

## 2006 IRP Public Input Meeting

Wednesday, May 10, 2006

9:00 am – 3:30 pm (Pacific)

### Meeting Summary and Parking Lot Responses

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<b>Idaho</b>	Terri Carlock (ID-PUC), Rick Sterling (ID-PUC), Dan Pfeiffer (ID-PUC)
<b>Oregon</b>	Lisa Schwartz (OPUC), Maury Galbraith (OPUC), Phil Carver (ODOE), Elaine Prause (ETO), Justin Klure (OPUC), Brian Kuehne (PGE),
<b>Utah</b>	Thomas Brill (DPU), Andrea Coon (DPU), Sam Liu (DPU), Cheryl Murray (CCS), Charles Peterson (DPU), Gary Dodge (Hatch, James & Dodge), Becky Wilson (UT-PSC), John Harvey (UT-PSC), Carol Revelt (UT-PSC), Nancy Kelly (CCS), Sarah Wright (UCE), Sarah Baldwin (UCE), Betsy Wolf (SLCAP)
<b>Washington</b>	Yohannes Mariam (WUTC), Hank McIntosh (WUTC), John Klingele
<b>Wyoming</b>	Bryce Freeman (WY-PSC), Denise Parrish (OCA)
<b>Regional</b>	Massoud Jourabch & Michael Schilmoeller (NWPC), Eric Guidry (WRA), Lowrey Brown (CUB), Natalie McIntire (RNP), Roger Hamilton (WWW), Steve Weiss (NWEC), Don Hendrickson & Kelly Francone & Henrie Hutch (Energy Strategies), Phil Hayet (Hayet Power Systems), Walter Eggers (Holland and Hart)
<b>PacifiCorp</b>	<u>In Portland:</u> , Pete Warnken, Michael Liljenwall, Betty Reed, Dan Swan, Stan Williams, Ken Dragoon, Dina Thompson, Teri Ikeda, Reed Davis, Mike Rife, Jim Henry, Elaine Biggs, Irene Heng, Stacey Kusters <u>In Salt Lake City:</u> Greg Duvall, Bill Whitney, Ian Andrews, Jim Lacey <u>In Cheyenne:</u> David Mosier

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### INTRODUCTION

This public meeting was devoted to presenting PacifiCorp's natural gas and wholesale electricity price forecasts intended for use in the 2006 Integrated Resource Plan (IRP), and providing an update on wind resource studies described in the January 13, 2006 renewable resource technical workshop. The scheduled supply-side resource procurement update was postponed to a future meeting due to a shortage of time to adequately cover this topic.

### NATURAL GAS AND ELECTRICITY FORECASTS

PacifiCorp's Market Analysis Group (David Engberg, Jim Henry, and Elaine Biggs) provided an overview of the electricity forward price curve development process and the modeling framework—MIDAS Gold® forecasting logic and inputs—used to develop the 2006 price forecasts. The Group pointed out that the price curves undergo rigorous review and validation, including an external audit, before they become official. The process for incorporating six years

of market quote data with the MIDAS fundamentals-based forecasts, including a one-year blending period, was covered. After describing the MIDAS transmission topology, the Market Analysis Group explained the model logic for handling hydro generation. The concept of dispatched hydro units (“thermal” hydro) was discussed in depth. For regions with hydro resources that can generate in excess of load requirements, such as in the Mid-Columbia and BC Hydro areas, the company represents a portion of the hydro resource such that it is dispatched like thermal units at marginal prices so that the excess energy can be exported. This is in contrast to regular modeling of hydro units that are used for load shaving.

After describing how MIDAS employs a “resource scarcity premium” estimation method for pricing electricity, participants discussed PacifiCorp’s use of a six-year cutoff point for incorporating market prices in the forward curves, and the underlying rationale for this cutoff point. Participants questioned whether the six-year period was too long given such factors as short term market volatility and gas market inefficiency, and whether this cutoff was supported by market studies. One participant recommended updating market prices when short-term events indicate a directional trend. PacifiCorp responded that the market price cutoff assumption is reviewed periodically and adjusted according to market conditions and quote/offer availability for firm purchases. PacifiCorp believes that market prices are valid up to a six-year period and noted that NYMEX gas contracts go out that long. In response to the suggestion to revise market prices based on short term trends, the company disagreed with that strategy, stating that the impact of market volatility decreases when looking beyond a two-year span.

PacifiCorp next discussed how MIDAS models transmission, marginal prices, and resource additions. For resource additions, MIDAS uses a one-year “look-back” to determine economic additions (i.e., net operating margin for a plant is greater than the levelized fixed cost), and then incorporates additional plants to ensure that a 15% planning reserve margin is met in each of the topology bubbles. Participants expressed differing views on this approach: some thought that a single-year look was unrealistic given the typical boom-bust construction cycles, while another voiced supported, touting the value of “imperfect foresight” in valuing assets. In response to participant questions regarding the handling of renewable and transmission resources, PacifiCorp noted that wind resources must be added manually to the model because they are not dispatchable. For transmission, PacifiCorp incorporates upgrades associated with announced “firm” projects.<sup>1</sup> The model does not automatically add transmission to address constraints imposed by a new generation resource.

PacifiCorp then described the various WECC input forecasts and assumptions used for the MIDAS runs. The input forecasts discussed include natural gas and oil prices, emission allowance prices, electricity demand, hydro generation, renewable generation, and inflation. PacifiCorp also outlined the MIDAS resource additions determined for the March 2006 forward price curves.

Regarding the natural gas price forecasts (based on PIRA Energy Group projections to 2020), PacifiCorp presented charts comparing the new March 2006 annual gas price forecasts and the

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<sup>1</sup> The main criteria for including a transmission resource in MIDAS are that the resource reached Phase 3 of the WECC Path Rating process and is reasonably certain to receive rate recovery approval, or the resource is already under construction.

June 2005 forecasts used for the 2004 IRP Update report. Market Analysis Group staff described some of the factors accounting for forecast differences. For the 2012–to–2016 period, the March 2006 forecast prices are lower than the June 2005 forecast prices due to increasing likelihood of downward price pressure from new domestic Liquefied Natural Gas (LNG) supplies. However, beyond 2016, the prices are greater for the March 2006 forecast. This price behavior reflects recent evidence for increasing exploration and development costs in North America and the fact that domestic supply costs are expected to set incremental gas costs rather than LNG supply costs. Participants expressed interest in obtaining more information on long term fuel supply issues.

After presenting the natural gas price forecasts, participants debated PacifiCorp’s treatment of post-2020 prices, which is to assume growth at inflation. One participant advocated applying a real escalation rate, while another viewed the current approach as appropriate given the lack of data to suggest a real growth trend either up or down. PacifiCorp mentioned that a sensitivity analysis could be performed to test the cost impact of the post-2020 price growth assumption, and would consider performing such an analysis.

Concerning the 72 gigawatts of MIDAS resource additions reported for the March price curves, a participant requested details on the timing and type of the additions, particularly after 2020. A few participants also questioned some data presented on Renewable Portfolio Standards (RPS), including the renewable resource contribution to overall WECC generation (6% by 2025), and state-level renewable generation levels forecasted for 2025.

PacifiCorp concluded the price forecast presentation by providing electricity price forecasts (June 2005 and March 2006 comparisons) for high load hours for the Mid-Columbia, Palo Verde, and South Path 15 market hubs.

## **UPDATE ON RENEWABLES STUDIES**

Ken Dragoon presented an update on renewable studies initially discussed at the renewables workshop held on January 13, 2006. Topics discussed included the selection and characterization of wind resource proxy sites, incremental reserve requirements, calculation of wind peak load carrying capability (PLCC), and green tag valuation.

Regarding wind resource sites, PacifiCorp devised eight sites (Southeast Washington, North Central Oregon, South Central Montana, Southeast Idaho, Southeast and Southwest Wyoming, West Central Utah, and East Central Nevada) that can contribute a total of 2,900 MW. These sites and capacity amounts were developed from PacifiCorp’s renewable Requests for Proposals, and reflect a subjective assessment of wind market potential.

PacifiCorp reported results of the incremental reserve requirements analysis. With the addition of 1,400 MW of nameplate capacity, the reserve requirement equates to about 11% higher load-following reserves at the 95<sup>th</sup> percentile level, which translates to about a 30 MW increase. The wind variability and short-term forecast error were found to grow roughly in proportion to the square-root of added wind generation.

For the capacity contribution analysis, PacifiCorp developed Peak Load Carrying Capability estimates for each month of the year, with results reported for existing wind projects.<sup>2</sup> The company found that the PLCC varied from a low of 17% during July and August to a peak of 37% in March. The company observed that incremental capacity contribution declines as capacity is added in an area, due to correlated wind generation.

PacifiCorp reported the results of its review of green tag market value. PacifiCorp noted that values have declined over the last several years, and that evidence for upward price pressure caused by state adoption of Renewable Portfolio Standards is inconclusive at the present time. Consequently, PacifiCorp will retain its green tag value assumed for the 2003 IRP—the present value of \$5/MWh spread over five years in constant dollars. A participant noted the current shortage of green tags in the Northwest and the lack of market movement.

PacifiCorp concluded the renewables discussion by describing remaining work. Projects include (1) system balancing cost estimation, (2) develop wind resource cost assumptions and supply curves, (3) transmission resource characterization to bring wind to load areas, and (4) running the Capacity Expansion Model with proxy wind sites at 100 MW increments. Issues raised by participants included the sufficiency of the wind proxy site sizes and the 100 MW wind capacity increments (e.g., are a variety of sizes better for resource planning), and availability of transmission to support wind resource development at levels to be modeled in the IRP, particularly in Wyoming.

Pete Warnken concluded the meeting by outlining a tentative IRP schedule for the remainder of the year, including the next meeting planned for June 7, 2006. Pete noted that PacifiCorp will continue with the Wyoming Teleconference video link.

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<sup>2</sup> The derivation of Peak Load Carrying Capability uses a new statistical technique that estimates the amount of additional on-peak capacity of a resource needed to keep a utility system's Loss of Load Probability (LOLP) constant given an increase in load. PacifiCorp described this technique at the January 13, 2006 renewables workshop.