

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF SOUTH DAKOTA**

**In the Matter of the Complaint by Oak Tree Energy LLC against  
NorthWestern Energy for refusing to enter into a Purchase Power  
Agreement**

**Commission Docket No. EL11-006**

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Prefiled Direct Testimony of

**Brian P. Rounds**

On Behalf of Commission Staff

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January 27, 2012

1 **I. INTRODUCTION AND BACKGROUND**

2 **Q. Please state your name and employment.**

3 A. My name is Brian P. Rounds. I am a utility analyst at the South Dakota Public Utilities  
4 Commission (PUC or Commission).

5 **Q. Provide your education and professional background.**

6 A. In December of 2005, I graduated magna cum laude from North Dakota State University with a  
7 Bachelor of Science degree in Electrical Engineering. In 2006, I worked at the South Dakota  
8 Department of Transportation as a Traffic Design Engineer for just over six months before taking  
9 my current position at the Commission.

10 **Q. How long have you worked for the PUC and what type of work do you do?**

11 A. I have worked for the Commission for just over five years. My role as an analyst involves working  
12 with a variety of utility-related issues in the electric, natural gas, and telecommunications  
13 industries. Approximately half of my time is spent on docketed items, with the other half  
14 dedicated to initiatives and other non-docketed tasks.

15 I have been assigned to and analyzed over seventy-five dockets. Fifteen of the dockets were  
16 related to utility-funded energy efficiency programs, ten evaluated the siting of major  
17 transmission and/or energy conversion facilities, and two examined Congressional expansions of  
18 PURPA.

19 On the non-docketed side, I serve as South Dakota's representative for a number of  
20 organizations. The Midwest Renewable Energy Tracking System (M-RETS) is a regional  
21 renewable generation tracking system that began operating in 2007. I have been South Dakota's  
22 regulatory representative since 2006, assisting in formation of the organization and later serving  
23 as an officer on the M-RETS, Inc. Board of Directors. The Western Interconnection Regional  
24 Advisory Body (WIRAB) advises WECC, NERC and FERC on reliability standards under section 215  
25 of the Federal Power Act. I staffed Commissioner Dusty Johnson on WIRAB issues until his  
26 departure and was appointed by Governor Dugaard in February of 2011 as South Dakota's lone  
27 representative. Since 2010, I have also served as one of two South Dakota delegates on the  
28 Eastern Interconnection States' Planning Council (EISPC), a group representing every state and  
29 Canadian province in the Eastern Interconnection with a goal to evaluate transmission  
30 development options. Finally in 2011, I became South Dakota's only representative on the State  
31 Provincial Steering Committee (SPSC), a new group of regulators and Governors' representatives  
32 that provides input to regional transmission planning and analysis in the Western  
33 Interconnection.

34 In addition to these roles, I am responsible for the Commission's annual report to the  
35 Legislature, summarizing utility efforts toward meeting the state's Renewable, Recycled and  
36 Conserved Energy Objective, and I have been involved with a number of commission initiatives,

1 including South Dakota Energy Smart, Wind Outreach, Tower Working Group and the Wireless  
2 Initiative.

3 **Q. What has your role been for this particular docket?**

4 A. I am assigned to this docket as a utility analyst. I participated in both formal discovery and  
5 informal conversation with the Parties. Staff's role in most dockets is to research, analyze and  
6 present a recommendation to the Commission that best serves the public interest. I believe that  
7 to be our role in this case as well.

8 **Q. Are you testifying today as an expert?**

9 A. No. I am not an expert regarding avoided cost modeling. However, due to my work reviewing  
10 utility IRPs and inputs to regional transmission plans, I am familiar with the types of inputs the  
11 Parties use in their modeling. I cannot provide the Commission with the proper model nor  
12 identify the proper avoided cost. However, I believe I can offer unbiased insight regarding the  
13 structure and inputs of the models presented by the Parties. My experience and training provide  
14 me with the background necessary to recognize potential flaws in the inputs and modeling  
15 methods.

16 **Q. Have you reviewed both Parties' case and testimony?**

17 A. Yes. I have also had informal discussions with both Parties in an attempt to best understand  
18 their argument and models.

19 **Q. What is the purpose of your testimony?**

20 A. My intent is to outline and deconstruct each issue in the case in order to provide the  
21 Commission with a recommendation. I would like to touch on the following issues:

- 22 • Definition of Avoided Cost;
- 23 • South Dakota's Renewable, Recycled and Conserved Energy Objective;
- 24 • Legally Enforceable Obligation;
- 25 • Capacity Component of Avoided Cost;
- 26 • Methods for Determining Avoided Costs;
- 27 • Oak Tree's Model;
- 28 • NorthWestern's Model; and
- 29 • Other Issues.

30 **II. DEFINITION OF AVOIDED COST**

31 **Q. What is the definition of avoided cost and why is it relevant to this docket?**

32 A. The Commission's goal in this docket is to determine the price NorthWestern must pay for Oak  
33 Tree's generation. That price is known as "avoided cost." The Commission must follow the Public  
34 Utilities Regulatory Policy Act of 1978 (PURPA), subsequently passed changes to the federal

1 code and rules that resulted therefrom. The attached Exhibit BPR-1, a publication prepared by  
2 The Brattle Group for the Edison Electric Institute, provides history and some direction regarding  
3 proper implementation of PURPA.

4 To help accomplish the goals of PURPA, regulations were written to acknowledge a particular  
5 segment of power generators. Those generators are known as Qualified Facilities (QF). Oak Tree  
6 is a QF. As a result, portions of federal regulation become relevant and dictate how the utility  
7 and this Commission must proceed. This dispute is specific to the cost NorthWestern must pay  
8 for Oak Tree's generation. NorthWestern does not appear to dispute Oak Tree's standing as a  
9 QF, nor is it disputing that it must purchase Oak Tree's generation. Rather, the proper "avoided  
10 cost" is at issue.

11 16 USC 824 requires that the utility purchase rates (1) shall be just and reasonable to the  
12 consumers and in the public interest and (2) shall not discriminate against Qualified Facilities  
13 and (3) shall NOT provide for a rate which exceeds the incremental cost to the electric utility of  
14 alternative electric energy. Part (3) is known as avoided cost. FERC has gone on to define  
15 avoided cost as:

16 "...the incremental costs of electric energy, capacity, or both, which, but for the  
17 purchase from the QF, such utility would generate itself or purchase from another  
18 source."

19 Simply, avoided cost is the cost the utility avoids when taking delivery of energy and capacity  
20 from the QF.

21 **III. SOUTH DAKOTA'S RENEWABLE, RECYCLED AND CONSERVED ENERGY OBJECTIVE**

22 **Q. Do you agree with NorthWestern's position that the South Dakota Renewable, Recycled and  
23 Conserved Energy Objective (RRCEO) does not require the utility to purchase wind energy?**

24 **A.** Yes, except in cases where wind energy is the most cost effective option.

25 SDCL 49-34A-104 specifically states that "[b]efore using new renewable, recycled, and  
26 conserved energy ... to meet the objective, the retail provider or the provider's generation  
27 supplier shall make an evaluation to determine if the use of new renewable, recycled, and  
28 conserved energy is reasonable and cost effective considering other electricity alternatives.  
29 After making such an evaluation and considering the state renewable, recycled, and conserved  
30 energy objective, the retail provider or the provider's generation supplier may use the electricity  
31 alternative that best meets the provider's resource or customer needs." Thus, renewables must  
32 compete economically with the utility's other alternatives.

33 In addition, SDCL 49-34A-101 states that the "objective is voluntary, and there is no penalty or  
34 sanction for a retail provider of electricity that fails to meet this objective." As a result, I am  
35 unaware of any provision in state law that requires the utility to purchase wind energy when it is  
36 found to be at a higher cost than an alternative.

1 **Q. What are the implications to this case?**

2 A. The RRCEO creates no obligation for NorthWestern to purchase wind energy when it is priced  
3 above other alternatives, where "alternatives" include all generation options, renewable and  
4 otherwise. Any suggestion that the avoided cost should be based only on the price of alternative  
5 renewable options is nullified.

6 **IV. LEGALLY ENFORCEABLE OBLIGATION**

7 **Q. What is a Legally Enforceable Obligation (LEO)?**

8 A. FERC has held an LEO is intended to prevent a utility from circumventing its obligation to  
9 purchase from a QF. 18 CFR 292.304 gives a QF the option to sell generation (i) as available or to  
10 sell (ii) pursuant to a LEO for the delivery of energy or capacity over a specified term. If a QF  
11 chooses the second option, the avoided costs are calculated at the time the obligation is  
12 incurred, or at the time the LEO first existed.

13 **Q. What effect can a LEO have?**

14 A. As stated above, the presence of an LEO creates an obligation at a point in time. At that point in  
15 time the utility has an obligation to purchase from the QF. The avoided cost at that point in time  
16 is what the utility must pay the QF for its generation. If the avoided costs change over time, an  
17 important factor in determining price may be when that LEO first existed.

18 **Q. Who determines when or if an LEO exists at some point in time?**

19 A. FERC has ruled it is up to states to determine the date at which a LEO is created.

20 **Q. What position have the Parties taken regarding an LEO?**

21 A. Oak Tree argues an LEO was created on February 25, 2011 whereas NorthWestern does not  
22 believe one has been created at all.

23 **Q. Do you believe a LEO was created in this case?**

24 A. I am not certain either way. I think the Commission would need to rule on whether Oak Tree  
25 truly obligated itself with a reasonable offer on February 25<sup>th</sup>, 2011, regardless of both Parties'  
26 lack of communication. As I will explain below, I am not sure a ruling is pertinent in this case,  
27 and in fact, Staff would prefer the Commission not make a ruling regarding the existence of a  
28 LEO. Staff believes it is more appropriate, if necessary, to engage in a rule making proceeding at  
29 which time the Commission could receive comment and encourage participation from all  
30 stakeholders.

31 **Q. If a LEO was created on February 25<sup>th</sup>, 2011, how would that impact this case?**

32 A. In my understanding, establishing the LEO date would determine which data should be used in  
33 the calculation of the utility's avoided cost.

1 **Q. Would the effect be significant?**

2 A. No. In Mr. LaFave's pre-filed testimony, he states that had NorthWestern calculated its avoided  
3 cost in February of 2011, the effect would be a slightly lower price. I agree with this assessment.

4 The wholesale market price of energy is greatly correlated to the price of natural gas because it  
5 most often fuels the marginal generators in competitive markets. Thus, if projected natural gas  
6 prices had changed significantly since February of 2011, the impact on forward wholesale  
7 market prices would likely be significant as well. Exhibit BPR-2 is a chart of projected natural gas  
8 prices delivered to electric power. The data comes from the Energy Information Association's  
9 (EIA) Annual Energy Outlook Reference Case and is the best available forecast of which I am  
10 aware. The EIA's projections from December 2010, April 2011 and January 2012 are very similar.  
11 Thus, I believe the establishment of a LEO in February of 2011 would have a negligible effect on  
12 the calculation of the utility's avoided cost.

13 I have also included the data from the EIA's 2010 Annual Energy Outlook, released in April of  
14 2010 to make a separate point. Between April of 2010 and December of 2010, the EIA projection  
15 of technically recoverable unproved shale gas resources increased from 347 trillion cubic feet to  
16 827 trillion cubic feet. This substantial increase in projected supply pushed price projections  
17 down significantly. This is only relevant if Oak Tree's avoided cost model was developed using  
18 assumptions similar to those used in the 2010 Annual Energy Outlook. If Oak Tree's model relies  
19 on data similar to April 2010, their projection would reflect significantly higher gas prices. Mr.  
20 Lauckhart states in his pre-filed testimony that Oak Tree used the Black & Veatch Fall 2010  
21 Energy Market Forecast for the Midwest United States. I assume this forecast used similar  
22 assumptions as the April 2010 Annual Energy Outlook, but given the confidential methodology  
23 of the Black & Veatch forecast, I cannot be certain.

24 **V. CAPACITY COMPONENT OF AVOIDED COST**

25 **Q. Do you believe it is appropriate to include an avoided capacity value, as well as an avoided  
26 energy value in the overall avoided cost calculations?**

27 A: Yes, both avoided capacity and avoided energy values should be considered when calculating  
28 the overall avoided cost for negotiations with a QF under PURPA.

29 **Q: Do the Parties agree an avoided capacity value should be included in the avoided cost  
30 calculations?**

31 A: Yes. It appears the Parties agree a capacity value should be included in payments to a QF based  
32 on the accredited capacity of the Oak Tree wind farm. However, the Parties seem to disagree on  
33 when the utility begins avoiding capacity costs.

34 **Q: Should a capacity value always be included in avoided cost payments to a QF under PURPA?**

1 A: No. A utility's obligation to include an avoided capacity value in payments to a QF depends on  
2 the utility's need for additional capacity. In Commission Docket F-3365, Re: Cogeneration and  
3 Small Power Production, 50 P.U.R. 4th 621 (1982), the Commission found that capacity credits  
4 included in any purchase rates are to be based on capacity actually avoided. If the purchase  
5 does not enable a utility to avoid capacity costs, capacity credits should not be allowed.

6 **Q: Do the Parties agree on the level of accredited capacity the Oak Tree Wind Farm should**  
7 **receive?**

8 A: Although the Parties take different approaches to finding the accredited capacity value of the  
9 Oak Tree Wind Farm, it appears they arrive at the same result of 20%. In its calculation of  
10 avoided capacity value, Oak Tree applies a flat 20% rule, in that 20% of the 19.5MW nameplate  
11 capacity counts towards peak capacity needs and therefore 20% of this capacity should receive a  
12 capacity value. Mr. Lauckhart applies this 20% accredited capacity rating based on past reports  
13 from the Midwest Reliability Organization.

14 NorthWestern seems to suggest it will follow the MISO method for establishing wind  
15 accreditation which is currently being used for the Titan I Wind Farm. The MISO method uses  
16 historical data of wind farm hourly contributions for the eight highest hourly system peak loads.  
17 It then averages these data points and compares them to the maximum output of the wind  
18 farm. When this MISO method is applied to the Titan I Wind Farm, it produced an average  
19 accredited capacity of 20%.

20 **Q: Do you have an opinion on what method should be utilized to determine accredited capacity?**

21 A: At this time, the data necessary to apply the MISO method for establishing the accredited  
22 capacity of the Oak Tree Wind Farm is not available as it is not in operation. However, with the  
23 information we currently have, it appears the Parties stand on relatively similar expectation of  
24 what accredited capacity may yield. Since the MISO method is the established method used by  
25 NorthWestern to determine accredited capacity, I see no reason why the Oak Tree Wind Farm  
26 should be treated differently than the existing wind resource utilized by NorthWestern. This is  
27 especially true considering the MISO method may very well produce the same outcome as a flat  
28 20% rule.

29 **Q: You stated above Oak Tree and NorthWestern seem to disagree on when the utility begins**  
30 **avoiding capacity costs, what do you mean?**

31 A: Currently, NorthWestern does not need additional capacity as its existing capacity resources are  
32 sufficient to satisfy all capacity needs. The capacity element should only be included in  
33 payments to a QF when NorthWestern reaches a point when its capacity needs outweigh its  
34 capacity resources. In other words, the capacity value is zero until NorthWestern is actually  
35 avoiding additional capacity requirements as a result of Oak Tree's accreditation. In his  
36 testimony Mr. Lauckhart suggests the avoided capacity value should be incorporated in  
37 payments to Oak Tree beginning in 2013. NorthWestern states its capacity needs are met

1 through 2015, so no capacity will be avoided and no avoided capacity value should apply until  
2 2016.

3 **Q: What is the underlying basis for the Parties positions for when the avoided capacity value**  
4 **should apply?**

5 A: Oak Tree's position is based on a snapshot of NorthWestern's capacity needs as it appeared on  
6 February 25, 2011. Mr. Lauckhart points out that NorthWestern had not commenced  
7 construction of the Aberdeen gas turbine at this point and Oak Tree would have displaced  
8 capacity had NorthWestern not installed this gas turbine. Oak Tree asserts it established a LEO  
9 on February 25th and the capacity needs of NorthWestern should be assessed as of that date.

10 NorthWestern argues although construction of the Aberdeen gas turbine did not begin until  
11 September 2011, it gained board approval in 2008 and the turbine was identified in the 2008  
12 and 2010 ten-year biennial updates. As such, it appears to me NorthWestern is suggesting,  
13 because the gas turbine has been a planned resource addition since 2008 and it was public  
14 knowledge, the precise construction date should not be decisive. Further, NorthWestern does  
15 not believe a LEO exists. As a result, historical capacity decisions are irrelevant.

16 **Q: Do you have an opinion on when NorthWestern will begin avoiding capacity costs as a result**  
17 **of Oak Tree's production?**

18 A: Yes. I agree with the position taken by NorthWestern. The Aberdeen gas plant appears to have  
19 been considered and approved years before the LEO was or was not created. With the inclusion  
20 of this plant, NorthWestern begins needing capacity in 2016. In his testimony, Mr. Lauckhart  
21 expresses his opinion that because the capacity avoided costs for Oak Tree are so low in the  
22 next few years, the removal of 2-3 years of capacity will have a negligible impact on the avoided  
23 cost over the 20-year life of the Oak Tree PPA. As such, the issue seems of little concern to  
24 either party and the avoided capacity value should be included at the beginning of 2016.

25 **Q. How would you describe the impact of capacity value on the overall avoided cost calculation?**

26 A. In this case, capacity value seems to account for little of the overall avoided cost calculation.  
27 While NorthWestern did not provide a specific capacity value estimate, I find it unlikely that  
28 NorthWestern would propose a higher capacity value than provided for in Mr. Lauckhart's  
29 Exhibit 3. As such, his data would seem to represent a ceiling for capacity value estimates in this  
30 case. Therefore, we can use Mr. Lauckhart's data in Exhibit 3 to estimate overall capacity value  
31 by comparing the Parties' positions regarding the date of capacity need. Using Mr. Lauckhart's  
32 Exhibit 3, the total value of the offered capacity is \$1,842,652. This is approximately 1.3% of  
33 their projected total value of energy and capacity. If a capacity value were compared to energy  
34 output, and assigned a per MWh value, that would be approximately \$1.20/MWh. This energy  
35 value calculation is helpful because Oak Tree bundles the value of energy and capacity to create  
36 one levelized payment in their model. Similarly, if one were to use NorthWestern's projection of  
37 capacity need beginning in 2016, the total projected value of the offered capacity is \$1,623,059.



1 This is approximately 1.1% of the projected total value of energy and capacity, and  
2 approximately \$1.06/MWh when compared to energy output. Therefore, the disagreement  
3 regarding when NorthWestern will begin avoiding capacity costs will only shift the final levelized  
4 cost about \$0.14/MWh. When comparing the impact of capacity value to energy value, it  
5 appears that capacity values have little to do with the final overall avoided cost.

6 **VI. METHODS FOR DETERMINING AVOIDED COST**

7 **Q. How is a utility's avoided cost determined?**

8 A. There are a number of ways to determine a utility's avoided cost. I am familiar with the five  
9 methods Mr. LaFave refers to in his pre-filed testimony. I also agree with his assessment of each  
10 method.

11 In many states, a specific method is adopted as a statewide standard. In South Dakota, no  
12 method has been adopted, nor would it be appropriate to do so. Although some methods may  
13 be more accurate than others, each utility in South Dakota is unique in its resource planning  
14 methods. Xcel Energy, for instance, is a large utility, is heavily integrated with the Midwest  
15 Independent Transmission System Operator (MISO), and has strict integrated resource planning  
16 requirements in Minnesota. Other utilities, like NorthWestern, are smaller, disconnected from  
17 open markets, and require generation and transmission upgrades in much longer intervals.  
18 Ideally, the Differential Revenue Requirement Method would give the best estimation of  
19 avoided cost. In this method, the QF is treated as a negative load, and the utility's revenue  
20 requirement is calculated with and without the added load. The resulting difference in revenue  
21 requirements is the literal definition of the utility's avoided cost. Unfortunately, this preferred  
22 method requires the utility to use a very expensive and complex expansion planning model. The  
23 cost would be difficult to justify for a utility like NorthWestern. Consequently, Staff prefers  
24 NorthWestern's method and believes it is the alternative method that most closely estimates  
25 the utility's avoided cost.

26 **VII. OAK TREE'S MODEL**

27 **Q. What does Oak Tree believe the proper avoided cost to be?**

28 A. Oak Tree offered a price to NorthWestern starting at \$54.50/MWh. The offer increases over the  
29 twenty year contract term to \$87.13/MWh by the year 2031. However, Mr. Lauckhart also  
30 provided testimony that he used two different methods to determine avoided cost, resulting in  
31 avoided costs of \$70.81/MWh and \$78.92/MWh levelized over 20 years.

32 **Q. Please provide a summary of the methodology Oak Tree used in determining NorthWestern's  
33 avoided cost.**

34 A. Oak Tree appears to use two methods: the Proxy Unit method and the Market Estimate method,  
35 which it refers to as the "green value" and "brown value" methods, respectively. I will address

1 each separately, focusing mainly on the avoided energy cost, as the capacity cost has already  
2 been discussed above and is less contentious.

3 The Proxy Unit method determines a "green value" cost by estimating the cost NorthWestern  
4 would incur to build, own and operate the proposed project, using some projections from a  
5 filing NorthWestern made in Montana. As I mentioned in my testimony regarding the RRCEO,  
6 NorthWestern does not have an express need for renewable energy, so the method fails to  
7 identify alternative generation options and their costs. Further, the Proxy Unit is a poor  
8 estimation of the costs NorthWestern will avoid by taking power from the QF. There is little  
9 correlation between the cost of the project and its value to NorthWestern.

10 The Market Estimate method determines a "brown value" avoided cost by estimating the cost of  
11 replacing the QF's projected output with spot market energy. The spot market price forecast  
12 comes from Black & Veatch's confidential model, so I have no way of disputing their calculation,  
13 however, the resulting prices seem very high. For instance, Mr. Lauckhart's model predicts per  
14 MWh prices of \$32.73 in 2012, \$35.76 in 2013, \$40.85 in 2014, \$44.86 in 2015 and \$60.26 in  
15 2016. These are increases of 9.2%, 14.2%, 9.8% and 34.3%, respectively. Following 2016,  
16 increases slow to between 2% and 4%, but the price has already been set quite high. It should  
17 be made clear that these are not just average market prices, they are the prices Black & Veatch  
18 predicts will be realized during times of the project will be generating. I think a very important  
19 point is missed here: when Oak Tree is generating, so will most of the other wind turbines in  
20 South Dakota. It is hard to believe spot market prices in South Dakota will be that high when  
21 there is a glut of wind generation unable to cross transmission constraints to the east. I don't  
22 believe Black & Veatch's forecast predicts this correlation, making it artificially high. Also, as I  
23 previously mentioned, I think the forecast used higher, outdated natural gas prices, which also  
24 pushed the price higher. Finally, this method assumes that NorthWestern would avoid making  
25 spot market purchases for every unit the QF outputs. However, according to Mr. Green's  
26 testimony, NorthWestern is not purchasing energy on the spot market a majority of the time.

27 **VIII. NORTHWESTERN'S MODEL**

28 **Q. What does NorthWestern believe the proper avoided cost to be?**

29 A. Mr. LaFave provides a 20-year levelized avoided cost of \$35.85/MWh.

30 **Q. Please provide a summary of the methodology NorthWestern used in determining its avoided  
31 cost.**

32 A. NorthWestern used a hybrid of the Component/Peaker and Market Estimates methods. The  
33 hybrid method takes into account the fact the utility's avoided cost changes depending on its  
34 ability to meet demand with its own generation. The model considers the following conditions:

- 1           1. *NorthWestern is meeting load without market purchases.*  
2           During the hours the QF is producing, it is paid the incremental generation cost equal to  
3           NorthWestern's most expensive plant online at that time.
- 4           2. *NorthWestern is buying more spot market energy than the QF is producing.*  
5           Similar to Mr. Lauckhart's "brown value" avoided cost, the QF is paid market prices, but  
6           using NorthWestern's significantly lower market price projection.
- 7           3. *NorthWestern is buying spot market energy, but not as much as the QF is producing.*  
8           The QF is paid market prices for the portion that avoids market purchases and incremental  
9           generation costs for the portion that avoids baseload energy.

10           The end result is a model that closely estimates the utility's actual avoided cost and should  
11           make ratepayers indifferent to whether the QF sells energy to NorthWestern. Of course, this  
12           assumes that the market price forecast is accurate.

13           Although I think NorthWestern's model is the most accurate, I have concerns with the market  
14           price forecast developed by Mr. Lewis. The forecast creates a fairly loose connection to  
15           NorthWestern's expected market prices for the next five years using data from a Minnesota  
16           MISO hub, the Cynergy MISO hub and forward natural gas prices at AECO in Canada. The final  
17           fifteen years are simply scaled using an escalation rate based on past GDP. I would prefer some  
18           discussion of what fundamentals WAPA's market prices are based upon, be it the MISO market,  
19           excess hydro generation, or purchases across the intertie from the Western Interconnection.  
20           To be fair, Black & Veatch's model could be based on the same loose connections, but their  
21           methodology is confidential, so I am unable to make a similar judgment.

## 22    **IX. OTHER ISSUES**

### 23    **Q. What other issues would you like to address?**

24    A. First, a consideration and thus a factor in Oak Tree's avoided cost price model is the cost of  
25    carbon. Oak Tree assumes a price on CO<sub>2</sub> emissions will significantly increase the cost of energy.  
26    While this may eventually happen, determining this price is very speculative and difficult to  
27    model with any accuracy.

28           Second, Staff notes NorthWestern did not include EPA regulatory impacts in their model.  
29           Although the Black & Veatch model is proprietary, I assume the approximate 34% increase in  
30           spot market prices between 2015 and 2016 to be Black & Veatch's opinion of the result of such  
31           rules. In MISO's EPA Impact Analysis, attached hereto as Exhibit BPR-3, MISO estimates an  
32           increase of between 7% and 7.6% to retail rates. In addition, much of those projected increases  
33           are the result of the capital costs of control equipment and replacement capacity, neither of  
34           which will be avoided by purchasing from the QF. I believe spot market prices will still continue  
35           to be largely determined by natural gas generation. Consequently, although the EPA rules will  
36           likely have a significant effect on the retail price of power, spot market prices and the utility's  
37           avoided cost will be less affected. Although the impact of the EPA's rules should be considered  
38           in determining NorthWestern's avoided cost, Oak Tree's estimate seems quite high.

1 X. **CONCLUSION**

2 Q. **Does this conclude your testimony?**

3 A. Yes.