

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of)
PacifiCorp for Approval of an IRP)
Based Avoided Cost Methodology)
For QF Projects Larger than 3 MW)

Docket No. 03-035-14

**Rebuttal Testimony of
Abdinasir M. Abdulle
Division of Public Utilities**

September 8, 2005

1 **Q: Please state your name, business address, and employer for the record.**

2 A: My name is Abdinasir M. Abdulle; my business address is 160 East 300 South,
3 Salt Lake City, Utah 84114; I am employed by the Utah Division of Public
4 Utilities (“Division”).

5 **Q: On whose behalf are you testifying in these proceedings?**

6 A: I am testifying on behalf of the Division.

7 **Q: Would you please summarize your educational background for the record?**

8 A: I have a Ph.D. in Economics from Utah State University. I have been employed
9 by the Division for about three years. I also am teaching at Weber State
10 University as an adjunct professor of economics.

11 **Q: What is the purpose of your testimony in these proceedings?**

12 A: The purpose of my testimony is to address the issues of capacity payments for
13 wind resources, wind integration cost, and wind pricing.

14

15 **Capacity Payment**

16

17 **Q. What did PacifiCorp assume about wind generation’s contribution to the**
18 **planning reserve margin?**

19 A. Because of the intermittent nature of wind generation, in IRP 2003, the Company
20 assumed that wind generation contributes nothing to the planning reserve margin.
21 However, in IRP 2004, the Company revisited this assumption and determined
22 that wind generation contributes some of its capacity rating (20%) to meet
23 planning reserve margin.

24 **Q. How did the Company calculate what the capacity contribution of wind**
25 **resource should be?**

26 A. The Company used a methodology developed by Xcel Energy and National
27 Renewable Energy Laboratory (NREL)¹ to determine the capacity contribution
28 for wind resources on its system. The details of this method are outlined in
29 Appendix J of the IRP 2004.

¹ Lehr, R.L., J. Nielson, S. Andrews, and M. Milligan. *Colorado Public Utility Commission’s Xcel Wind Decision*. NREL/CP-500-30551, September 2001.

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32 **Q. Do you think that the method used by the Company is appropriate?**

33 A. Yes. The method is generally appropriate. However, the data used to implement
34 the method is not sufficient. The Company used one month (July) of one year's
35 data from a confidential wind resource on the western control area and Foot Creek
36 on the eastern control area. This indicates that the 20% capacity contribution
37 calculated by the Company is based on a very limited data. It does not consider
38 diurnal and seasonal capacity factors, rather it focuses on summer peak capacity
39 factors. It also does not consider the impact of having wind resources on
40 diversified locations with varying wind patterns.

41 **Q. What is the position of the Division regarding capacity payment for wind
42 resources?**

43 A. The Division thinks that the assumption of 20% capacity contribution is a step in
44 the right direction and the Commission should adopt it as a starting point. This
45 may encourage wind resource development in the eastern control area,
46 particularly in Utah. However, the Division believes that more data is needed to
47 accurately calculate the effective capacity contribution of wind resources. The
48 Division recommends that the issue of capacity payment be reopened upon the
49 development of a minimum of 5 separate facilities. This will provide enough data
50 to refine the formula to more accurately calculate the capacity contribution of
51 wind resources. The results of the refined formula will be applied to new
52 contracts as well as to contracts already in place. However, there will be no
53 retroactive payments.

54

55 **Wind Integration Cost**

56

57 **Q. What is wind integration cost?**

58 A. Wind integration cost is the added cost of integrating a wind resource into a
59 system. It is the sum of imbalance cost and the cost of incremental reserve
60 requirement. The imbalance cost is the additional operating costs incurred due to

61 variable output of wind generation whereas the cost of incremental reserve
62 requirement is the cost associated with the needed additional reserves to maintain
63 system reliability and security due to the variable output of wind generation.
64 These costs are over and above the avoided costs.

65 **Q. Does the Division have any concern in relation to how PacifiCorp calculated**
66 **the wind integration cost?**

67 A. Yes. The Division thinks that the procedure PacifiCorp used to calculate the
68 integration cost is reasonable except that PacifiCorp used unrealistic penetration
69 level of 1,000 MW. The wind penetration level in the eastern control area is
70 much less than 1,000 MW.

71 **Q. How would the use of a penetration level of 1,000 MW affect the wind**
72 **integration cost?**

73 A. According to a study conducted by Xcel Energy², integration costs increase with
74 the penetration level. The use of a penetration level of 1,000 MW would
75 overestimate the integration costs that could be reasonably expected in the eastern
76 control area in which there is much less than 1,000 MW of wind.

77

78 **Q. What is the position of the Division in relation to wind integration cost?**

79 A. The Division does not have data suitable to study the functional relationship
80 between the penetration level and the integration cost. However, according to a
81 study conducted by Xcel Energy, there is an inverse relationship between the
82 integration cost and the penetration level.

83

84 Based on a study conducted by Xcel Energy the integration costs range from
85 approximately \$2 to \$4. Since we do not know what the real integration cost is
86 for the eastern control area, the Division thinks that using the mid point of the
87 range suggested by the Xcel study is a reasonable starting point. Therefore, the
88 Division recommends that the Commission adopt an integration cost of \$3 per
89 MWh. However, the Division believes that, since the recommended \$3 per MWh

² DeMeo, E., et al. *Characterizing the Impact of Significant Wind Generation Facilities on Bulk Power System Operations Planning*. Xcel Energy – North case Study final report prepared for The Utility Wind Interest Group. May 2003.

90 is not based on real data, we need to revisit the issue of wind integration cost as
91 soon as we get 300 MW of wind or 10 new wind facilities, which ever comes
92 first. This will provide us with data suitable to effectively calculate what the
93 integration cost should be.

94

95 **Wind Pricing**

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97 **Q. Do you think that an approach in which the wind QF projects are paid a**
98 **minimum price based on the last contract entered into for non-QF winds by**
99 **PacifiCorp would be appropriate?**

100 A. No. The Division does not believe in price floors. Using the price of the last
101 contract entered into for a non-QF wind project as a minimum price would not be
102 fair. This non-QF project had to intensely negotiate to get this price. For a new
103 QF wind project to even get this price it would have to demonstrate that it has the
104 exact same characteristics, including location, as the non-QF project. Given the
105 fact that wind projects developed earlier would get the best locations, it would be
106 difficult for a new a QF wind project to show that it could get a location with
107 equally preferable wind patterns.

108

109 In addition, in this proceeding, we are seeking a methodology that is appropriate
110 for wind pricing. Setting a price floor can not be deemed as a methodology that
111 can produce results that are fair for both the developer and the utility and
112 ultimately for the ratepayer for there is the potential for a wind QF to get the
113 minimum price when it does not have equally preferred characteristics as non-QF
114 project. Therefore, this approach is one that seeks a specific result rather than a
115 methodology.

116 **Q. Does that conclude your testimony?**

117 A. Yes.