

Before the Oregon Public Utility Commission

LC 39

PacifiCorp's 2005 Electric Least-Cost Plan

NW Energy Coalition Comments

Steven Weiss - Sr. Policy Associate

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Thank you for the opportunity to provide comments on the PacifiCorp 2005 least-cost plan. The NW Energy Coalition ("Coalition" or NWEC) commends PacifiCorp for the depth and scope of this IRP, improvements in its analysis incorporated since the 2003 IRP, and the useful workshops and staff responsiveness throughout the process. However we believe important assumptions that are critical to the analysis--notably an artificial cap on renewables and assumptions regarding carbon risk--are incorrect. We therefore strongly oppose acknowledging the plan to acquire or build two conventional coal plants. My comments focus on just a few areas.

Renewables

PacifiCorp deserves praise for its wind capacity credit study. During the 2003 IRP cycle, the Company received many comments from stakeholders on the lack of recognition of wind's capacity value in that IRP. They agreed to study the issue in the interim. The wind capacity modeling study is excellent work.

The study shows that wind has the same capacity/reliability credit on an energy basis as a combustion turbine. For example, if PacifiCorp has 20 MW of load growth, the capacity study showed it could be served reliably with either a 33 MW CT at 93% capacity factor or 100 MWs of nameplate wind at a 33% capacity factor. Both resources provided equal capacity benefit for the system for about the same amount of energy. As a result, the 2004 IRP now gives wind a 20% capacity value. The practical impact is that the Company reduced the amount of SCCT needed as peaking units.

One concern we have is that while the Company committed to acquiring 1400 MWs of wind, it has not made much progress toward that goal. An RFP was issued in February 2004, but to date, PacifiCorp has acquired no wind resources (although it recently announced signing a contract for a small portion of this amount). Interestingly the two natural gas resources identified (over 1000 MW) in the 2003 IRP were solicited and acquired in the same timeframe. And other IOUs in the region, including Puget, PGE and Northwestern Energy, have signed contracts for wind and those projects are under construction. We ask that PacifiCorp move forward towards reaching this goal expeditiously. The IRP is a *portfolio* whose value was considered, and acknowledged, as a package. In our opinion, moving forward only with the fossil fuel portion of the plan is not in accordance with that acknowledgment.

NWEC's largest concern with the IRP is its failure to seriously investigate acquiring more wind resources than 1400 MWs. In 2003, the Company analyzed a "renewables portfolio" containing the 1400 MW of renewables it considered cost competitive in its preferred portfolio plus another 1143 MWs of wind plus 100 MWs of geothermal. At the time this portfolio was rejected by the Company as being too costly. NWEC criticized the analysis on several grounds: (a) it assumed no capacity credit for the additional 1143 MWs of wind; (b) it

underestimated the value of green tags; (c) it failed to factor in the emissions from purchased power that would be displaced by the additional renewable generation; and, (d) it gave no weight to the value the added renewables would provide in reducing fuel price risk. Together, in our comments, we estimated these mistakes caused the renewable portfolio to be valued \$700 million too high, thus causing it to have a higher cost than the preferred alternative. Those mistakes also caused the renewable portfolio to score badly in the Company's risk metrics.¹

Unfortunately, the Company's analysis in this IRP is worse--it's missing! PacifiCorp never modeled a renewable-heavy portfolio.

The CEM discussion in Appendix J shows that the renewable supply curve is extremely flat. Figure J.1 (Appendix J, p.145) graphs the ratio of costs of the wind bids received in response to the Renewables RFP 2003-B to the forward price curve. The Company received more than 6,000 MW of resources in response to the RFP, most from wind resources. The chart indicates that approximately 1,400 MW of those bids were at or below the Company's forward price projections, and that an additional 900 MW of renewables was priced at only 10% above the Company's projections, and that an additional 800 MW on top of that was available at a price of 20% above the Company's forward price projections. The flatness of this curve indicates that the amount of renewables that would be cost-effective is extremely dependent on assumptions about the forward price curve, including future gas prices, Carbon costs, integration costs, etc.

Such a wide range in the amount of wind resources that might be prudent to choose calls out for more analysis, including computer runs that model these assumptions stochastically and stress tests under higher gas and carbon costs. More important, given renewables' value in avoiding those risks, it is important to look at the risk performance of a heavier renewables portfolio compared to the preferred portfolio. But while Section 8 contains comparisons of the portfolios being considered against numerous different risk metrics, there is no comparison with the obvious least-risk portfolio--one that has more renewables. So it is impossible for the Commission to evaluate whether the slightly higher cost of a portfolio with another 1,000 or more MWs of wind is worth its reduction in risk.

NWEC believes that the price stability and emissions reduction benefits of renewable energy more than justify the acquisition of much more renewable resources within the narrow band of the Company's forward price projections, given the uncertainty in those price forecasts--especially gas prices. (We note that in PacifiCorp's May 18, 2005 IRP update, it has raised its gas price forecast by over 40% and Mid-C electric price forecast by 17%.) But that's just an opinion. Without analysis, the Commission cannot make an informed decision, and it must not make an uninformed decision.

¹ For example in 2003, by including no capacity credit, the renewable portfolio actually had more emissions than many of the other portfolios, because the model chose single cycle peakers to compensate. For the same reason, the renewable portfolio was extremely susceptible to high gas prices. Now that Pacific has fixed that assumption, we would expect this portfolio to be the lowest risk portfolio--but we won't know, because no analysis was done on any portfolio with renewables other than the 1400 MWs included in all of them.

Another problem with the Company's analysis is that it does not analyze or value the synergistic effects of the tested portfolios. One reason PacifiCorp has given for capping the amount of wind is that it feels it will have difficulty integrating more than 1400 MWs into its system. But it then proposes to add more coal plants (rather than gas), which will have the effect of constraining it from using wind even more. The Commission should weigh seriously how the Company's proposal to build coal will limit future options to incorporate additional wind if conditions (such as carbon caps, renewable portfolio standards or improvements in wind technology) later warrant it. Preserving optionality has value, as we discuss more below, and the analysis to date has ignored this factor. The heavy coal portfolio should be penalized in the analysis because of this effect.

The Commission should not acknowledge this plan--especially the decision to acquire such a lot of new, conventional coal, without insisting on seeing an analysis of a portfolio similar to the "renewables portfolio" analyzed in the previous IRP, and without considering the constraints on future renewables that more coal will produce.

Solar

A recent study² submitted as testimony before the California PUC indicates that for a high summer-peaking load {such as Salt Lake City}, solar PV can be cost-effective, due to its high contribution toward the utility's "super-peak," and the avoidance of T & D costs during those peaks. Attached is a one-page "waterfall" chart describing the study's conclusions. PacifiCorp should do a thorough investigation of the use of solar to help deal with its Salt Lake City load problems.

Coal and Risk -- the Value of Options

The plan identifies 958 MWs of new coal generation for the East side of the service territory and over 1600 MWs of natural gas generation for both the East and West side. We believe the Company should acquire its lowest cost and most environmentally responsible resources prior to acquisition of more fossil fueled resources, especially conventional coal. Energy efficiency and renewables can significantly cover the utility's resource needs in its western service territory. Once all these cost competitive resources have been acquired, then fossil generation should be the last resort.

The proposed coal plants would be using fluidized bed pulverized coal technology. This type of plant is one step improved from conventional technology but by no means is state of the art. Air quality, water use and climate change issues all warrant tough scrutiny regarding fossil fuel development, especially before committing ratepayers to the large risk of investing in conventional coal plants needing 40 years of operation to amortize their costs. The uncertainties we face over the next few years are extremely large, and are not well-accounted for in the Company's analysis. These include at the least: (a) advances in IGCC technology that could bring its costs down significantly; (b) the prospect that Congress will enact significant economic incentives for IGCC (interestingly, last week on May 19th the Senate energy committee passed included in its version of an energy bill a \$200 million subsidy, 80%

² Testimony of Lori Smith Schell, Ph.D., in docket R.04-03-017 regarding an "Order Instituting Rulemaking Regarding Policies, Procedures and Incentives for Distributed Generation and Distributed Energy Resources."

earmarked for IGCC); (c) a strong likelihood of carbon caps or other regulation much higher than that represented by the \$8/ton adder; (d) advances in renewable technology; and, (e) the possibility of LNG imports reducing future gas costs significantly.

Together these uncertainties warrant a high value for keeping the Company's options open, rather than closing them off with large long-term investments in conventional coal technology. NWEC does not believe that the IRP methodology gives any value to optionality.

One way to put a value on optionality would be to model any long-term resource as if it had to be amortized over a much shorter length of time. This would be a proxy for the possibility that a long-term resource's value will have to be severely discounted if new technology, regulatory or price paradigms occur. For example, instead of amortizing a coal plant over a presumed 40-year life, the analysis should assume that it has to be paid for in 15 or 20 years. The idea, in our opinion, that a conventional coal plant (or wind mill, etc.) built in 2010 will still be "in the money" after more than 20 years, is very far-fetched, given the uncertainties around climate change and rapid change in technology that we face. Any long-term resource should be discounted heavily.

PacifiCorp's neglect of the value of optionality is a serious drawback of its analysis.

Energy Efficiency and Demand Side Management

The Coalition generally supports the Company's evaluation of DSM and efficiency resources. We point out that the IRP analysis shows that its low cost DSM investments reduce costs to customers and help delay both East and West side supply-side generation by one to two years from the 2003 IRP analysis. Aggressive pursuit of both load control and baseload energy efficiency are important fundamental components of the utility's resource portfolio.

That said, a potential of 450 aMW of energy efficiency has been identified for the ten year planning horizon. The Company's current approach identifies a preferred portfolio and then runs a DSM decrement analysis on that portfolio. This approach means all the risk analysis is performed on the portfolios prior to running the DSM decrement analysis; it does not fully capture the potential value of DSM as a tool for mitigating fuel price and environmental regulatory risks to ratepayers, and thus under estimates DSM's cost-effectiveness level.

The Coalition also supports a more comprehensive treatment of combined heat and power (CHP) technology options as part of this IRP. As with energy efficiency, CHP can provide significant cost savings to ratepayers and reduced environmental impacts relative to conventional supply-side resources through the more efficient utilization of fuel inputs, typically natural gas, while avoiding transmission costs. We have some concerns that the Company has discounted the capacity contributions of CHP applications because the dispatch of the units is often not within the Company's direct control. This is the same type of issue that the Company initially faced when deciding how to model DSM and intermittent wind as part of the 2003 IRP. We urge the Company as part of its action plan to do more detailed modeling of CHP options in future IRPs.

Carbon Risk and Site Clean-up

The inclusion of an adder reflecting the likelihood of a carbon-constrained economy in the not too distant future is important and reflects strong analytic modeling by the Company. PacifiCorp was a leader in adopting an imputed CO₂ cost in its base case in 2003. Since then other utilities have followed, including Idaho Power which used a CO₂ cost of \$12.30/ton of CO₂ as a base case assumption. Xcel Energy, as part of a comprehensive settlement agreement in its 2003 Least Cost Plan in Colorado, agreed to use a proxy cost value of \$9 per ton of CO₂ beginning in 2010 and escalating at 2.5%. Recently, the CA PUC adopted an escalating cost of \$5 ton CO₂ in the near term, \$12.50 per ton by 2008, and \$17.50 by 2013. The Company is now at the low end of the spectrum of those recognizing the certainty and magnitude of future compliance costs.

The growing scientific consensus is moving toward the position that global warming is more likely to cause much more serious, or even catastrophic, impacts on the planet, and in a shorter period of time than previously thought. *The Oregon Strategy for Greenhouse Reductions*, adopted by the Governor's Advisory Group on Global Warming in December 2004, calls for large reductions in carbon emissions, in recognition of the danger. NWEC believes the small carbon adder used in PacifiCorp's analysis seriously undervalues the risks we face and the damage we are now causing from the burning of fossil fuels.

After all, even a 1% chance that we will melt the Greenland ice cap (yielding maybe a 20 foot rise in sea level) or stop the Gulf Stream (causing incalculable damage to the earth's weather and marine biology) will have an *expected value* of damage *much* higher than that represented by a \$8 per ton CO₂ adder. Avoiding catastrophic impacts must be the first concern of this Commission. The traditional regulatory paradigm becomes somewhat irrelevant when faced with such possibilities. The question isn't simply whether, or how much, shareholders will pay in future CO₂ mitigation costs in some future ratecase, because the impacts of global warming will probably be impossible to undo.

Traditionally, the costs of site clean-up have been included in both the IRP analysis and rates. It has always been considered prudent to have utilities both pay-as-they-go for site clean-up and mitigation, as well as collect money in advance for site restoration costs that are estimated to be needed once a plant is removed from service. This latter rate treatment avoids inter-generational inequity--the pushing out of today's costs to future generations--and insufficient price signals to consumers of the true costs of their energy use.

We must no longer think of the atmosphere as an infinite pollution sink. Instead, it must be considered as part of the plant site. Damaging CO₂ emissions should be mitigated as they occur, since "site" clean-up after-the-fact may both be extremely expensive and come too late to avoid serious climate impacts. The real discussion we should be having is over how to reduce the Company's emissions impacts *now*. How much should PacifiCorp be giving now to the Climate Trust, for example, as a way to reduce the planet's damage already caused by its past fossil fuel use and to mitigate for its ongoing use? CO₂ emissions need to be treated as a cost of doing business, not as a theoretical risk that will be dealt with in a future ratecase.

Despite the fact that the regulatory paradigm has not changed, and the costs of climate damage are not yet internalized, it would still be prudent for PacifiCorp to begin to acquire CO₂ offsets and develop the "offset industry" so it will be capable of cost-effectively dealing

with the Company's large liability. The Climate Trust recently signed a deal with a Montana developer to acquire offsets for less than \$2.50 per ton. These inexpensive opportunities are probably limited, so it would be imprudent for the Company to not seek them at this time, given the more likely future cost well-above \$8.00 per ton.

Conclusion

PacifiCorp's IRP analysis, while technically detailed, is critically flawed. Unlike its 2003 analysis, it failed to test a portfolio with more renewables. Such a portfolio would undoubtedly had a much more favorable risk profile than the preferred alternative. It would have most likely had a lower PVRR as well, given current gas forecasts. That would certainly be the case if optionality value were included and a more appropriate value for global warming risk. The IRP also undervalues DSM by its failure to properly account for its risk-reduction benefits.

The Commission should not acknowledge Pacific's proposal to build two new conventional coal plants without requiring a reasonable analysis of a renewables portfolio, a higher carbon adder, and a value for optionality. In addition, we urge the Commission to begin to investigate how the Company's heavy carbon emissions can begin to be mitigated now.

Thank you for this opportunity to comment.

Build-Up of PV Value In California

