

## 2006 IRP Public Input Meeting

Wednesday, August 23, 2006  
12:00 pm – 3:00 pm (Pacific)

### Meeting Summary

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<b>Idaho</b>	Terri Carlock (ID-PUC), Rick Sterling (ID-PUC)
<b>Oregon</b>	Lisa Schwartz (OPUC), Silvia Melchiorri (PGE), Lowrey Brown (CUB)
<b>Utah</b>	Thomas Brill (DPU), Andrea Coon (DPU), Joni Zenger (DPU), Charles Peterson (DPU), Becky Wilson (UT-PSC), John Harvey (UT-PSC), Carol Revelt (UT-PSC), Jim Logan (UT-PSC), Nancy Kelly (CCS), Kathy Van Dame (WCAC), Glade Sowards (UDAQ), Tim McCoy (Van Cott-Bagley), Tim Wagner (Sierra Club)
<b>Washington</b>	John Klingele (Customer)
<b>Wyoming</b>	Denise Parrish (OCA), Bob Pomeroy (Holland & Hart), Steve Waddington (WYIA)
<b>Regional</b>	Michael Schilmoeller and Ken Corum (NWPCC), Eric Guidry (WRA), Roger Hamilton (West Wind Wires), Ann Gravatt (RNP), David Cohen (Navigant Consulting), Don Hendrickson (Energy Strategies),
<b>PacifiCorp</b>	<u>In Portland:</u> Mark Klein, Greg Duvall, Michael Liljenwall, Dan Swan, Stan Williams, Ken Dragoon, Diane Lozovoy, Stacey Kusters, Jeff Bumgarner, Kenneth Houston, Kyle Davis, Hui Shu <u>In Salt Lake City:</u> Bill Fehrman, Pete Warnken, Ken Morris, Dave Taylor, David Hagen <u>In Cheyenne:</u> Bob Tarantola

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### INTRODUCTION

The purpose of PacifiCorp's seventh 2006 IRP public meeting was to present and discuss the preliminary results from runs of the Capacity Expansion Module (CEM). The CEM is an automated resource screening tool that determines the optimal mix and timing of resources to minimize Present Value of Revenue Requirements (PVRR). Prior to the presentation of modeling results and conclusions, Pete Warnken summarized the CEM modeling objectives and provided an overview of the modeled scenarios. Ken Dragoon presented the CEM modeling results and facilitated the discussion.

## **CAPACITY EXPANSION MODULE ANALYSIS AND SCENARIO REVIEW**

Pete Warnken summarized the context for the CEM modeling effort, stating that its main purpose was to inform the selection of candidate portfolios for stochastic risk analysis using the Planning and Risk Module (PaR). This is accomplished by using the CEM to determine optimal resource plans under a range of “alternative future” scenarios and to investigate how such variables as load growth, market prices, carbon dioxide cost adders, and renewable energy production requirements, impact the overall least-cost resource mix. PacifiCorp emphasized that the CEM is a deterministic model that captures high-level operational details of a utility’s system via time blocks for a representative week. In contrast, the PaR model provides detailed hour-by-hour commitment and dispatch simulation capabilities, and can capture the effects of stochastic variable behavior (i.e., volatility and correlation).

PacifiCorp then presented the set of alternative future and variable sensitivity scenarios that served as the basis for the CEM model runs. It was pointed out that the scenarios reflect revision and reorganization according to verbal and written comments received on the original scenarios presented at the June 7, 2006 public meeting. The main changes to the alternative future scenarios included reducing the number of variables (to simplify comparisons), restructuring them to equalize the frequency of low and high variable levels, and adding scenarios that vary the load growth level.

Participants voiced no objections to the overall scenario approach, although several requested that additional ones be added. Participants requested sets of sensitivity scenarios that use a different base set of assumptions other than the medium case; specifically, use the business-as-usual case (with no CO<sub>2</sub> adder) and the high and low cost bookend cases. Although PacifiCorp voiced its concern about expanding the number of scenarios in this way, it agreed to perform these studies.

## **GENERAL OBSERVATIONS AND RESOURCE-SPECIFIC RESULTS**

Ken Dragoon summarized the main observations from the CEM scenario studies. Regarding supply-side resources, there was no dominant fuel type appearing across the alternative future scenarios; coal and natural gas plants were selected in scenarios that favored these respective resources. Wind appeared in every alternative future scenario except for the “unfavorable wind environment” scenario. Integrated Gasification Combined Cycle (IGCC) appeared in a limited number of scenarios with high market price and load growth assumptions. The CEM selected historically unprecedented levels of front office transactions in many of the scenarios due to the lack of an upper-bound constraint placed on this resource type for the preliminary runs. PacifiCorp stated its intention to rerun its scenarios with front office transactions constrained to a 1,200 megawatt limit, the amount assumed for the 2004 IRP and 2004 IRP Update. One participant suggested that such a constraint, or other assumptions that limit market access, could affect the economics of a second Path C upgrade. Demand-side management (DSM) selection was influenced by the assumed load growth level. For transmission, the CEM selected the “West Main – Walla Walla”, “Walla Walla – Yakima”, and “Mona – Utah North”

lines in all the scenarios, while the “Bridger – Ben Lomond” path was selected in a majority of the scenarios.

PacifiCorp next provided observations for the sensitivity scenario results. The company concluded that the renewables production tax credit (PTC) was found to be necessary for the CEM to select any quantity of wind. One participant took exception to this finding, noting that a scenario study that includes high market prices and a high CO<sub>2</sub> adder level along with expiration of the PTC was not conducted. Another participant suggested that PacifiCorp revisit its wind capacity factor assumptions given improved performance with 100-meter towers.

PacifiCorp also observed that selection of coal, gas, and front office transactions was very sensitive to market price assumptions. The company indicated that it was moving to a probability-weighted forward price curve, and that this curve would be available for IRP modeling by the end of August.

PacifiCorp noted that the CO<sub>2</sub> adder level had a relatively large effect on PVRR and wind capacity additions. On the other hand, varying the planning reserve margin had a relatively moderate impact on both the PVRR and resource selection other than for front office transactions, which the model chose on the margin.

The meeting then turned to specific model results, as well as additional sensitivity study conclusions. Issues discussed included:

- CO<sub>2</sub> offset assumptions and sufficiency of the \$25/ton (1990\$) high CO<sub>2</sub> adder
- The adequacy of the modeling work to meet the MidAmerican Energy Holdings Company commitment to study Rocky Mountain Area Transmission Study (RMATS) transmission options to facilitate wind development (such as increasing available wind in the southeast Wyoming wind supply bubble).
- The large year-to-year changes in CEM resource additions for many of the alternative future scenarios, particularly around 2012. PacifiCorp explained that this behavior was caused by contract expirations and year-to-year variations in load growth for the high and low load growth cases.

## **CANDIDATE PORTFOLIO DEVELOPMENT**

The last major agenda item of the meeting was to describe how the CEM results will be used to come up with candidate portfolios for risk analysis. PacifiCorp outlined its high-level guidelines for developing the candidate portfolios. These include (1) rerunning all the CEM scenarios with front office transactions constrained, (2) using fixed resource addition patterns for wind, DSM, and CHP in all the candidate portfolios, (3) using the portfolio derived from the “medium load growth” scenario run as the starting point for constructing the candidate portfolios, and (4) ensuring that portfolios have a diverse resource mix regardless of the resource strategies used to develop them. Participants raised no objections with this approach.

At the conclusion of the meeting, PacifiCorp told participants that it would distribute documentation and results for the next round of CEM modeling, as well as provide the DSM

proxy supply curve study developed by Quantec LLC. A comment period for the distributed materials would also be provided. Subsequent to this, PacifiCorp will also distribute a paper describing the candidate portfolios and how they were developed.

**PacifiCorp Action Items:**

- Perform CEM sensitivity studies using the assumption sets for the business-as-usual, high cost bookend, and low cost bookend scenarios as the basis.
- Distribute a CEM model results package with supporting documentation as well as the Quantec DSM proxy supply curve study.
- Distribute a paper describing the candidate portfolios selected for risk analysis using the PaR module, and how they were developed.