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January 30, 2008

MEMORANDUM

TO: Power Committee

FROM: Maury Galbraith and Jeff King

SUBJECT: Progress on Interim Wholesale Power Price Forecast (Price Forecast Paper)

Since the January Power Committee meeting, staff has made significant changes to the Price Forecast Paper. These changes include:

- A new introduction. This change addresses the Power Committee's request that the impact of state renewable portfolio standards (RPS) on forecasted wholesale power market prices, regional retail electricity rates, and conservation avoided costs be clarified at the beginning of the paper.
- Added guidance to utilities regarding the use of the price forecasts to evaluate the cost-effectiveness of demand-side and generating resources. This change was recommended by the Bonneville Power Administration.
- Increased carbon dioxide (CO₂) prices in the base case and high CO₂ cost cases. This change responds to comments made by the Northwest Energy Coalition.
- Refined estimates of the resource additions needed to achieve the states' renewable energy targets.
- Improved modeling of state power plant CO₂ performance standards and British Columbia energy policy.

Staff is currently reviewing these changes. Staff recommends that the Power Committee delay its planned release of the Price Forecast Paper because we are not yet confident of the model results or how they should best be interpreted. At the February meeting, staff intends to discuss the changes to the price forecasts and paper with the Power Committee. Staff has removed this item from the Council meeting agenda to allow for more thorough review of the price forecasts and draft paper.

Interim Wholesale Power Price Forecast

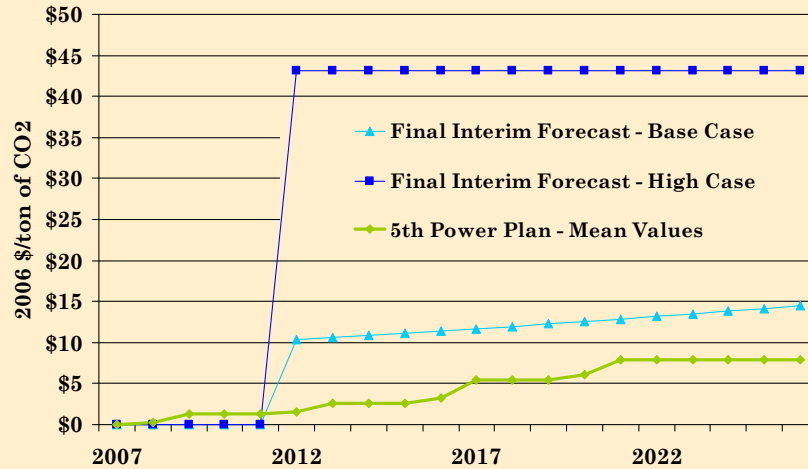
Progress Report

Maury Galbraith and Jeff King
Northwest Power and Conservation Council
Power Committee
Portland, OR
February 12, 2008

Steps to “Interim” Wholesale Power Price Forecast

1. Converted AURORA setup for CO₂ Footprint Paper to 2006 dollar values
2. Revised coal and natural gas prices
3. Revised new resource capital costs
4. Added IGCC with CO₂ sequestration as a resource option
5. Added resources to achieve current state RPS targets
6. Implemented capacity reserve margin modeling
7. Revised CO₂ emission prices
8. Restricted building of coal-fired resources without CO₂ sequestration

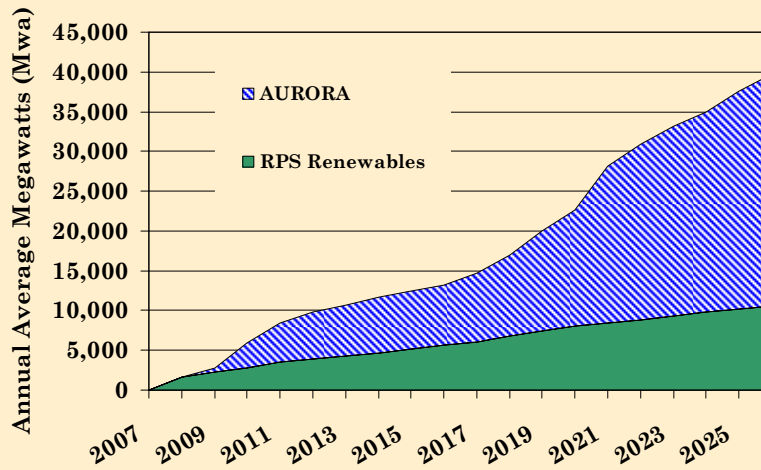
Updated CO₂ Emission Prices



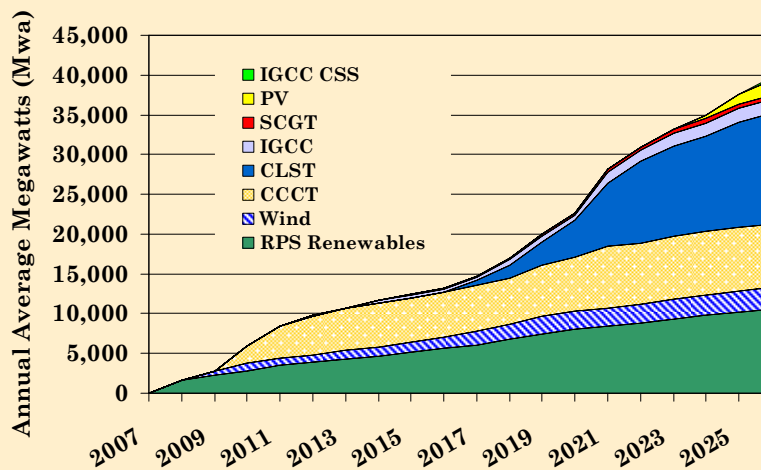
Summary of RPS Modeling

	Summary of Standard	Assumed allocation of new acquisitions (Energy basis)
AZ	IOU sales: Annual increments to 15% by 2025 30% min distributed resources.	31% load-side; 7% biomass; 27% solar; 34% wind
BC	Renewables will continue to account for 90% of generation	20% biomass; 40% hydro; 40% wind
CA	IOU sales: 1% min/yr to 20% by 2011 COUs: "recognize legislative intent"	10% biomass; 15% geothermal; 25% solar; 50% wind
CO	IOU sales: Scheduled increments to 20% by 2020 COU sales: Scheduled increments to 10% by 2020	5% solar; 95% wind
MT	IOU sales: Scheduled increments to 15% by 2015	25% biomass; 75% wind
NM	IOU sales: Scheduled increments to 20% by 2020 COU sales: Scheduled increments to 10% by 2020	15% biomass; 15% geothermal; 20% solar; 50% wind
NV	IOU sales: Scheduled increments to 20% by 2015 5% min solar; 105% credit for conservation to limit	27% conservation; 36% geothermal; 18% solar; 18% wind
OR	Large utility sales: Scheduled increments to 25% by 2025. (Medium utilities 10%; small 5% by 2025)	20% biomass; 10% geothermal; 5% solar; 65% wind
WA	Sales of large utilities (17/~ 84% load): Scheduled increments to 20% by 2020.	20% biomass; 5% hydro; 75% wind

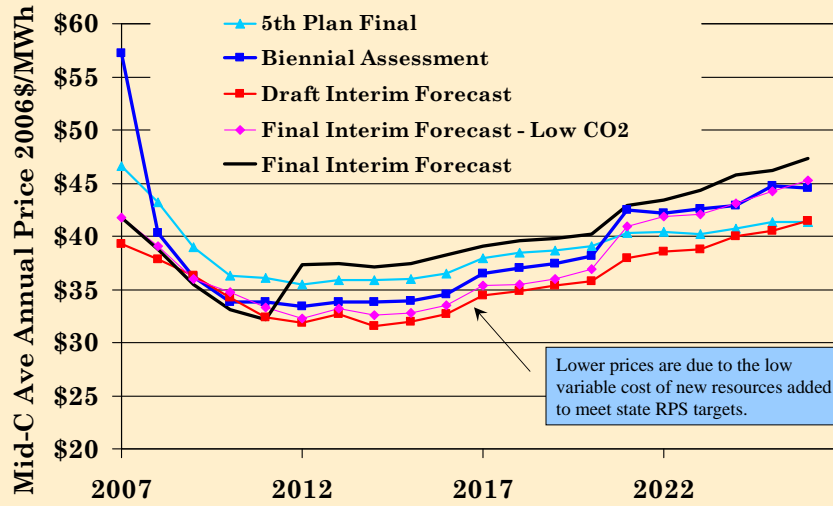
WECC Resource Expansion 2007-26 (MWa)



WECC Resource Expansion by Technology 2007-26 (MWa)



Current and Earlier Power Price Forecasts

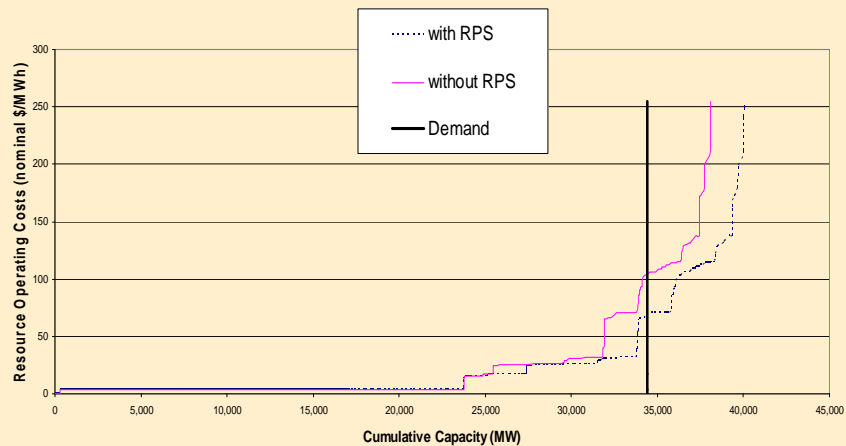


Lower prices are due to the low variable cost of new resources added to meet state RPS targets.

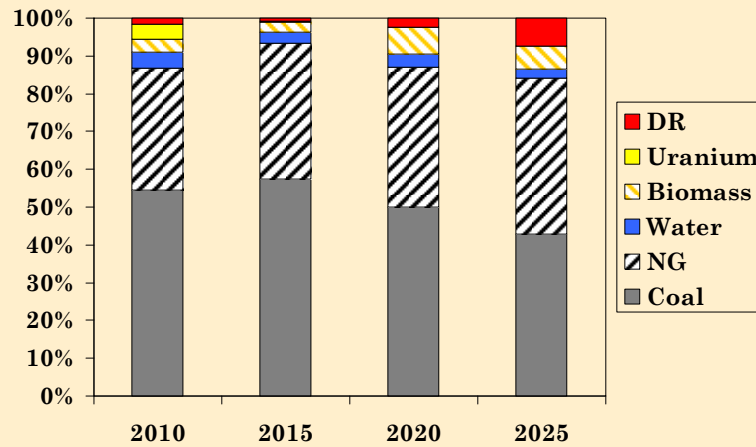


Why Do RPS Resource Additions Dampen Wholesale Power Market Prices?

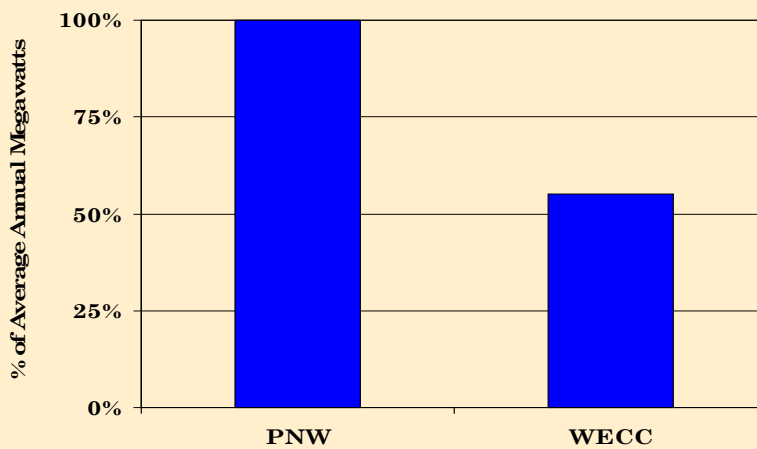
PNW Peak Demand Hour in 2020



Fuel Type of Market Clearing Resources

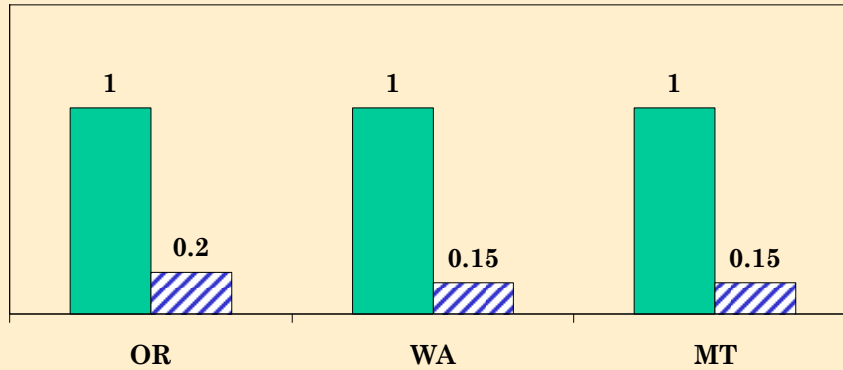


Percentage of Incremental Resource Output in 2020 Attributable to RPS

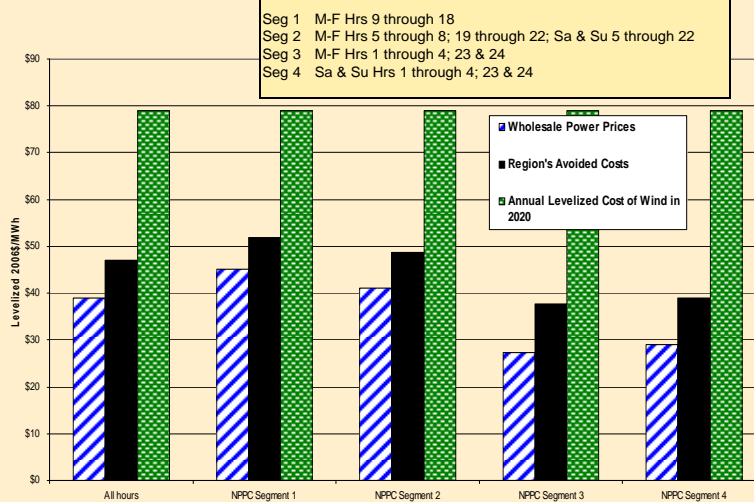


Is RPS Resource Development Avoidable?

1 kWh of Conservation Reduces RPS Obligation by ___ kWh in 2020



Potential Avoided Cost Methodology



Next Steps

1. Sensitivity Cases:

- High CO₂ price case
- 75% RPS achievement case
- High and Low fuel price cases

2. Revised paper:

- New “Introduction”
- Improved explanation of RPS impacts
- Improved explanation of avoided costs
- Additional guidance regarding utility resource development

3. Sixth Plan Forecast:

- Revised demand forecast
- Revised fuel price forecast
- Revised generating resource supply curves