

DECISION MEMORANDUM

TO: COMMISSIONER KJELLANDER
COMMISSIONER SMITH
COMMISSIONER REDFORD
COMMISSION SECRETARY
COMMISSION STAFF
LEGAL

FROM: NEIL PRICE

DATE: SEPTEMBER 10, 2007

SUBJECT: ACKNOWLEDGMENT OF PACIFICORP'S 2007 ELECTRIC
INTEGRATED RESOURCE PLAN (IRP); CASE NO. PAC-E-07-11

INTRODUCTION AND BACKGROUND

On May 30, 2007, PacifiCorp filed its 2007 Integrated Resource Plan (IRP) with the Commission pursuant to the biennial filing requirement mandated in Order No. 22299, as modified in Order No. 30262. On August 17, 2007, the Company filed an "Errata to 2007 IRP" in order to correct errors in its original IRP filing.

On July 2, 2007, the Commission issued a Notice of Filing, Notice of Modified Procedure and Notice of Comment Deadline and solicited comments on the IRP. Subsequently, the Staff, along with Monsanto Company and one member of the public filed comments within the comment period.

THE 2007 INTEGRATED RESOURCE PLAN

Prior to submitting its IRP, PacifiCorp studied 12 separate portfolios in order to identify a portfolio that demonstrated, through projected statistical analysis, superior performance in terms of estimated cost, customer rate impact, cost versus risk balance across five different CO₂ cost adder levels and supply reliability. See PacifiCorp 2007 IRP at 6, 139. Ultimately, the Company settled upon a preferred portfolio that would include the acquisition of the following energy resources:

- 2,000 MW of renewable resources by 2013
- 100 MW of load controls beginning in 2010
- West-side combined cycle combustion turbine ("CCCT") in 2011

- High-capacity-factor baseload resources to PacifiCorp's eastern system in 2012 and 2014
- Eastern system CCCT's in 2012 and 2016
- Firm market purchases to meet system needs beginning in 2010
- Transmission Additions/Upgrades between 2010-2014 to support resources

Id. at 7.

A. Forecast Load Growth

PacifiCorp estimates that customer loads will grow at an average rate of 2.5% annually from 2007 to 2016. *Id.* at 4 (Figure 1.1). PacifiCorp's eastern system (Idaho, Utah and Wyoming) continues to display a significantly higher rate of energy growth than its western system, with an annual average energy growth rate of 3.2% and 0.8%, respectively. The annual growth for the Idaho service area over that same 10-year period is estimated to be 1.3%. *Id.* at 3 (Table 1.1).

The Company currently forecasts a summer peak resource deficit beginning in 2008 to 2010 depending on whether a 12% or 15% planning reserve ("PR") margin is used. *Id.* In 2009, the Company will become energy deficient on an annual basis, based on a 12% planning reserve margin. *Id.* Beginning in 2010, its system will operate at a 791 MW deficiency, again based upon a 12% PR margin. *Id.* The energy resource deficit will increase to 2,400 MW by the year 2012 and 3,000 MW by 2016. *Id.*

B. Modeling and Risk Analysis

1. IRP Modeling

PacifiCorp employed two distinct modeling tools during its portfolio analysis: (1) Capacity Expansion Module (CEM); and (2) Planning and Risk (PaR) Module. *Id.* at 5. The two analytical models assisted the Company in arriving at the "least-cost optimization [of] resource options" and "develop risk-adjusted portfolio performance measures." *Id.* The Company's modeling approach consisted of "resource screening, risk analysis portfolio development and detailed production cost and stochastic risk analysis." *Id.*

In order to predict the most desirable resource options, PacifiCorp used the CEM to develop and analyze 16 separate "alternative future scenarios" involving a mixture of several variables, including potential CO₂ regulatory costs, natural gas prices, wholesale electricity prices, retail load growth and the scope of renewable portfolio standards. *Id.* at 6, 139. The

Company views the preferred resource portfolio as one that manifests itself under a “reasonably wide range of potential future” scenarios. *Id.* Once those resource option portfolios were effectively identified, the PaR Module was then used to simulate the potential risk and cost of each through a random sampling process of the following variables: loads, commodity natural gas prices, wholesale power prices, hydro energy availability and thermal unit availability. *Id.*

2. CO₂ Emissions

PacifiCorp’s IRP also addressed the potential costs/effects of CO₂ emission compliance. *Id.* at 6. According to the Company, the costs associated with CO₂ emission compliance are not normally amenable to statistical analysis. *Id.* Thus, rather than attempting to ascertain a specific cost, the Company elected to treat the potential emission costs as “a scenario risk” in its overall IRP analysis. *Id.* The initial risk/analysis portfolios were analyzed under five different CO₂ cost adder levels – \$0/ton, \$8/ton, \$15/ton, \$38/ton, and \$61/ton (adjusted for projected 2008 dollars) – in order to determine which portfolio was most prevalent across a “reasonably wide range of potential futures.” *Id.*

C. Action Plan

Prior to the 2011-2012 period, PacifiCorp plans to address its projected resource deficits through the procurement of additional renewable resources, demand-side programs and market purchases. *Id.* at 3. The Company has made requests for proposal (“RFP”) for additional base load resources, renewable resources and demand-side resource programs benefiting the eastern portion of its service area. *Id.*

Faced with the likelihood of energy deficiencies, PacifiCorp has taken recent steps toward increasing its resource production. In June 2006, PacifiCorp converted its Currant Creek facility from a single-cycle combustion turbine to a combined-cycle combustion turbine (“CCCT”). *Id.* at 61. It will add another CCCT to its Lake Side facility this month. *Id.* These additions will be offset by the expiration of two resource procurement contracts, a 400 MW agreement with TransAlta Energy Marketing and a 575 MW BPA peaking contract, in June 2007 and August 2011, respectively. *Id.*

The IRP professes the Company’s commitment to the following additional measures in order to meet future resource needs:

Wind Renewal:

Continue to develop renewable resources, including wind power. PacifiCorp has acquired 346 MW of wind power toward the fulfillment of its 2004 IRP goal of procuring 400 MW by 2007. The Company states that it will continue to acquire additional renewable resources on its way toward procuring a total of 1,400 MW of renewable resources by the year 2010 and 2,000 MW by the year 2013. PacifiCorp has recently added two wind projects, Leaning Juniper 1 and Marengo.

Energy Efficiencies:

Increase its commitment to so-called "energy efficiency" initiatives. The Company will continue to run programs to acquire 250 aMW of cost-effective energy efficiency and an additional 200 aMW if cost-effective initiatives can be identified.

Load Control:

Expand upon its existing load control programs. PacifiCorp anticipates a system-wide average load growth of 2.5 percent per year from 2007 through 2016 throughout its service area. Average load growth from its Idaho customers should be around 1 percent per year. The Company anticipates further expansion of its existing 150 MW of irrigation and air conditioning load control program in Utah and Idaho. In 2010, a 100 MW irrigation load control program will be added and will be split between its eastern and western systems.

Integrated Environmental Issues:

Continue to study and address contemporary environmental issues. The Company asserts that it will assume a leadership role in discussions with stakeholders involving global climate change issues; and continue to investigate the development of carbon reduction technology, specifically clean coal, sequestration and nuclear power.

Transmission:

Address existing problems affecting transmission of resources to customers. The Company plans an expansion of its transmission system and an upgrade in its transmission infrastructure and flexible resources, such as natural gas, in order to meet the anticipated customer loads found in the preferred portfolio.

Diversification:

Diversification of base load and intermediate load resources. The Company reiterated its desire to add approximately 1,700 MW of base load resources, a mix of thermal resources and market purchases, to its eastern system between 2012 and 2014. Further, it will seek to acquire an additional 200 to 1,300 MW of thermal and market purchase resources to benefit its western system between 2010 and 2014.

Id. at 10, 221, 224-27(Table 8.2).

COMMENTS

Public Comments

On July 6, 2007, Gerald Fleischman submitted comments via an e-mail to the Commission. Mr. Fleischman commended PacifiCorp for its “increase in renewable energy input in its most recent Integrated Resource Plan.” Mr. Fleischman also recommended that the Company attempt to procure all of its renewable energy resources from within the State of Idaho and utilize “compressed energy storage” as a substitute for its natural gas inventory.

Monsanto Company Comments

On August 21, 2007, Monsanto Company (“Monsanto”) submitted written comments to the Commission. While Monsanto acknowledged that PacifiCorp had “fulfilled its responsibility to provide a planning document that can serve as framework for PacifiCorp’s planning decision,” it urged the Commission to “continue to follow the [Commission’s] . . . practice of accepting IRP filings without approval or endorsement.” Comments at 1-2.

Monsanto’s concerns begin with its contention that the IRP document currently serves as a “supporting document” for PacifiCorp’s current request for new rate adjustments. *Id.* at 2. As such, Monsanto believes that the IRP process should be afforded an increased level of scrutiny by the Commission and Staff. Monsanto is also concerned that the “capital projects resulting from the [IRP] do not reflect all states interest equally.” *Id.* The Company opines that review participants within the states of Oregon and Utah have a disproportionate amount of influence upon PacifiCorp’s capital procurements, expenses that are “borne by ratepayers in all states.” *Id.* at 3. Monsanto argues that a more “balanced and inclusive Plan that reflects the interest of all six states” is needed. *Id.*

Monsanto also urged PacifiCorp to acknowledge the risk of “negative economic impact” as a “mitigating factor” to be utilized during the energy portfolio development process.

Monsanto believes that PacifiCorp's failure to include "negative economic impact" should negate any of the recommendations included in PacifiCorp IRP. *Id.* at 4.

The Company offered the following additional comments to PacifiCorp's 2007 IRP:

1. PacifiCorp should be required to increase its demand-side reduction programs.
2. PacifiCorp should avoid the development of new gas-fired generation sources due to anticipated increased volatility of gas price and supply in 2008; and the uncertainty of whether LNG can adequately "offset either declining production or expansion in demand for western gas. . . ." Thus, Monsanto questions PacifiCorp's projected future cost of fuel.
3. "Monsanto supports the development of environmentally-responsible coal-fired generation" over "gas-fired generation." The Company believes that given the relative supply available for coal, the use of "clean coal technology is likely much less risky than continued development of gas-fired generation."
4. PacifiCorp should investigate the integration of nuclear power within its energy system, utilizing "the same modeling options as those currently contained within the Company's (PacifiCorp) Plan."
5. PacifiCorp has failed to demonstrate that its increased reliance on front office transactions (wholesale market) is a cost effective alternative to other regional resources.
6. PacifiCorp should take a "leadership role" in developing emission control programs. However, such programs should be balanced against the potential "economic impact to industrial customers in Idaho and the overall impact to the Idaho economy."

Id. at 4-6.

Staff Comments

Staff recognizes that PacifiCorp prepared this IRP amid disparate jurisdictional environments, specifically in regard to resource acquisition and greenhouse gas regulation. Throughout the development period for the IRP, there were nearly 40 participants providing input, including Commission representatives from all states within the Company's jurisdiction except for California. While this is not the first IRP to address constrained resource procurement, the 2007 IRP does represent the first of such plans in which state policies, such as renewable portfolio standards (RPS), have been in place within its service territory. Staff

believes there is still additional work that needs to be done toward reconciling varying state initiatives within the planning process, in conjunction with potential federal carbon legislation.

PacifiCorp continues to expand its analysis of potential portfolios, employing multiple modeling tools, an abundance of in-house, public, and consultant data, and an array of stochastic and deterministic scenarios to identify and to test the robustness of the preferred portfolio. PacifiCorp utilizes an iterative approach to determine the preferred resource acquisition path. An initial round of 12 resource portfolios were assessed under various cost and risk scenarios that highlighted uncertainty in various assumptions, such as fuel prices, load growth and emissions costs. Certain portfolios then went through a secondary screening process based on sensitivity to changes in what the Company terms "secondary variables and other resource selection factors." PacifiCorp 2007 IRP at 124. These scenarios consist of such conditions as adjusting the planning reserve margin and construction costs.

Staff is satisfied with the breadth of future risks that were incorporated into the Company's analysis with the caveat that evolving regulatory environments will require the Company to further expand its analysis prior to the next IRP filing. It is Staff's opinion that resource acquisition will become further constrained for PacifiCorp, and may expose certain jurisdictions, especially Idaho, to resource decisions based less on economics and more on politics. The avenues the Commission has available to mitigate this concern are through the IRP planning process, the request for proposals (RFP) process for resource procurement, and the MSP and allocations process. Staff is currently an active participant in developing the IRP, but not the RFP process. Staff believes that it is imperative that the Commission become more involved in these areas to assure that the ratepayers of Idaho are well represented.

Planning Constraints

Staff noted that the 2007 IRP planning process has proceeded amid a time during which the Company agreed to a variety of commitments both system-wide and within each of its various state jurisdictions. *See* Order No. 29998. PacifiCorp's commitments included the acquisition of 400 MW of cost-effective renewable resources (Commitment 40); increase and upgrade transmission capabilities (Commitments 34 and 35); and investigate clean-coal and emissions reducing technologies (Commitments 41 through 43 and 122).

As of 2007, the Company is slightly behind on its renewables acquisition target of 400, though 335 MW in new wind projects are expected to be online by the end of the year. For

the 2007 IRP, the 400 MW of the targeted 1,400 MW has been included as a committed resource though the timing of procurement for the remaining block was subject to further evaluation.

Staff argues that acquisition of these resources conforms to the commitments made, but at a cost much higher than anticipated. This is evident with the three large wind projects expected to be online this year, each of which have capital costs far in excess of those used as assumptions in the IRP. Given the amount of wind already acquired and the fact that the preferred portfolio contains an additional 600 MW of wind resources, there is a potential that the portfolio selected would have been different had modeled costs been more in line with actual costs obtained in the RFP. Also, state initiatives limiting CO2 emissions and mandating the establishment of a renewable portfolio standard (RPS) have accelerated the Company's investigation into clean coal.

Nevertheless, Staff finds that the Company has effectively addressed the requirements of the Idaho Commission. Staff points specifically to the inclusion of transmission resources in the 2007 IRP and treatment of demand-side management programs as an improvement spurred by Commission directives.

Renewable Resources

Staff presumes that the 2007 IRP indicates that the Company's preferred portfolio contains additional renewable resources beyond those identified in the 2004 IRP. The IRP states that PacifiCorp will continue to acquire additional renewable resources on its way toward procuring a total of 400 MW of renewable resources by the year 2010 and 2,000 MW by the year 2013. Staff acknowledges that the 2,000 MW of renewables may not solely entail wind facilities, though it is assumed that the majority will be wind. However, Staff continues to support cost effective wind generation to serve Idaho customers, noting that the absence of fuel costs and carbon emissions are as important now as they ever have been with ongoing fuel price volatility and likely emissions mitigation requirements.

Thermal Resources

Staff notes that thermal resources figure heavily into PacifiCorp's future resource mix, as it becomes increasingly capacity and energy constrained. The preferred portfolio contains both combined cycle combustion turbine (CCCT) gas units and supercritical pulverized coal facilities. Due to greater efficiencies and lower emissions super-critical pulverized coal was selected rather than sub-critical pulverized coal.

Staff finds that the inclusion of CCCT's in the preferred portfolio is a suitable means for the Company to address both energy and capacity needs efficiently. Staff opines that CCCT's provide greater operational flexibility, lower heat rates, and enjoy economies of scale over SCCT's. Staff is actively evaluating the Company's gas procurement and risk management policies and will provide input into Company strategies. Staff acknowledges that the Company took an earnest approach at capturing gas price volatility when analyzing potential portfolios.

Staff further recommends that the Company address modifications to its 2007 resource acquisition strategies on a state-by-state basis in the form of periodic updates to its 2007 IRP.

Demand-Side Measures

Staff finds that the methods employed by the Company properly incorporate energy efficiency measures into the planning process. Staff encourages the Company to closely monitor demand-side opportunities with the intent to expedite expansion of DSM prior to its 2010-2011 time frame should the possibility arise. Staff maintains that DSM can be an effective, cost-efficient means at the Company's disposal to meet its load obligations. As an example, the Company has had great success with the Irrigation Load Control program in Idaho, and has enacted a pilot curtailable option this year. Staff also recommends that the Company investigate critical peak pricing programs to augment its existing time-of-use schedule. Staff considers the deployment of advanced metering to be an indispensable part of that investigation.

Action Plan

PacifiCorp's Action Plan details the steps that the Company intends to take in order to acquire the identified resources and further improve the IRP process. Staff concludes that the identified course of action is appropriate given the analysis and conclusions reached in the 2007 IRP.

Acknowledgement

Staff reiterated that the Commission "acknowledges" rather than "approves" a utility's IRP, referring the Company to Commission Order No. 25260 for an explanation of the term "acknowledge" in Idaho.

Staff feels that the 2007 IRP represents PacifiCorp's best effort to plan according to what is known at this point in time and fully expects that as conditions change and as new and better information becomes available, future IRP's will change accordingly. Staff believes that

the IRP can no longer be looked upon as choosing resources based solely on cost/risk metrics. Political initiatives are now an important part of the planning process. Staff plans to look closely at all utility IRP's chosen portfolios, action plans and RFP's to assure that the most economical resources are acquired.

Recommendation

Staff believes that PacifiCorp has adequately met the Commission's requirements with regard to its 2007 IRP filing. While not endorsing the proposed action plan, Staff believes that PacifiCorp has performed extensive analyses, provided sufficient opportunities for public input and that the end result is representative of the best information available to the Company at the time of preparation. Staff therefore recommends that the Commission acknowledge the 2007 Integrated Resource Plan. Given the increasing role of jurisdictional resource mandates in the planning process, Staff further recommends that future IRP's incorporate a section devoted to the impacts, if any, of state policies on the selection of preferred portfolios.

COMMISSION DECISION

Does the Commission wish to accept and acknowledge PacifiCorp's 2007 IRP filing?



Neil Price

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