

Western Area Power Administration Rates
Proposed Rates for Loveland Area Projects Transmission and Ancillary Services
American Wind Energy Association Comments
August 6, 2003 Public Information Forum

Parties joining AWEA on these comments are:

Arcadia Windpower Ltd. – Peter Mandelstam
Bob Anderson, Consultant
Clipper Energy – Peter Stricker
Community Energy – Eric Blank
Disgen – Dale Osborn
Enexco – Paul White
Foresight Energy – Warren Byrne
FPL Energy – Mark Smith
Matt Schuerger, Consultant
Panaero Corp – Don Hardy
PPM Energy – Roby Roberts
Roger Hamilton, Consultant
SeaWest – Rob Sims
Western Resource Advocates (a/k/a LAW Fund) – John Nielsen
Western Business Coalition for New Energy Technologies – Craig Cox
Wind on the Wires – Beth Soholt

The Western Interstate Energy Board's (WIEB) Western Interstate Wind Evaluation Team (WIWET) is interested in achieving reasonable public policy in this proceeding and will be sharing information about the treatment of wind in the proceeding with WIWET members.

Introduction: AWEA and Wind Parties Analysis and Process Proposals

AWEA and the wind parties address three issues that impact wind in the Western rate proceeding. First, a new regulation and frequency response service rate for intermittent renewables is proposed. Second, Western has suggested that that a new forecasting and scheduling method for intermittent renewables would be useful. Third, Western proposes to eliminate imbalance penalties for intermittent renewables. In addition, Western has agreed to answer written questions by posting the questions and Western's answers on its web site. These comments conclude with questions addressed to Western.

Comments on Western's Proposed Regulation and Frequency Response Service for Intermittent Renewable Resources

The "Regulation and Frequency Response Service for Intermittent Renewable Resources" will charge wind generators \$5.65 per kW per month, or \$7.68 per

MW per hour, applied to 27% of the wind owners' installed capacity, adjusted to reflect actual use.

Example (using Western's previously announced rate of \$5.59/kW-month, instead of \$5.65, the current figure):

20 MW Wind Farm

X 27% variation percent

5.4 MW of capacity @ \$5.59 per kW per month = \$30,186.00

Since analysis after the fact might show use of only 2.4 MW of capacity for fluctuations, Western offered an example of an adjusted amount:

\$30,186 for 5.4 MW

(\$16,770) for 3.0 MW Adjustment

\$13,416 Actual Bill for 2.4 MW

The basis for the rate is proposed by Western's rate staff to be the average deviation wind output from a statistical mean that represents a wind generation average. Their analysis claims the deviation to be 27%. The proposed WAPA tariff is based on average wind generation for the month, although the true-up appears to focus on forecast errors. The data for this analysis comes from a few wind plants' output that now use Western's regulation services.

AWEA and the wind parties want to achieve a method of analysis, a rate proposal, imbalance payments, and a scheduling and forecasting system that pays for the costs that wind imposes on the Western system. We do not seek any subsidy from any other Western customer or generation source. Nor do we wish to provide any subsidy to any other Western customer or generation source.

We believe that all sources of regulation costs on the Western system should be treated in a similar manner, including both generation and loads. Studies of the cost of regulation and load following for all generators and loads should be the basis of the cost calculations. New sources of generation should pay only incremental costs and not pay allocated shares of what would be, absent the new source, the costs of operating the Western system. New mechanisms developed in this proceeding should ensure that the best available information -- as close to real time as possible -- be provided to control area operators on the expected output of intermittent resources. In this manner the costs of deviations and reliability impacts will be lessened.

We think that the Western approach to calculating a regulation charge based on the average deviation of wind output from a statistical mean is inconsistent with NERC requirements for system regulation. In addition, the method is inconsistent with the physical realities of the system. The Western method of analysis focuses on

regulating particular plants, while NREC requires total aggregate control area load and generation to be regulated. The Western "average deviation" approach has no precedent and no support, in practice or in the growing wind integration study literature. If adopted, we believe it will result in a subsidy from wind to other users of regulation services on the Western system. It is possible that Western could recast the "regulation" label and rename the rate a "wind integration charge" or chose some other name. While there is an obvious definitional error, by whatever name, the method Western has chosen to analyze wind is flawed.

Furthermore, Western's proposed regulation charge erroneously assumes a link between forecasting error and regulation costs. Forecasting (either load forecasting or wind forecasting errors) has no impact on regulation. Options for better forecasting and scheduling are worth careful study and consideration, but the forecasts will be based on longer time periods (such as an hour) than regulation (one minute or less time frame). Forecasting and scheduling are therefore part of imbalance, from which WAPA states it intends to exempt wind. If wind generation output deviates from its forecast, the difference is imbalance. Such imbalances may or may not be counterbalanced by other variations in generation or load on the system. In contrast, regulation pertains to the instantaneous balancing of supply and loads on the system. So Western's exemption of wind imbalance penalties is fine, as is working towards better scheduling and forecasting. But neither has any impact on regulation.

We think the Western rate proposal will present a new and substantial difficulty in the process of financing wind projects. Wind project lenders will be extremely unlikely to assign any economic value to the reimbursement Western proposes until Western's methods of analysis are much clearer regarding both how regulation rates are established and how reimbursement is accomplished.

Western should carefully clarify each of the time periods and system integration functions that are relevant to electric system control. Next, Western should compare and contrast its analysis and proposals to the emerging power system engineering approaches that can be used to determine the costs for each discrete time period and function. We recommend that Western adopt the proposals made by Mike Milligan of NREL and Brendan Kirby of ORNL.

We also recommend that Western adopt a better method for analyzing regulation costs. The new method should take into account system-level regulation costs. It should be consistent with NERC requirements for regulation. The ORNL method should prove instructive. The ORNL method has been used in a number of real-world applications, has been extensively peer-reviewed, and can be applied to loads or generators, or to both. It works well for large and small amounts of generation, whether applied to wind or any other generation or load, or to both. Conversely, the proposed Western's method has no precedent, no basis in the literature, and no peer reviewed or other support. It has been constructed by Western to apply only

to wind. We question whether its application to other generators or loads would be feasible.

Western's method should at least reflect the physical reality of how the system is balanced in the context of the standard definitions of regulation. It should allocate wind's proper share of regulation costs to wind and not subsidize other users of regulation services at the expense of wind. Again, Western should adopt the proposals made by Mike Milligan of NREL and Brendan Kriby of ORNL.

AWEA and wind parties could endorse in concept an "all in" rate level at an expected value much lower than \$6 that could be adjusted up or down based on actual usage of ancillary services. Such a process would offer meaningful rate relief coupled with accurate (as opposed to precise) wind generation forecasting. Near real time scheduling updates could account for "load following" and a four hour moving average day ahead forecasting and scheduling process could account for "unit commitment." AWEA and the wind parties believe this approach could present a sound basis for addressing Western's concerns.

Comments Regarding Imbalance Penalties, Scheduling and Forecasting

AWEA and the wind parties support the concept of eliminating imbalance penalties because there is no purpose that can be served by charging wind or other intermittent renewables imbalance penalties. These resources do not have any incentive to game the scheduling system, since they cannot control the timing or amount of the wind or water that are the sources of their generating power. Without this control, these generators cannot submit a schedule and then be sure to generate a different amount of power to advantage themselves.

Western's proposal to eliminate imbalance penalties for intermittent renewable generators by eliminating the bandwidth for penalties requires further clarification. The phrase "eliminating the bandwidth" for intermittent renewables' imbalances appears to cause confusion, since "eliminating bandwidth" could imply either that zero deviations from schedules will be allowed or that infinite deviations will be allowed. Western should clarify this ambiguity.

It appears that Western will charge "market" rates for imbalances. Although, in general, we support moves toward well-designed imbalance markets, it is essential that these markets be implemented properly. Market rates stemming from poorly implemented imbalance markets that are not fully-functioning could be worse than penalties, depending on how the market is implemented, since imperfect market rates will be uncertain and likely to fluctuate. If the market rates are uncertain and fluid, wind generators will be unable to anticipate them, presenting an unknowable financial risk. In addition, we do not believe that Western should be able to over collect revenues by forcing wind generators into the currently imperfect imbalance market and keeping the spread whenever imbalances partly or completely cancel.

We recommend that Western fully clarify exactly how its imbalance payment scheme will work. We believe Western should allow netting imbalances for intermittent renewables over a monthly billing period to simplify the administration and financial impact of imbalance payments. A scheduling and forecasting method that aimed to achieve net zero imbalance payments over monthly billing periods could provide the incentives Western and the wind generators both want to have in place for wind generators to forecast and schedule as accurately as possible, thus minimizing costs for everyone.

Western suggested in their July 14, 2003 public comment meeting that the institution of a forecasting system by wind generators, or the aggregation of wind generation by wind farm owners, or both, would be desirable outcomes. Business aggregation by itself will not address Western's concerns about handling the integration costs of wind, unless the aggregation leads to a different physical result—reduced regulation burden—on the system. To accomplish either a forecasting system that works for both wind generators and Western or to define and implement a business or other aggregation scheme that reduces Western's regulation costs within the time frames available in the current rate proceeding is extremely unlikely.

At the July 14 meeting, we asked Western to consider a delay in the portion of their rate proceeding on regulation rates to allow for analysis of the current situation facing Western, investigation of the options for a better scheduling system for wind, supported by a forecasting method and process, and resolution of issues (addressing such questions as: what rules?, what system?, who pays?). Western responded that such a request could be considered if filed with them by September 11, 2003.

AWEA and the wind parties request a six month to one year delay in implementing Western's proposed regulation service rates. The purpose of the delay would be to work out a mutually acceptable scheduling and forecasting system.

Questions and Answers

At our request, Western has stated that it would be willing to answer written questions about their rate proposals. The questions and answers would be posted on their web site. We would like Western to address the following questions.

1. Can Western provide an understandable example of how much the new Western wind "regulation and frequency response" rates will cost wind projects, in dollars per megawatt-hour equivalent costs?

2. Can Western provide support from the literature, from practice elsewhere, or from any other source for its average deviation method of determining wind variability?
3. Can Western provide examples where its method has been used to determine wind "regulation and frequency response" costs?
4. Would Western's method for determining wind regulation costs apply equally well to other generation sources or to loads? If not, why not?
5. Did Western consider and reject any other method or methods for determining these costs? If so, what were they and why were they rejected?
6. Would Western's method for determining wind regulation costs apply equally well to other generation sources? If not, why not?
7. Does Western propose to eliminate imbalance penalties for intermittent renewable resources? If so, will intermittent renewables generators still pay for imbalances? Can Western provide tariff language and a simple explanation of how these payments will be calculated and paid?
8. Does Western propose to apply its "regulation and frequency response" rates to run of the river hydro electric production? If not, why not?
9. Has Western read and analyzed the material cited in the footnotes to the written AWEA and Wind Parties comments submitted on July 14, 2003? If so, what is Western's response to the comments and what changes to its rate proposals does Western intend to make based on its analysis?
10. Does Western believe that a resolution to its concerns about wind scheduling and forecasting can be worked out successfully within the time proposed for the consideration of the rates proposed in this proceeding?
11. If the answer to 10 is "yes", then does Western have a proposal that details the analysis and implementation of a scheduling and forecasting process?
12. If the answer to 10 is "no", would Western act favorably on the proposal by AWEA and the wind parties to delay the "Regulation and Frequency Response Service for Intermittent Renewable Resources" rate proposal?
13. Would Western consider favorably setting up a procedure to work with interested parties over a six month to one year period to resolve forecasting and scheduling issues for intermittent renewable resources?

14. Please explain how the proposal offered by Western meets the principles of cost-causation, particularly as it relates separately and distinctly to the (1) continuous operation of regulation units, and (2) intermittent dispatch of load following units.

15. Please provide the variation of Western's loads (disaggregated to the extent possible) and individual generation resources as calculated in a manner similar to that proposed for wind. Please provide the results in both percentage terms and in absolute quantity terms.

16. If Western is inclined to implement some form of "regulation and frequency response" rate, would it be willing to implement a rate that was subject to refund pending an analysis of cost-causation?

Respectfully submitted,

Ronald L. Lehr 8/6/03

Ronald L. Lehr

Date

Attorney

AWEA Western Representative