Northwest Power and Conservation Council

April 29, 2009

MEMORANDUM

TO: Power Committee

FROM: Terry Morlan

SUBJECT: Plan Focus and Topics for Executive Summary

Staff has discussed with the Power Committee and Council key findings of the plan at the last couple of meetings. Although the analysis is still being refined, the major finding that there is a large amount of energy efficiency available that is cost-effective and contributes to climate goals will not change. Acquiring this energy efficiency is critical to the region in the near term when resource choices are limited and climate policies are still evolving.

In addition to efficiency, the analysis shows that additional wind is likely to be cost-effective when it can be delivered without major new transmission additions, whether it is required by RPS or not. Integrating the wind into the power system needs to be addressed and the region has been doing that.

In the longer term, actions are needed to develop emerging technologies that are consistent with the vision of the plan. These include advancing the understanding of the potential benefits and cost of the smart grid, implementing cost-effective niche resources, developing additional flexibility within the power system, and advancing the use of demand response for meeting peak loads.

I am attaching a discussion of key findings that may merit consideration in the executive summary of the plan. These are preliminary thoughts, but will give the Council an idea of key findings in written form. We need to have a discussion of the focus of the plan among Council Members.

Attachments

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Focus and Executive Summary Background

Power Committee

Walla Walla

May 12, 2009

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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 megawatt-hour
  - Constrainted by RPS requirements
  - Limited alternatives in early years of plan

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Portfolio for Low Risk Plan

- Large reliance on efficiency improvements
  - 5,800 MWa , average cost of $30/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

- 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 is less because fewer Kwh are consumed

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Capacity and Flexibility

- Plan maintains a substantial energy surplus, but…
- Additional summer capacity may be needed
- Resource flexibility for within hour balancing reserves will 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 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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