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January, 7 2014

MEMORANDUM

TO: Power Committee

FROM: Steven Simmons

SUBJECT: Approach, Assumptions, and Topics for the Wholesale Power Price Forecast

Power Planning Division staff uses the electric market model AURORAxmp provided by EPIS to forecast prices for electricity in wholesale spot markets across the Western Electricity Coordinating Council region. Work is underway on the 2014 version of the wholesale power price forecast. This version will update the previous forecast that was published in February of 2013:

<http://www.nwcouncil.org/media/6829307/wholesaleelectricity.pdf>

The current wholesale power price forecasting cycle is expected to wrap up in the second quarter of 2014. Updates are currently being made to numerous components and inputs such as fuel prices and transmission links. The power price forecast results are expected to serve as an initial basis for other Council forecasting activities, including long-term forecasts of electricity demand.

For this wholesale power price forecast, a few important topics are expected to take center stage in the forecasting and market analysis. One topic is centered on the flurry of activities taking place in California including retirements and replacements of existing power plants, aggressive development of renewable resources both to meet RPS requirements and on electric customers' rooftops, and the state's greenhouse gas cap and trade program. The potential impact of these developments on Western and Northwest power market warrants an in-depth study.

Another topic revolves around whether spot market prices for electricity will be sufficient to provide economic signals to elicit development of new generating resources in the competitive wholesale market. Market-oriented development of new generating projects requires market prices that can cover the full resource cost. However, continued slow growth in electricity loads and increasing regulatory requirements for development of renewable resources that have low variable costs may result in persistently low wholesale spot market prices for electricity. Assessment of these market dynamics will be an important topic for the Seventh Plan forecasting and analysis.

Wholesale Power Price Forecast

Approach – Assumptions - Topics

Presentation to the Power Committee

Steven Simmons

January 14, 2014



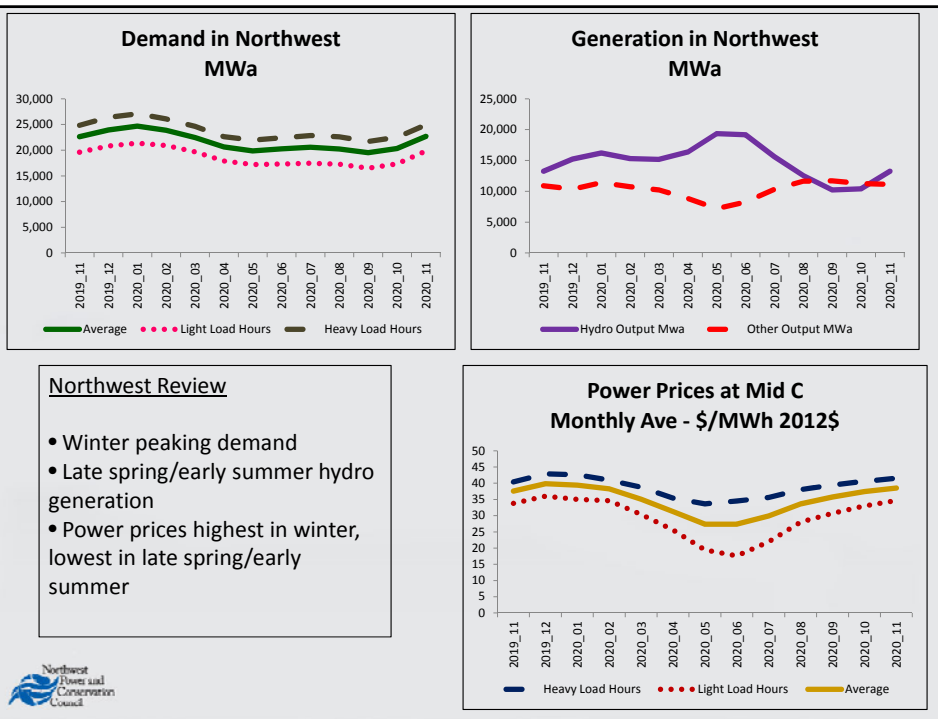
Status

- 1. Work is underway on the 2014 forecast**
 - Expected release date early to mid 2014
 - Update to previous forecast published in February of 2013
 - To serve as a starting point for the Seventh Plan forecast work to come
- 2. Seventh Plan forecast – release scheduled for Q1 2015**



Approach

1. Council utilizes the AURORAxmp Electric Market Model by EPIS
2. Produces an hourly wholesale power price (\$/MWh) across the WECC
3. Key components & assumptions
 - Demand (net of conservation)
 - Generation – especially Hydro
 - Fuel prices – especially Natural Gas
 - Transmission capability
 - Existing and new generating resource characteristics
 - Greenhouse gas policies
 - RPS projections along with integration costs



Topics for the Seventh Plan

Topic 1 – What are the regional implications stemming from the activity occurring in the California energy market?

There is a flurry of activity unfolding with our neighbors to the south:

1. SONGS & OTC retirements and re-power
2. RPS target of 33% and beyond
3. Rapidly growing distributed generation from roof top solar PV
4. Greenhouse gas emission reductions to 1990 levels and possibly beyond (Cap & Trade and RPS)

Could there be a significant impact on

1. Northwest power prices
2. Northwest resource development
3. Import/Export of power between the regions
4. Emissions in the West



Topics for the Seventh Plan

Topic 2 – What will the drivers be for new resource development?

1. RPS policies are driving the development of renewable resources with low variable costs – exerting downward pressure on wholesale electricity prices
2. Resource development based on economic measures requires a market price that can cover full resource costs
3. Will the wholesale power price signal be clear enough to spur new resource development? If not, what might drive new resource development beyond policy driven renewables?



Topics for the Seventh Plan

Other potential topics

1. Potential federal and/or regional greenhouse gas emission policies besides the CA Cap and Trade and BC Carbon Tax
2. Impact of potential changes to the Columbia River Treaty
3. Possible coal retirements beyond Boardman and Centralia



2014 Forecast Updates

1. Fresh natural gas and coal price forecasts
2. Hydro generation curve updated to 80-year average and current biological opinion operations
3. Updated load forecast
4. Updated transmission links
5. Updates to CA Cap and Trade and BC Carbon Tax costs
6. Financial parameters set to 2012 dollars
7. New Solar PV utility scale capital cost estimates

