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UTAH PUBLIC  
SERVICE COMMISSION

April 1, 2003

Utah Public Service Commission  
Heber Wells Building  
160 East 300 South  
Salt Lake City, UT 84111

Re: In the Matter of the Acknowledgment of PACIFICORP'S Integrated Resource Plan  
2003 DOCKET NO. 03-2035-01

Dear Commissioners:

Enclosed for filing is the original and eight (8) copies in the above-referenced matter.

Sincerely,

A handwritten signature in cursive script that reads "David Capparelli".

David Capparelli

Enclosures

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**BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH**

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In the Matter of the Acknowledgment of  
PACIFICORP'S Integrated Resource  
Plan 2003

DOCKET NO. 03-2035-01  
Comments from RES North America, LLC

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In an order dated January 31, 2003, the Commission requested comments from interested parties on the appropriateness of PacifiCorp's seventh Integrated Resource Plan (IRP), and a recommendation on whether the IRP should be acknowledged. RES North America, LLC (RES) has participated throughout the IRP process. We appreciate the Company's willingness and effort to solicit public input.

RES believes that this IRP plan reflects the Company's earnest efforts to devote the resources required for this important planning function. The Company's work provides strong evidence that it has focused its efforts to provide reliable and least-cost service to its retail customers. The Company has made great strides in their analysis of portfolio risk and its impact on resource selection. In particular, the conclusion that the Company acquire approximately 1400 MWs of renewables demonstrates a solid modeling approach which captures the unique values of individual resource types and creates a diversified portfolio which ensures a least-cost and least-risk plan for ratepayers.

Based on our analysis of the planning process, RES believes that the Company has followed the Commission's Standards and Guidelines for the IRP and we recommend that the IRP be acknowledged. The balance of this text provides our comments on the action plan and

makes recommendations to improve the analysis in future IRPs. In particular, we will discuss assumptions regarding the integration of wind resources, concerns over the results of the risk analysis, portfolio composition, and the timing of resource acquisitions.

## **INTEGRATION ASSUMPTIONS**

At PacifiCorp's own admission, the Company uses some conservative assumptions when analyzing wind power, the predominant renewable energy studied. While a conservative approach is pragmatic, overly conservative assumptions can skew modeling results and lead to sub-optimal decision making. Most disconcerting is the fact that the Company's analysis does not assign any capacity value to new wind resources. The rationale for this omission is that the output from wind resources is intermittent and therefore can not be used for planning reserve margins. This treats wind as an energy-only resource and forces the Company to model excess reserve capacity. The cost of these excess reserves may errantly drive up the expected Present Value of Revenue Requirements (PVRR) of wind rich portfolios and lead to improper portfolio selection. The Company ran a stress test that included a 15% capacity credit for wind. The results indicate that the PVRRs were substantially reduced; however the IRP did not perform this stress test on the Renewable Portfolio, which would probably benefit the most from this assumption. We request that the Company perform this stress test for the Renewable Portfolio and report its findings in the next IRP update.

While we recognize that assigning a capacity factor to wind resources is a challenging undertaking, determining an appropriate factor is essential for accurate resource planning. In a recent analysis of a proposed wind resource in Colorado, the Public Service Commission (PSC) examined the resource characteristics and system impacts of the 162 MW Lamar wind farm and

determined that it should receive 48 MWs of capacity credit. Independent researchers and Public Utility Commissions are examining the long-term wind resource capacity factors and hour ahead forecasting of wind in order to develop a reliable capacity credit for wind. Assigning no capacity credit to wind is inaccurate. Results of the stress test show a reduction in the PVRR. This finding should be considered in the selection of the optimal portfolio. A process of assigning a system capacity credit to wind, similar to the accepted methodology of determining the capacity credit for run of the river hydro seems more appropriate than assigning no capacity credit at all.

The estimated cost of integrating wind into the PacifiCorp system is another area of concern. We note that the Company has improved its integration analysis considerably since the Draft Report, but still we believe the estimates are too high. The Company acknowledged that they used some conservative assumptions because they do not have sufficient experience integrating renewables into their Eastern region. We hope that the growing experience provided from the Company's existing wind projects, recent studies of wind integration costs such as Eric Hirst's study of the BPA system, and lessons drawn from Scottish Power's years of integrating wind, will enable the Company to include more realistic assumptions on integration costs in future plans.

## **PORTFOLIO SELECTION**

Another component of the planning process that we believe could be improved is the portfolio resource selection. While the innumerable potential combinations of possible portfolios make this a challenging task, the current process may not have yielded optimal results. For instance, we note that the Alternative Technology II portfolio arbitrarily contains 150 MWs of fuel cells. While fuel cells do logically fit in the portfolio title, at roughly 3 times the cost of

wind power, there is no justification to include them in only one portfolio that is being compared to several competing portfolios on a least-cost basis. While we can not recommend a simple solution to this complex problem, we encourage the Company to give additional consideration to the portfolio resource selection process in subsequent plans.

## **RISK**

We note that the Company has done an admirable job of trying to analyze and quantify risk; however, some of the results seem counterintuitive. The results of the model runs show that portfolios with renewable resources had lower PVRRs and less risk than portfolios that lacked renewable resources. However, the Company produced some confusing results when it applied the analysis to the Renewable Portfolio. The Company concludes that the Renewable Portfolio, one that contains approximately twice as much wind resource as other portfolios, has higher fuel costs than the other portfolios and the higher fuel cost subjected this portfolio to more risk. This seems counterintuitive. We request that the Company confirm these counterintuitive results in the next update and provide a better explanation if the results are the same or similar.

In another instance, the Company performed a series of stress tests in which different levels of taxes on carbon emissions, ranging from \$0 to \$40, were applied. One would expect that the portfolios heaviest in renewables would perform better relative to fossil fuel portfolios as the carbon tax increased. However, according to page 287, the Renewable portfolio still has the highest PVRR. Furthermore, this testing scenario seems to indicate that the Diversified Portfolio IV and the Renewable Portfolio have roughly the same carbon emissions even though the Renewable portfolio has significantly more non-emitting renewable resources. The Company

may want to revisit the assumptions behind these stress tests and rerun the model to make sure that it is capturing all the benefits of renewables.

## **RESOURCE ACQUISITION TIMING**

RES would also suggest additional consideration of the resource acquisition plan. The results of the IRP analysis indicate that renewables are a valuable component of a least-cost/least-risk portfolio. This result is noteworthy given the fact that the Company admitted to using some conservative renewables cost assumptions due to lack of experience with them in the East region of their territory. We urge the Company to accelerate its proposed acquisition of wind so they can confirm their assumptions about its costs. Wind resources can be added to the Company's system in relatively small incremental blocks; therefore the Company can test these assumptions with limited risk and revise subsequent decisions accordingly. Additionally, the Company has cited other benefits from the quick acquisition of wind resources. These include securing optimal sites in terms of location and output and obtaining projects before any potential price run-ups, which will occur when the demand for wind generation exceeds short-run supply. In light of these comments, we note and applaud the Company's stated intention to issue a renewables RFP in the near future. We hope the Company continues to increase its knowledge of renewables so it can improve its modeling of renewables in future IRPs.

In conclusion, we commend the Company for its efforts in the IRP planning process. The amount of work and effort expended on this task was considerable. In general the results obtained seem accurate and robust. We support the conclusions of the study that find that investments in renewable resources reduce costs and mitigate risks. We believe that the

Company and its customers will benefit from the diversified portfolio recommended in this IRP.

We hope that our suggestions for further research and analysis are valuable to future IRP efforts.

Respectfully submitted,

By: *David Capparelli*  
David Capparelli

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