Sixth Northwest Conservation & Electric Power Plan

Draft Wholesale Power Price Forecasts

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Outline

1. Overall Perspective: Major AURORA Updates
2. Updated AURORA zone configuration
3. Updated Fuel Price Forecasts
4. Updated load-resource balance by zones\regions
   • Energy
   • Capacity
5. 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
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

AURORA Zone Configuration
Removed North and South Split of PNW
AURORA Zone Configuration
Removed North and South Split of PNW

Before

After

Higher Natural Gas Prices
Medium Long-term Trend Forecasts for PNW Zones
Higher Coal Prices
Medium Long-term Trend Forecasts for PNW Zones

Comparison of Annual Average Energy Draft 6th Plan vs. Interim Price Forecast
Change in Annual Average Energy by Zone
6th Plan Forecast minus Interim Price Forecast

Change in PNW Annual Average Energy
6th Plan Forecast minus Interim Price Forecast
WECC Load-Resource Balance – Energy
Draft 6th Plan/ Existing and Incremental RPS Resources Only

WECC Resource Expansion – Energy
Economic Dispatch

- NR 401 MW IGCC CSS
- NR 425 MW IGCC
- NR 400 MW CLST
- NR 2x50 MW GT
- NR 2x47 MW GT
- NR 610 MW CC
- NR 100 MW CL 4 Wind
- NR 100 MW CL 5 Wind
- NR 100 MW CL 6 Wind
PNW Load-Resource Balance – Energy
Draft 6th Plan/ Existing and Incremental RPS Resources Only

PNW Resource Expansion – Energy
Economic Dispatch
Energy Summary

- Increased load forecasts for WECC and PNW
- Shift in forecasts at the zone level
  - CA forecast is down
  - PNW forecast is up
- Preliminary Resource Need – Energy
  - WECC: resource gap begins to develop in 2014 based on economic dispatch of existing and RPS resources
  - PNW: resource gap begins to develop in 2020 based on economic dispatch of existing and RPS resources
  - Economic dispatch depends on fundamental inputs (i.e., fuel prices, new resource costs, etc.)

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

Change in Annual Peak (MW)

-20,000
-15,000
-10,000
-5,000
0
5,000
10,000

2007

PNW Eastside
California North
California South
British Columbia
Idaho South
Montana East
Wyoming
Colorado
New Mexico
Arizona
Utah
Nevada North
Alberta
Baja California North
Nevada South
PNW Westside

Change in PNW Peak Demand
6th Plan Forecast minus Interim Price Forecast

Change in Annual Peak (MW)

-3,000
-2,000
-1,000
0
1,000
2,000
3,000
4,000

2009
PNW Eastside
Idaho South
Montana East
PNW Westside
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
**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
- Preliminary Resource Need – Capacity
  - WECC: resource gap begins to develop in 2011 based on planning reserve margin and sustained peaking capacity
  - PNW: resource gap begins to develop in 2012 based on planning reserve margin and sustained peaking capacity

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

- Interim Price Forecast
- Updated Zone Configuration
- Updated Demand
- Updated Demand Hourly Shapes
- Updated Fuel Prices - Medium
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
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