Focus and Executive Summary Background

Power Committee

Walla Walla

May 12, 2009

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Northwest Power and Conservation Council

Conditions Facing the Region

- Slower demand growth, but increasing summer peak loads
- Higher fuel prices and CO_2 penalties
- Increasing share of variable resources
- Uncertain, but likely, carbon control policies

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Resource Alternatives

- Increased cost-effective efficiency potential
  - Technological progress and new applications
  - Higher avoided costs
- Generating resources more expensive
  - Levelized cost - $78 to $239 per MWh
  - Constrained by RPS requirements
  - Limited alternatives in early years of plan

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Planning Approach

- Find a mix of efficiency improvements or generating resources that meet demand at lowest cost and low risk
  - Cost includes all costs utility and consumer
- Low risk in our planning means reducing the number and size of high cost outcomes
- A new measure of merit has been added – carbon dioxide emissions

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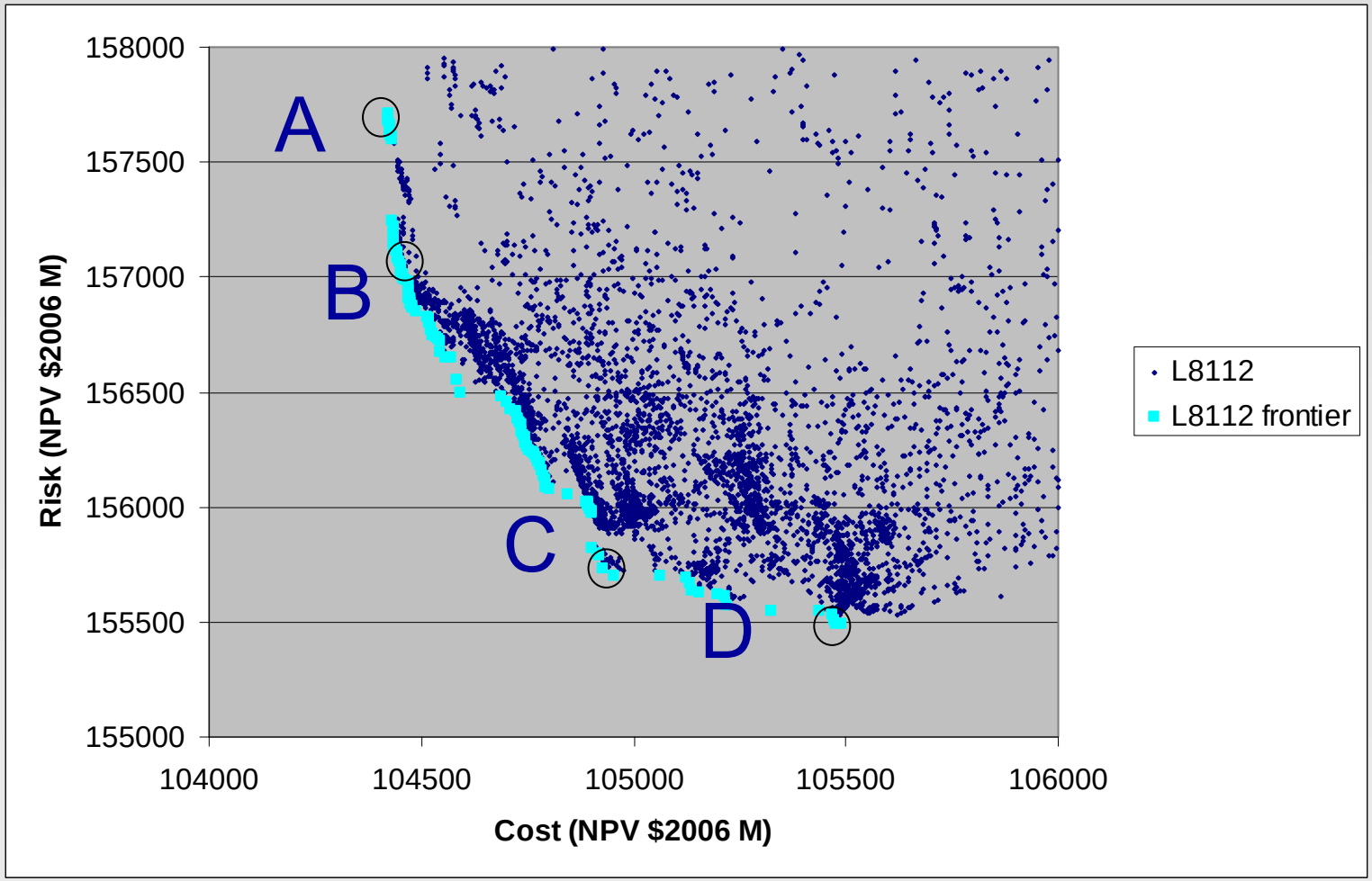
Trading Cost Against Risk



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Portfolio for Low Risk Plan - D

- Large reliance on efficiency improvements
  - 5,800 MWa , average cost of $34/MWh
- Wind development for RPS 5,400 MWa
- Relatively smaller contributions from geothermal, combined-cycle and simple-cycle turbines

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Portfolio for Low Cost Plan - A

- Large reliance on efficiency improvements
  - 5,500 MWa
- Wind development for RPS, 5,400 MW
- No other resources optioned until toward end of planning period

Electricity Rates

- In all futures electricity rates are expected to increase (roughly 30 percent over 20 years)
- Increases are consistent with increasing fuel costs and carbon penalties.
- New generating resources are more expensive
- Efficiency acquisition can affect rates
  - Effect depends on how much of cost is incurred by utilities vs. codes, standards, and customer
  - Effect on consumer electricity service costs (BILLS) is less because fewer Kwh are consumed

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Capacity and Flexibility

- Plan maintains a substantial energy surplus
- Adequate capacity winter and summer, summer is closer to the standard
- Resource flexibility for within hour balancing reserves may be needed for wind integration
  - Many short- and long-term alternatives to consider
  - First, improved system operation; e.g. wind forecasting, reserve sharing, dynamic scheduling

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Climate Policies

- RPS requirements are very similar to what would be the cost-effective strategy with only CO_2 price risk.
- Resource strategy reduces carbon emissions from 57 to 38 MMtpy in a typical future
  - However, without coal plant retirement, 30 percent of futures could have no reduction
  - Coal retirement requires replacement resources for adequacy

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Action Plan

- Accelerate efficiency acquisition
  - NEET is a regional head start
- Identify near-term, local, small scale renewable and CHP alternatives
- Identify cost-effective flexibility strategies
- Monitor and demonstrate new technologies (efficiency, DR, smart-grid)
- Adaptive management of plan implementation

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Likely Issues

- Concerns about ability to develop the high levels of conservation
- Plan maintains or grows a large surplus of energy capability in the region
- Providing the needed flexibility reserves to integrate large amounts of wind
- Planning at the regional level creates a disconnect from utility plans

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