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February 25, 2009

## MEMORANDUM

**TO:** Power Committee Members

**FROM:** Terry Morlan

**SUBJECT:** Status of Power Plan and Getting to the Draft

A status report on the Power Plan is scheduled for the Council in Boise. In addition, I will be briefing PNUCC on the same topic on Friday, March 6, the day after the Power Committee web conference. I want to discuss those presentations with the Power Committee and then have a discussion about how to complete the draft plan.

At this point in the process, I would have to say that we are behind schedule on the analysis. Depending on how the analysis with the Regional Portfolio Model (RPM) goes, we may be able to make up that time and still get a draft plan ready for May release. We are still working toward this date, but there is a risk that we won't be satisfied with the analysis or the discussion of issues in time for a May release. We have been providing pieces of the draft plan to the Power Committee and Council to speed the process of producing a document. In addition, Public Affairs has been providing editing and organizational suggestions on the draft pieces as they are produced. Finally, we are suggesting a change in the approach to some of the technical appendices that should both reduce the time required to produce the documents and increase the usefulness of the appendices to the primary users of that detailed data and information.

My advice would be to delay the release of the draft plan if it becomes necessary in order to have a well thought out and communicated draft plan. In the past, the draft plan gets the most regional attention while the final has not typically changed significantly from the draft. The impression left by a poorly done draft plan would not be easy to overcome.

In spite of these schedule worries, we are doing everything we can to meet the May release schedule. Any suggestions the Power Committee has to help us reach that goal would be very helpful.

Attachment

# Status Report on Power Plan Development

Council Meeting  
Boise, ID  
March 10-11, 2009



## Overall Writing Status

- I. Executive Summary
- II. Implementation plan
- III. Introduction
  - A. Purpose of the Power Plan
  - B. Important Issues
- IV. Background
  - A. Loads and Resources
  - B. Trends in Energy Costs
  - C. Evolving policies and electricity markets
  - D. The carbon footprint of the NW power system ?
  - E. Past Council's Plans



## V. Assumptions and Forecasts

### A. Basic financial assumptions

### B. Forecasts

### C. Resource assumptions

## VI. Long-term resource strategy

### A. Developing a resource strategy

### B. A resource strategy for the region

### C. Interpreting the strategy as a resource plan

## VII. Climate Change Issues

### A. Background

### B. Information on GHG sources in the region

### C. Policy initiatives affecting the region

### D. Meeting emission reduction goals

### E. Policy alternatives

### F. Least cost plan for meeting goals

## VII. Capacity and Flexibility Resources

### A. Operating a reliable power system

### B. The Northwest Power System

### C. Potential solutions to address flexibility and capacity needs

### D. Recommendations, short and long-term

## VIII. The Bonneville Administrator's Loads

### A. Bonneville's changing role

### B. Bonneville Administrator's requirements

### C. Consistency with the Power Plan

## IX. Regional adequacy standards

### A. Purpose of adequacy standards

### B. Role in the power plan

### C. Power Plan's role in the standards (economic)

## Appendices

**A. Fuel Price Forecast**

**B. Economic Forecast**

**C. Demand Forecast**

*D. Wholesale and Retail Electricity Price Forecast*

*E. Conservation*

**F. Demand response**

*G. Model conservation standards*

*H. MCS cost effectiveness for residences*

*I. Smart grid and new approaches to efficiency acquisition*

*J. Generating Resources*

*K. Global climate change issues*

*L. Descriptions of models and analysis*

**M. Fish and Wildlife interactions**

*N. Data summaries (or included in each appendix)*

## Strategy on Appendices

- Reasoning:
  - Limited number read the appendices
  - Most requests are for underlying data
  - Appendices are only published on website
- Proposal:
  - Describe methods of analysis, data sources
  - Describe data files containing information
  - Provide links to usable data files (e.g. Excel)

## Outline of Draft Chapter 5

- Financial assumptions
- Forecasts
  - Economic growth
  - Fuel prices
  - Demand for electricity
  - Electricity prices: wholesale and retail
- Resource assumptions
  - Conservation
  - Demand response
  - Generation
    - Hydro and F&W
    - Fossil
    - Renewables
- Direct use of natural gas
- Transmission assumptions

## Economic Growth

- Economic growth is projected to be slower both for the nation and the region
- The region's population and employment are still expected to grow faster than the nation, but the difference is smaller than in the past
- The mix of economic activity is changing and affects the demand for electricity

## Fuel Price Forecasts

- Fuel prices are expected to moderate for a few years, but long-term are higher than previous plan forecasts
- Forecast ranges are wider reflecting greater uncertainty about future fuel prices
- Natural gas and oil prices are expected to remain volatile
- Uncertainty and volatility will be reflected in portfolio analysis



## Demand for Electricity

- Demand is projected to grow at 1.6 percent per year, or by about 380 MWa per year
- Conservation achieved and revised electricity prices will reduce that growth rate
- Growth is largely in the commercial and residential sectors
- Peak loads are expected to grow faster than energy, especially summer peaks



## Electricity Prices

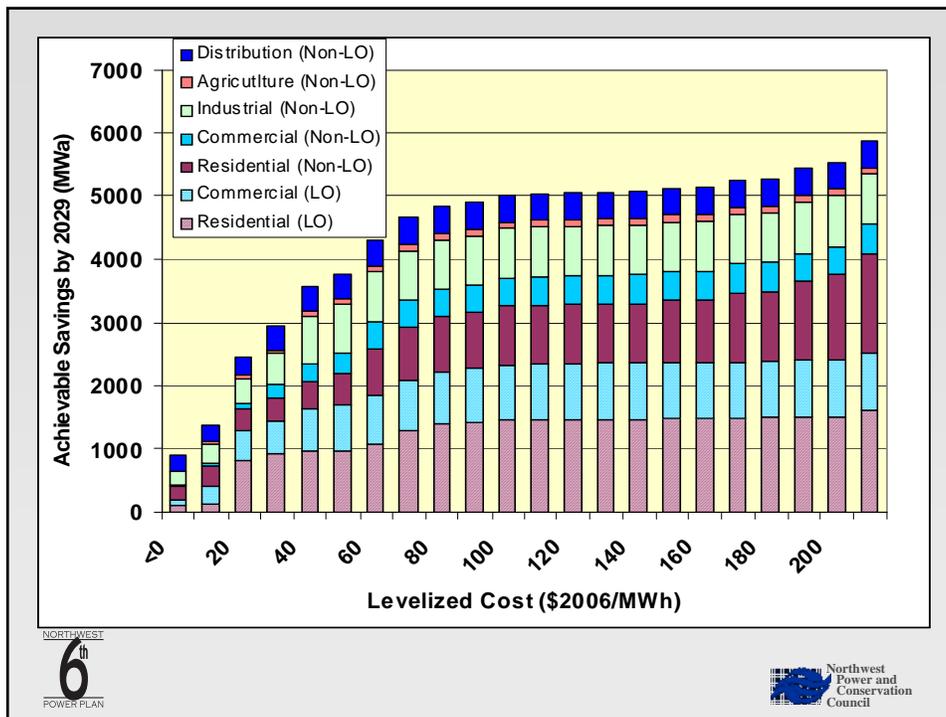
- Wholesale prices grow from \$45/MWh in 2010 to \$85/MWh in 2030 (2006\$)
- Wholesale prices are sensitive to natural gas and coal prices, CO2 penalty, and RPS
  - CO2 penalty grows to average of \$47/ton with significant uncertainty addressed in RPM, also sensitivity cases in Aurora
- Retail price forecast is still preliminary: will change with wholesale price, conservation costs and savings, RPS costs



## Conservation Potential

- Potential reduced by achievements since last plan, increased by technology advances and assessment of some new sectors
- Cost-effectiveness will be determined in portfolio model analysis
- Achievable technical potential is about 10 percent higher than the 5<sup>th</sup> Plan
  - Residential and commercial sectors hold three quarters of the potential
  - Increased potential in industrial (800 MWa) and CVR (400 MWa)





## Demand Response

- 2,900 MW of potential included in analysis
- 7 separate categories
  - Direct control A/C - 200
  - Irrigation - 200
  - Direct control SH/WH - 200
  - Commercial aggregators - 300
  - Interruptible contracts - 600
  - Demand buyback - 400
  - Dispatchable standby generation - 1000



## Hydroelectric Generation

- Assume Biological Opinion mainstem actions
- Assume loss of 450 MWa of energy capability over the planning period
- Variability reflected in 70 water years simulation (1929-1998)
- Peak capacity based on new Bonneville/Council study,



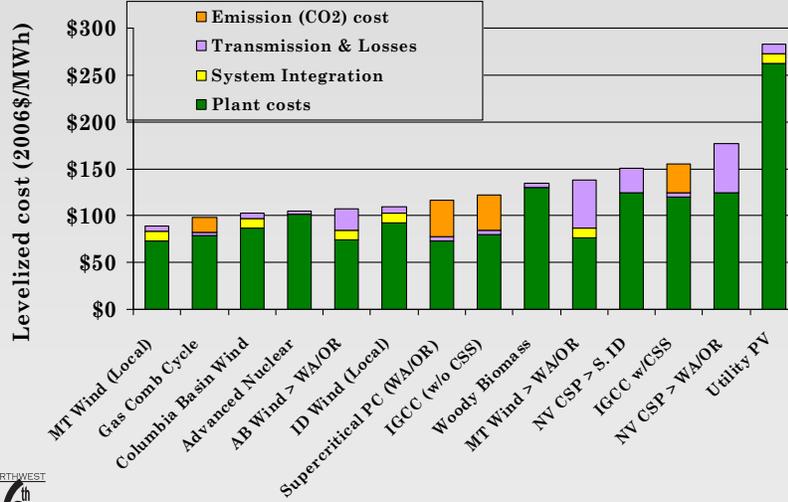
## Generating Resources

- We have assessed technologies and costs for most major generating resources
- Near-term potential mostly natural gas, Columbia Basin wind, and small dispersed renewable opportunities
- Resources not available near-term include coal gasification with sequestration, nuclear, and some renewables that are either too expensive or are immature technologies



# Energy Resource Options Early 2020s

Transmission cost & losses to point of LSE wholesale delivery  
 No federal investment or production tax credits  
 Baseload operation (CC, Nuc, SCPC 85%; IGCC, Bio - 80%)  
 Medium NG and coal price forecast (Draft 6<sup>th</sup> Plan)  
 Proposed Draft 6<sup>th</sup> Plan CO2 price.



# Supply-side Capacity Options Early 2020s

No federal investment or production tax credits  
 Medium NG and coal price forecast (Draft 6<sup>th</sup> Plan)

