ENERGY NORTHWEST

POWERFUL SOLUTIONS

Energy – Environment – Economy

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Energy Northwest at a Glance

- Providing public power needs since 1957
- Hydro, solar, wind and region's only commercial nuclear power plant
- Projects generate carbon-free power for 1 million homes
- 10% of Bonneville Power Administration generation needs
- 1,100 employees




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Current Power Supply Drivers

- Energy growth follows population growth
  - New model for the Northwest?
- Energy grown follows economic growth
  - Energy intensity of future businesses?

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Current Power Supply Drivers

- Recession has reduced load growth
  - Historical – 1 to 3%
  - Current – -1 to 1.5%
  - Future – ?
- Most utilities have met 2013 RPS requirements

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Current Power Supply Drivers

- Strategies for 2016/2020
  - Purchase PPA's
  - Develop local renewables
  - Purchase REC's
  - On hold for state/federal policy changes
  - Penalty is cheaper than compliance

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Economic Comparison

Technology	Capital Cost 500MWa	Debt Cost 20yr/5%	O&M Costs $/MWhr	Fuel Cost $/MWhr	Carbon Costs $/MWhr	Total Costs $/MWhr
Coal	$2.1B	38	8	25	25	96
Gas-CT	$1.2B	22	5	55	10	92
Modular Nuclear	$2.2B	40	20	6	0	66
Wind	$3.3B	60	15	0	0	75
Solar	$8.0B	145	2	0	0	147
Conservation Energy Efficiency	500W savings is $329/year savings at $75/MWhr					

$2/MMBTU delivered coal
$8/MMBTU delivered gas

2000#/MWhr GHG – coal
800#/MWhr GHG – gas

$25/T Carbon tax

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Selection Issues

- Coal - Can't permit and high carbon tax - Pro's and Con's of shutting down Centralia
- Gas-CT - Can still permit/future gas costs/impacts state's climate goals
- Modular Nuclear - What are the economics? Public perception
- Wind - Visual impacts/firming costs/transmission impacts
- Solar - Expensive
- Conservation / Energy Efficiency - Public policy doesn't support at the utility level. Many can't afford at the individual level

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Key Point

Energy – Environment – Economy

NEVER DISCUSS ONE AT A TIME!

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