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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE FILING BY PACIFICORP DBA UTAH POWER & LIGHT COMPANY OF ITS 2003 ELECTRIC INTEGRATED RESOURCE PLAN (IRP).	CASE NO. PAC-03-02 COMMENTS OF NW ENERGY COALITION and ADVOCATES FOR THE WEST

NW Energy Coalition[1] and Advocates for the West request that the Commission consider these comments on PacifiCorp's 2003 Integrated Resource Plan ("IRP").

In general, the IRP reflects a thorough analysis of possible resource acquisition scenarios, including demand-side management ("DSM") and renewables. Moreover, we support the Company's effort to evaluate environmental aspects of resource acquisition, including likely future regulation of carbon emissions. This type of comprehensive analysis should be viewed as a model for other regulated utilities in Idaho. Indeed, the PacifiCorp IRP stands in stark contrast to Idaho Power's 2002 IRP, which included essentially no analysis of DSM or renewable resource acquisition opportunities, nor risks associated with future regulation of carbon.

We believe the Commission should acknowledge the IRP, subject to the following comments.

Analysis of Renewable Resources

PacifiCorp's analysis showed that a fairly large amount of wind resources, 1400 MWs, proved to be cost-effective when integrated into the company's system. This was true even under the extremely conservative assumptions (*e.g.* very low green tag value

[1] NW Energy Coalition may provide written comments in other jurisdictions served by PacifiCorp, which comments may be tailored for those jurisdictions and/or reflect additional analysis by the Coalition.

going forward, and no capacity value assigned to wind) used to model the costs and benefits of wind power.

When the renewables were taken out of this portfolio in a "stress test," for example, costs and risks went up, demonstrating that renewables were responsible for making this option less expensive than all fossil fueled alternatives. Most remarkable was that this result held even when *no* penalty for CO_2 emissions was modeled, reflecting that this amount of wind was cheaper than fossil-fueled power above and beyond any benefits accrued from lack of emissions.

The Company's "Renewables" portfolio was tested, but apparently rejected as too expensive. The "Diversified I" and the Renewables portfolios have the same 1400 MWs of wind, but only the Renewables portfolio has another 1146 MWs of wind and 100 MWs of geothermal. These additional renewables are modeled somewhat differently than the first 1400 MW. This Renewables portfolio, which in the first draft IRP came out as the least risky and least costly portfolio is now rated as more risky and higher cost than the chosen portfolio by 3.6%, or <u>$450 million</u> over 20 years.

We question why that analysis changed between the IRP drafts. We believe the explanation is that PacifiCorp made several errors which undervalued renewables. If corrected, we believe the Renewables portfolio would again rise to the top as the lowest cost and lowest risk choice.

1. <u>The IRP underestimates the value of green tags</u>. PacifiCorp assumes a value of only 5 mills/kwh for just the first five years of a project's generating life and zero after that. Green tags are selling for as much as 9 mills right now, in a range of between 4 to 9 mills. Moreover, there is no justification that green tag value will end after five

years. Incorporating a longer time period and/or a higher value, would add at least **$150 million** to the value of the Renewable portfolio compared to the Diversified I portfolio.[2]

2. PacifiCorp gives no capacity value to wind resources. The Company argues the Renewables portfolio should include substantial extra costs to deliver shaped power to PacifiCorp's system.[3] While it is beyond dispute that even geographically diverse windmills occasionally will not operate, the correct capacity value for wind is not zero, given an average capacity factor of 32-36%.

Several papers have analyzed the proper capacity credit for wind, none of which conclude that the figure should be zero. See Milligan, M. *Modeling Utility-Scale Wind Power Plants Part 2: Capacity Credit* [http://www.nrel.gov/docs/fy02osti/29701.pdf] (June 2000) NREL/TP-500-27514. National Renewable Energy Laboratory. Nabe, C. *Capacity Credits for Wind Energy in Deregulated Electricity Markets – Limitations and Extensions. Technische Universitat Berlin.* [http://www.energiewirtschaft.tu-berlin.de/mitarbeiter/wind21-paper-V7-5-nabe.pdf]; Giebel, G. "Previous works on the Capacity Credit of Wind Energy," [http://www.drgiebel.de/WindPowerCapacityCreditLit.htm] (concluding: "Wind energy has a capacity credit. . . .The capacity credit tends to decrease from approximately the load factor for small penetrations to some 10-15% at high penetrations.").

[2] 1146 MWs of wind + 100 MWs of geothermal is about 500 aMWs of energy, or about 4.4 billion kwh/yr. At $.005/kwh, that produces about $22 million/year. The renewables are developed over a number of years, and one must discount the later years' contribution. We conservatively estimated the added green tag value of allowing more than 5-years of credit, therefore, at about $150 million, but one could argue it should be as much as $300 million.

[3] The first 1400 MWs of wind are modeled differently. However, because that amount is in all the portfolios, only the affect of the second block of renewables is of importance to the ranking of the portfolios.

In Colorado, Xcel Energy performed a loss of load probability analysis for the proposed 162 MW Lamar Wind Project in Southeastern Colorado, which assigned a capacity value of 48 MW or 29.6% to the project for bid evaluation purposes.

At the relatively small penetration of wind resources to the grid, a capacity factor of closer to 30% could be appropriate. But using only a conservative 15% capacity factor would add about **$100 million** in value to the renewable portfolio compared to the others.

3. PacifiCorp undervalues the ability of renewables to mitigate fuel volatility.

PacifiCorp's analysis shows that renewables reduce the risk of volatile power costs due to swings in gas prices. However, the company fails to put a dollar value on this characteristic, so it is not included in its decision-making. The Company does admit that rate stability and low risk for the kind of crisis we have recently endured is very valuable, but does not attempt to quantify this value. A recent study by the Lawrence Berkeley Lab estimated that the market was valuing financial hedge products which cover gas price risks at about 5 mills/kwh. See Bolinger *et al.*, "Quantifying the value that wind power provides as a hedge against volatile natural gas prices," Lawrence Berkeley National Laboratory (June 2002) [http://eetd.lbl.gov/ea/EMS/reports/50484.pdf] Using this amount applied to the additional renewables in the Renewable portfolio would add about **$250 million** to its value.[4]

4. PacifiCorp assumes no emissions for purchased power

PacifiCorp models the Renewables portfolio's extra renewables as displacing about 450 aMWs of purchased power. However, the Company assumes the purchased power has no emissions. When looking at the "Diversified 1" and "Renewables"

[4] 500 aMWs of wind and geothermal times 5 mills/kwh for 15 years equals $328 million. Present value is closer to $250 million.

portfolios, there is almost no change in emissions and thus no change in their costs-- which are valued with a CO_2 cost adder of $8.00 per ton). Fixing this error adds about **$200 million** to the value of the Renewables portfolio compared to the others.[5] One can graphically see this error in analysis by looking at page 123 which shows how the portfolios perform with increasing CO_2 costs. Even at $40/ton, the Renewables portfolio still is more costly than Diversified IV, a portfolio virtually identical to Renewables except for the presence of purchased power instead of the added 1146 + 100 MWs of renewables. Had this analysis been done correctly, the two portfolios should be crossing as CO_2 prices increase.

The total effect of these errors is conservatively estimated at **$700 million.** This is $250 million less cost than the Diversified I portfolio. Correction of the errors listed above would make the Renewables portfolio the least cost option.

Analysis of DSM resources

We largely support the Company's integration of DSM resource acquisition to the IRP, subject to several specific comments.

First, the Company should consider the economic value of avoided or deferred transmission and distribution upgrades flowing from DSM resource acquisition. Recent analysis indicates these values are significant and growing. The Southwest Energy Efficiency Project has estimated that avoided distribution costs due to reduced demand could be as high as $0.01/kWh by 2020; and avoided transmissions costs could reach $0.013/kWh in this period. See [http://www.swenergy.org/nml/index.html]. Further, as

[5] Efficient gas-fired plants produce about a half-ton of CO_2 per MWH. The 500 aMWs (see footnote 1) of renewables added in the Renewables portfolio would cost, at the $8/ton assumed in the study, about $17.5 million per year. Again, the renewables come in over several discounted years, so a conservative estimate is about 12 years of benefits, or around $200 million.

noted above for renewables, DSM resources provide additional value as a hedge against fuel price volatility of approximately $0.05/kWh. Correcting these errors would result in recognition of significantly higher value for DSM resources.

Moreover, the Company's stress test analysis reveals that increased DSM investment would result in lower present value revenue requirement "PVRR". See e.g., Table E.16, pages 296-297. For example, the PVRR of including an additional 300 MW DSM as a decrement to load is $11,320,508, versus $12,313,159 in the Diversified Portfolio. We question why additional investments in DSM will not be pursued, given the cost benefits recognized by the Company.

Finally, in its Idaho territory, we are concerned the Company does not have the regulatory tools in place to seek all cost-effective DSM investments. Specifically, PacifiCorp does not have a DSM tariff rider or other specific mechanism to fund DSM program costs. As with Idaho Power Company and Avista, the establishment of a continuously replenishing DSM fund ensures that program costs are covered, and further streamlines the creation of a portfolio of DSM resources.

Conclusion

Pacific should be commended for its effort to fairly weigh the various generation options in this IRP. However, we believe the Company's "Renewables" portfolio (including an additional 1146 MW of wind and 100 MW of geothermal) is truly the least cost option if the significant errors noted above are corrected. We request the Commission acknowledge the 2002 IRP, with direction to the Company (1) to correct and supplement its analysis of renewables and DSM as provided herein, and (2) to apply to the Commission for approval of a DSM tariff rider or other DSM program funding mechanism in order to implement the action plan set out in the IRP.

Dated: April 8, 2003

Respectfully submitted,

for Steve Weiss, NW Energy Coalition

William Eddie, Advocates for the West

CERTIFICATE OF SERVICE

I hereby certify that on this 8th day of April 2003, true and correct copies of the foregoing COMMENTS were delivered to the following persons via the method of service noted:

Via Hand-Delivery:

Commission Secretary
Idaho Public Utilities Commission
427 W. Washington St.
Boise, ID 83702-5983

Via U.S. Mail:

Janet Morrison
Director of Resource Planning
PacifiCorp
825 NE Multnomah, Ste. 800
Portland, OR 97232