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December 3, 2008

MEMORANDUM

TO: Power Committee

FROM: Maury Galbraith

SUBJECT: Draft Sixth Plan Electricity Price Forecasts

Staff is developing revised forecasts of future wholesale power market prices. These forecasts provide current projections of the long-term trend of future wholesale electricity prices. Uncertainty regarding the future trend of wholesale power prices is a source of risk for resource development in the Northwest. Staff will input the long-term wholesale power market price trends into the Regional Portfolio Model to incorporate this risk into the development of the Council's Sixth Power Plan. Shorter-term electricity price risk, due to such factors as disequilibrium of supply and demand, and seasonal volatility due to hydro conditions and other weather related events are also incorporated into the Regional Portfolio Model, but are not reflected in the long-term trend forecasts.

The long-term projections of wholesale power market prices are also used by the Council, regional utilities, and other agencies to determine the "avoided costs" of potential energy efficiency measures. The Council will use the "avoided costs" in its initial cost-effectiveness assessment of candidate resources to include in the Regional Portfolio Model.

Updates to the Council's electricity price forecasting model have been made to the configuration and many of the inputs. Significant revisions include:

1. Reduction in the number of load-resource zones used to model the Western Interconnect
2. Updated transmission links between the modeled load-resource zones
3. Updated demand forecasts for each of the load-resource zones
4. Updated fuel price forecasts for each of the zones
5. Updated hydro condition modeling for the Northwest zones
6. Updated inventory of existing generating resources in each of the zones
7. Updated estimates of future Regional Portfolio Standard resource development by zone
8. Updated inventory of candidate resources for future development by zone
9. Improved dispatch parameter for combined cycle combustion turbines
10. Updated carbon dioxide price forecasts

Staff will describe many of these revisions and their impact on projected wholesale power market prices during the Power Committee meeting. The forecasts are not completed for this packet. Staff is working to complete the price forecasts by the end of December so that work with the Regional Portfolio Model can begin in the New Year. Staff will discuss the final wholesale power price forecasts with the Power Committee at its meeting in January.

Sixth Northwest Conservation & Electric Power Plan

Draft Wholesale Power Price Forecasts

Maury Galbraith

Northwest Power and Conservation Council

Power Committee Meeting

Portland, OR

December 9, 2008



Outline

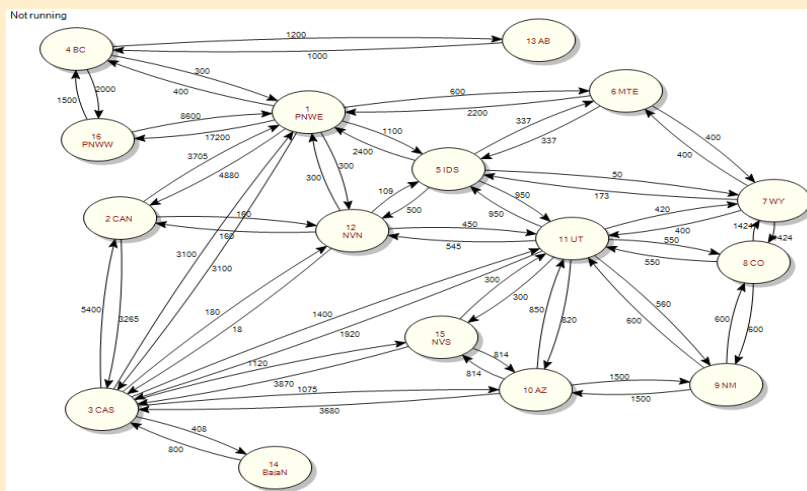
1. Overall Perspective: Major AURORA Updates
2. Updated AURORA zone configuration
3. Updated load-resource balance by zones\ regions
 - Energy
 - Capacity
4. Impact of updates on wholesale power market price forecast



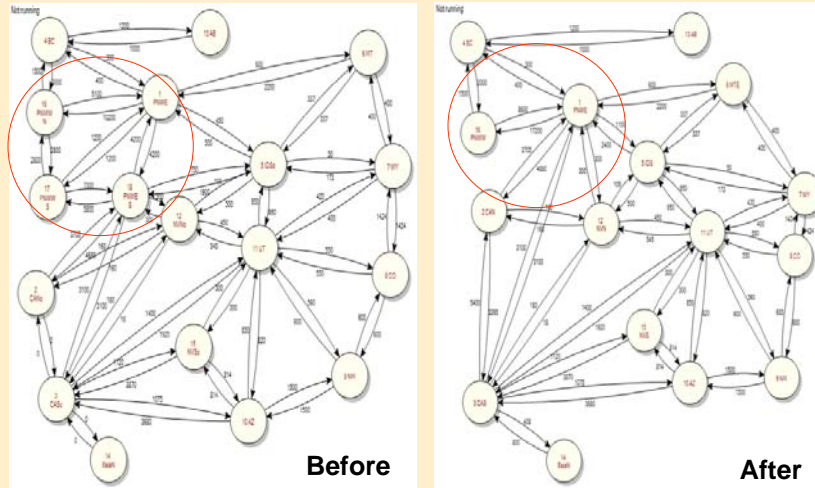
Major AURORA Updates

1. **Reduction in the number of load-resource zones used to model the Western Interconnect**
2. Updated transmission links between the modeled load-resource zones
3. **Updated demand forecasts for each of the load-resource zones**
4. Updated fuel price forecasts for each of the zones
5. Updated hydro condition modeling for the Northwest zones
6. Updated inventory of existing generating resources in each of the zones
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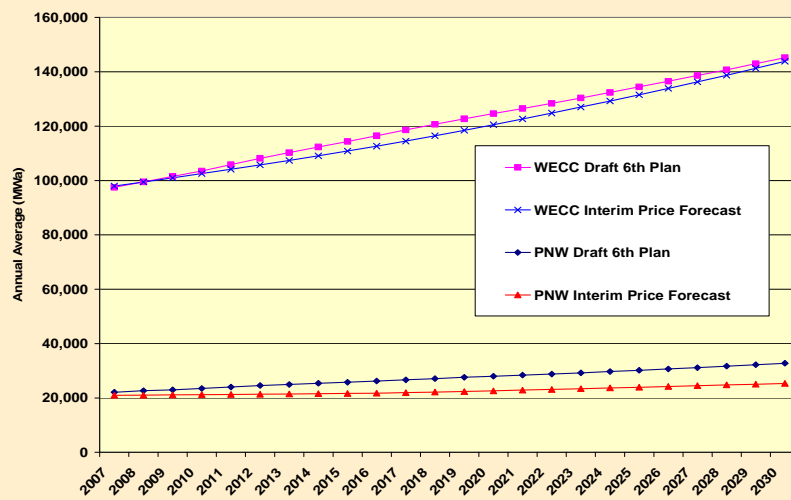
AURORA Zone Configuration Removed North and South Split of PNW



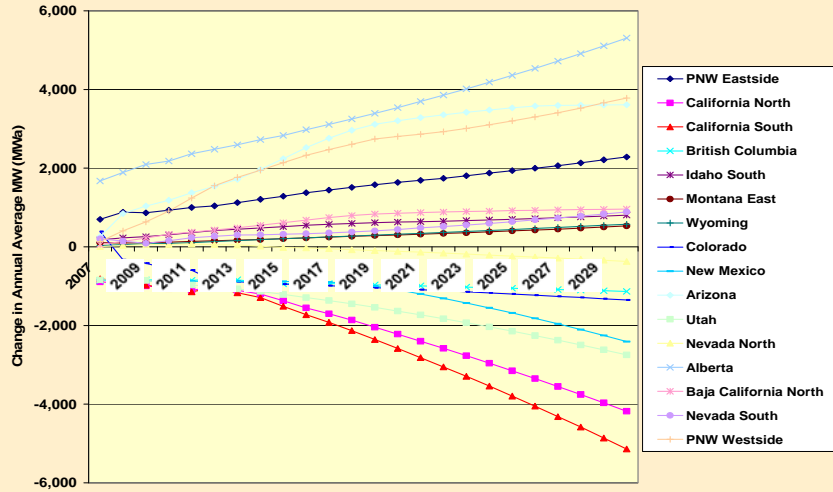
AURORA Zone Configuration Removed North and South Split of PNW



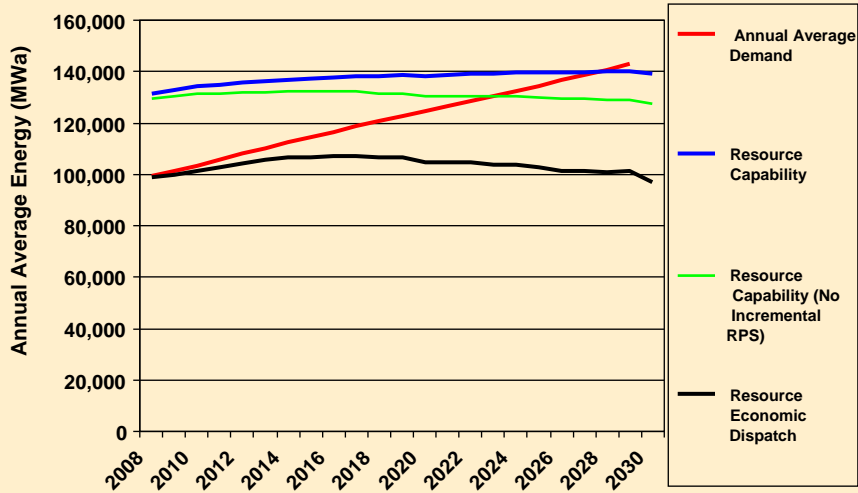
Higher Forecasts of Annual Average Energy at WECC and PNW Levels



Change in Annual Average Energy by Zone 6th Plan Forecast minus Interim Price Forecast

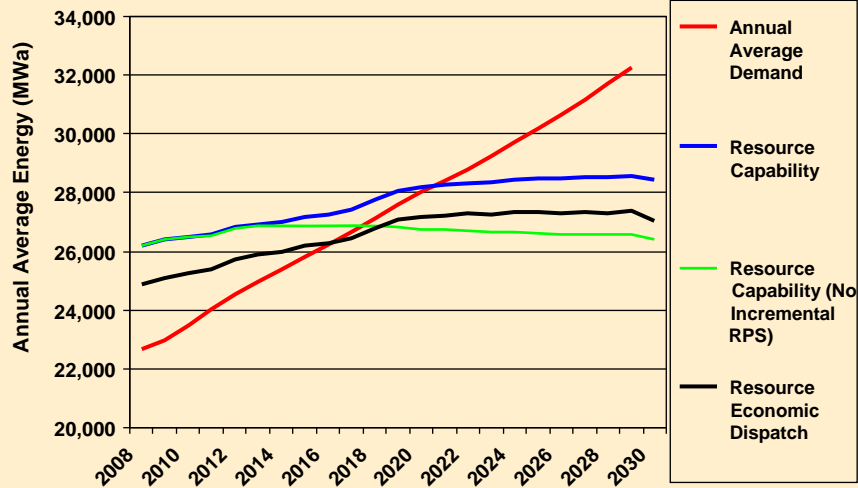


WECC Load-Resource Balance – Energy Draft 6th Plan/ Existing and Incremental RPS Resources Only



PNW Load-Resource Balance – Energy

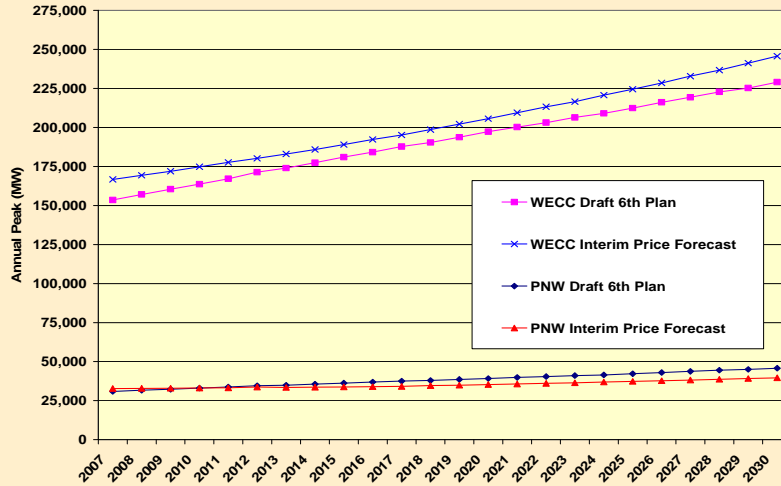
Draft 6th Plan/ Existing and Incremental RPS Resources Only



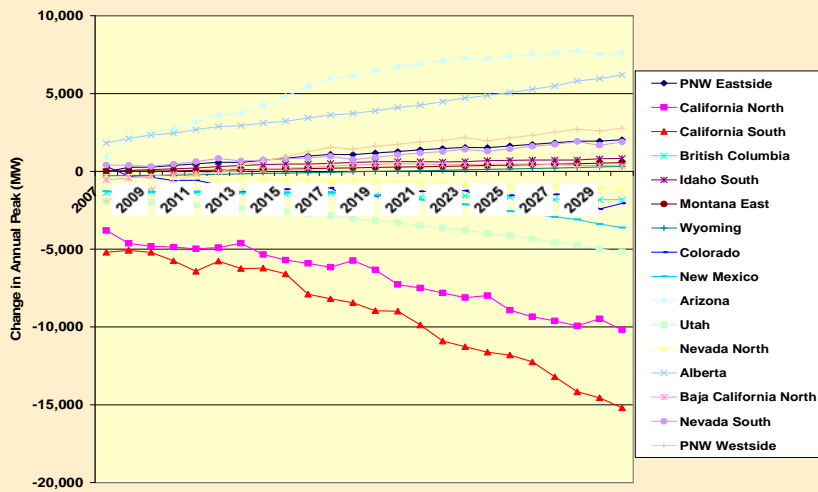
Energy Summary

- Increased load forecasts for WECC and PNW
- Shift in forecasts at the zone level
 - CA forecast is down
 - PNW forecast is up
- Energy Surpluses (with existing resources)
 - WECC through 2023 based on theoretical capability
 - PNW through 2017 based on theoretical capability
 - Economic dispatch is important
- RPS resource development extends surpluses

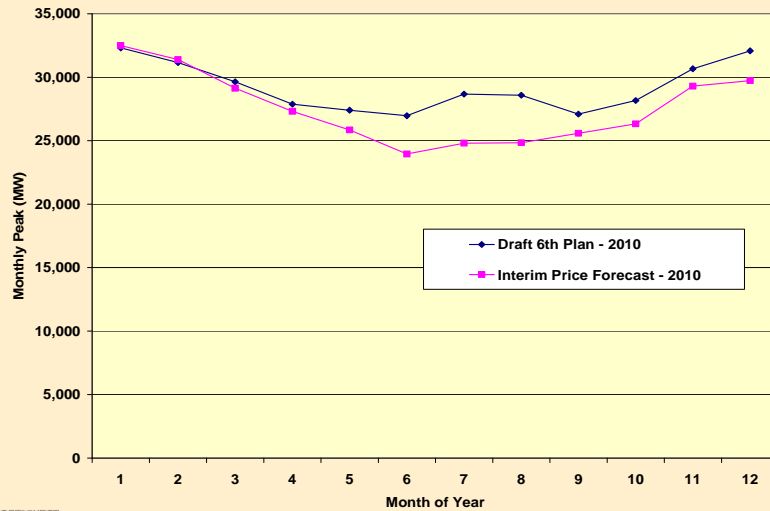
Comparison of Annual Peak Demand Draft 6th Plan vs. Interim Price Forecast



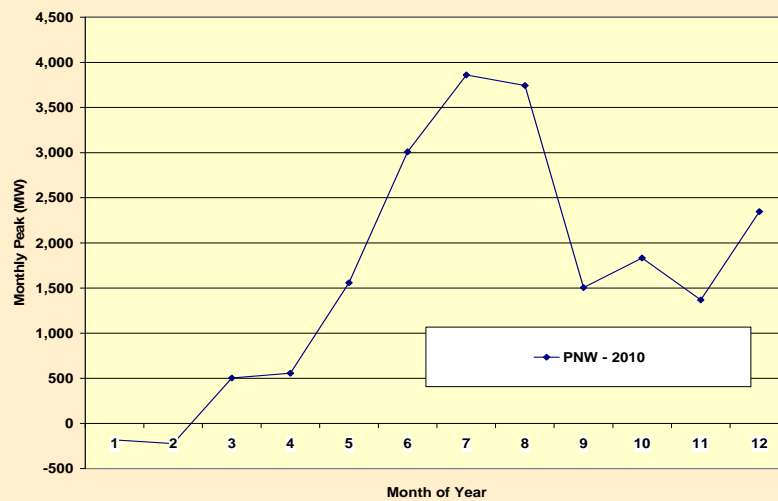
Change in Peak Demand by Zone 6th Plan Forecast minus Interim Price Forecast



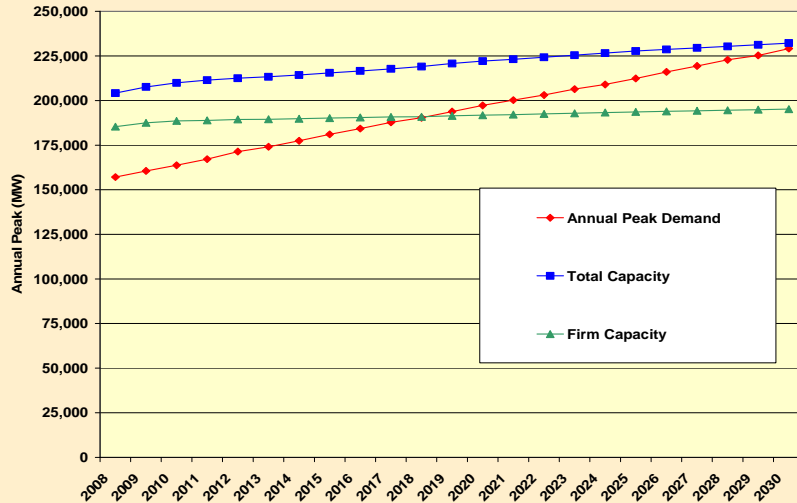
Comparison of Monthly PNW Peak - 2010 Draft 6th Plan vs. Interim Price Forecast



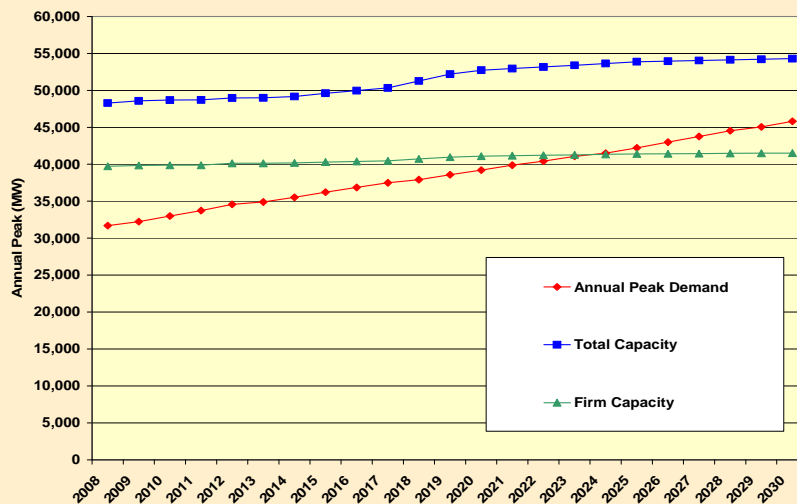
Change in PNW Monthly Peak - 2010 6th Plan Forecast minus Interim Price Forecast



WECC Load-Resource Balance – Capacity Draft 6th Plan



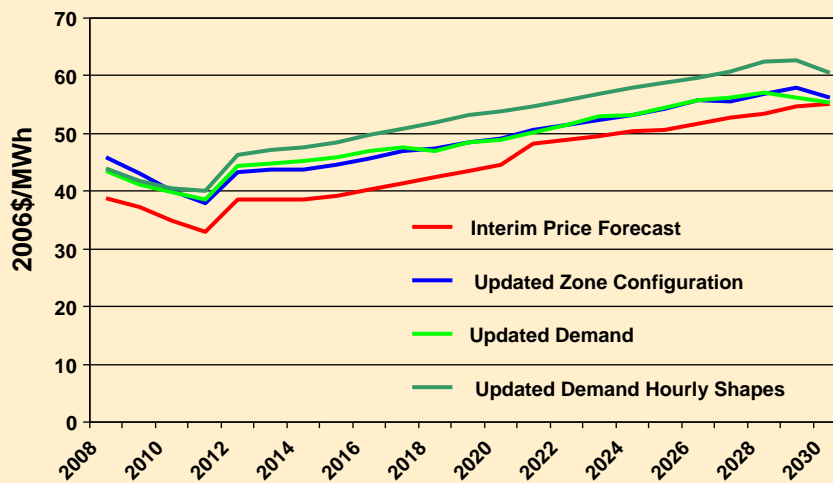
PNW Load-Resource Balance – Capacity Draft 6th Plan



Capacity Summary

- Reduced peak load forecast for WECC
- Increased peak load forecast for PNW
 - Higher summer peak
 - Still winter peaking
- Shift in forecasts at the zone level
 - CA forecast is down
- Capacity Surpluses (with existing resource capability)
 - WECC through 2018
 - PNW through 2023
- RPS resource development not expected to extend surpluses

Impact of AURORA Updates on Mid-C Wholesale Power Price Forecast



Next Steps – More AURORA Updates

1. Reduction in the number of load-resource zones used to model the Western Interconnect
2. Updated transmission links between the modeled load-resource zones
3. Updated demand forecasts for each of the load-resource zones
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