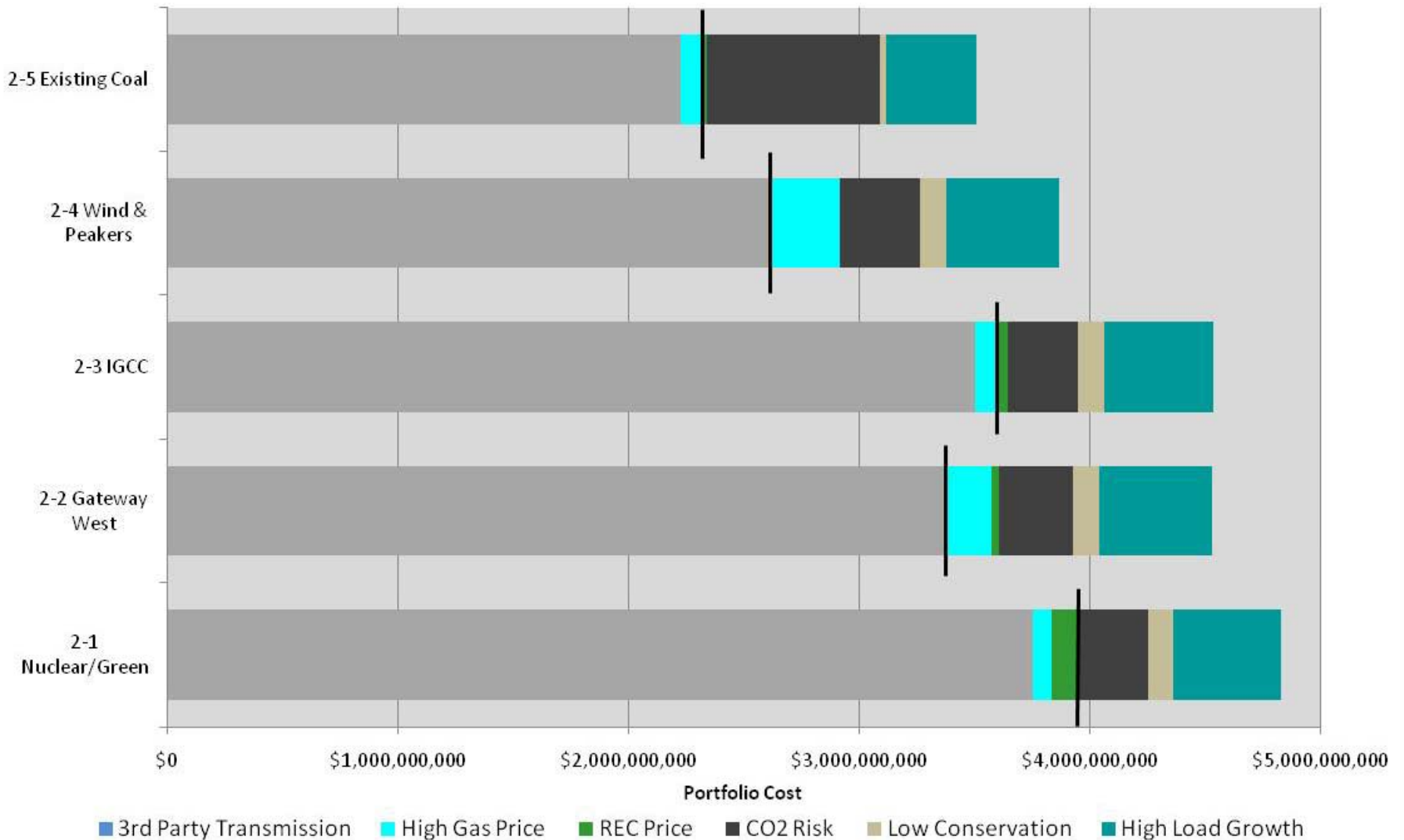
Portfolio	Annual Avg.	Cumulative
2-1 Nuclear/Green	6.04%	76.94%
2-2 Gateway West Purchases	4.85%	54.92%
2-3 IGCC w/Seq.	6.47%	77.78%
2-4 Wind & Gas Peakers	4.02%	47.45%
2-5 Existing Coal	1.99%	21.42%

Risk Analysis

(2020-2029)

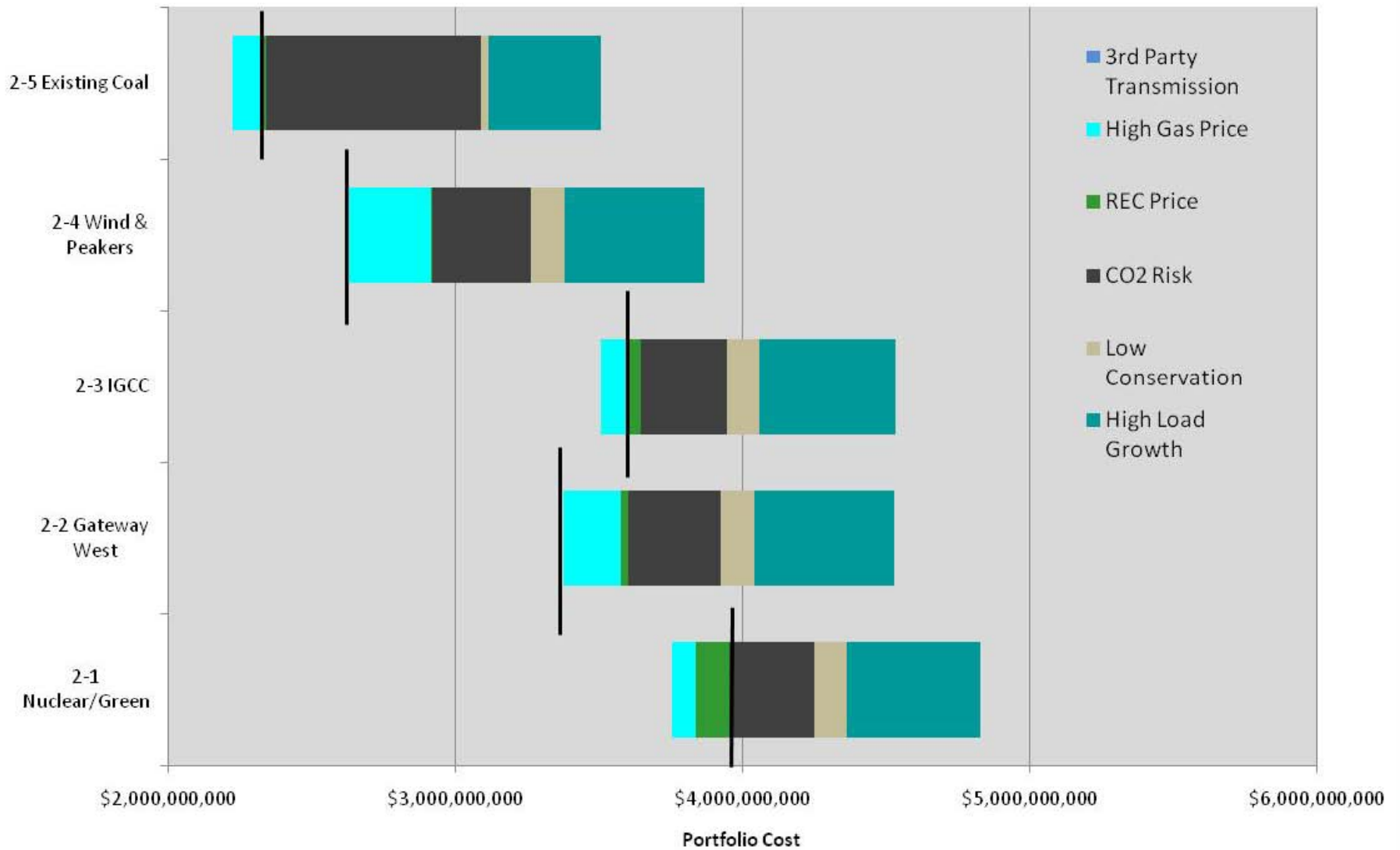
- Portfolio 1-4 is the basis for 2020-2029 modeling
- Gateway West transmission costs have a substantial impact on total portfolio costs
- Quantitative Risk Factors with significant portfolio differentiation
 - NG Price (Range \$0 - \$1,140 Million)
 - CO2 Allowance Price w/\$43 increase (Range \$296 - \$749 Million)

Expected Portfolio Cost (2020-2029)



Risk Analysis

(2020-2029)



Preferred Portfolio

(2020-2029)

- Portfolio 2-5 Existing Coal is not the preferred portfolio due to carbon risk
 - However, if the cost of carbon regulation is less than assumed in the IRP, portfolio 2-5 may become the preferred portfolio
 - Portfolio 2-5 does not utilize full capacity of coal-fired generation - additional analysis required to fully quantify impact of carbon regulation.
- The preferred portfolio for the second ten years is 2-4 Wind & Peakers
 - Lowest expected case cost under coal curtailment assumption used in portfolios 2-1 through 2-4
 - High gas price and carbon risk doesn't raise the cost of the portfolio 2-4 to the expected case cost for portfolios 2-1, 2-2 or 2-3



Meeting Wrap-up

Mark Stokes



Final Thoughts

Continued Uncertainty

- Federal legislation (RES and GHG)
- Impact of recession on load forecast
- Regional resource adequacy
- Large increases in energy efficiency and conservation
- Transmission – size?, timing?, who will build?

Public Policy Issues

- Energy availability is a catalyst to economic growth
- Utility resource ownership usually results in lower total cost to customer

Strategy

- Maintaining a diverse resource portfolio will allow Idaho Power to maintain flexibility, minimize risk, and adapt to future changes

Remaining Schedule

- Comments on Appendix A –Sale and Load Forecast due by Friday, November 20th
- Final IRP Advisory Council meeting is on Thursday, December 10th
- Draft IRP will be distributed at the December 10th meeting
- Comments on the draft IRP due on Monday, December 21st
- File IRP with the Idaho and Oregon PUCs prior to December 31st
- Opportunity to file formal comments with both regulatory agencies following submittal