Public Version

BEFORE THE PUBLIC UTILTIES 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

EL11-006

Testimony of

Bleau LaFave

On behalf of NorthWestern Energy

Submitted: November 21, 2012

Hearing Date: December 5, 2012

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Exhibits

Testimony

Introduction

Q: Please state your name and business address.

A: My name is Bleau LaFave. My business address is 3010 West 69th Street, Sioux Falls, South Dakota 57108.

Q: Are you the same Bleau LaFave that has previously filed testimony in this docket?

A: Yes. My education and employment history are summarized in the Prefiled Direct and Rebuttal Testimony of Bleau LaFave that was filed on January 13, 2012, in this docket.

Purpose of Testimony

Q: What is the purpose of your testimony?

A: The purpose of my testimony is to provide NorthWestern Energy's suggested guidelines for the proper application of the hybrid method approved by the South Dakota Public Utilities Commission in its order dated October 11, 2012, and modified in its order dated October 15, 2012. These suggested guidelines will enable the Commission to determine the following:

1. The proper inputs for the application of the hybrid method.
2. The proper energy contribution to be included in the 20-year levelized avoided costs.
3. The proper capacity contribution and resulting capacity credits to be included in the avoided cost.
4. NorthWestern's avoided costs levelized over a 20-year period starting January 1, 2012.
5. NorthWestern's avoided costs levelized over a 20-year period for the Oak Tree project.

Q: Please summarize your testimony.

A: The following testimony indentifies the proper inputs to be used in the Commission-approved hybrid method for determining NorthWestern's avoided costs when purchasing energy from a qualified facility (QF) or, specifically, the proposed Oak Tree project. Using this model derives the 20-year levelized avoided cost for energy and calculates the avoided cost for capacity related to Oak Tree that is applicable to NorthWestern.

NorthWestern Avoided Cost Hybrid Model

Q: What are the components of NorthWestern's avoided costs?

A: NorthWestern's avoided costs consist of an energy component and a capacity component. Each component has a separate calculation and inputs.

Q: Who will be testifying to the components of NorthWestern's avoided costs, and what specifics will they cover in their testimony regarding components to energy and capacity calculations?

A: Dick Green will provide testimony for the baseload fuel costs, calculation of the blend rate, and the application of the MISO capacity calculations.

Steven Lewis will provide testimony for the electric price forecast, capital investment forecast, and baseload escalation forecast.

Using the information provided by Mr. Green and Mr. Lewis, I will derive the avoided cost applicable to Oak Tree.

NorthWestern Avoided Cost Model - Energy

Q: What are the inputs needed to calculate NorthWestern's avoided energy costs utilizing the hybrid method?

A: As approved by the Commission and reflecting NorthWestern's supply for its customers, the hybrid method includes baseload supply, market purchases, and the blend forecast. The blend forecast represents the average relationship between market purchases and baseload supply for the appropriate period.

Q: How does the energy model work?

A: The model provided in Exhibit 1 starts with a base year historical load of 2010. This year was a normal year for NorthWestern's load profile. I will now take you step by step through the model calculation process to describe how it works.

- The base year hourly load profile is increased by the load growth factor (as described in Dick Green's testimony) to the target year—i.e., *2010 load profile x load growth factor = 2011 load*; then *2011 load profile x load growth factor = 2012 load profile*.

- The target year hourly load profile is then compared to the average baseload production availability to yield the amount of market purchase forecasted every hour—i.e., *load profile minus production = market purchases*.

- Using Oak Tree as an example, the estimated average output of the facility is approximately 9 MW every hour (*estimated plant output / total hours*). The blend rate is calculated for every hour that describes the amount of energy that is provided by baseload generation vs. market purchase. In some hours, all of the last 9 MW is purchased, which provides 100% market power; and in some hours all of the last 9 MW is baseload generated, which provides 100% generated power. During hours when some of the top 9 MW are purchased and some are generated, the blend rate for that hour is reflected in a percentage for each source.

- The blend rate is then averaged over peak and off-peak, seasonal, and annual hours.

- The model then uses the market price forecast, the generation price forecast, and the blend rate average to calculate a cost per megawatt per hour for peak and off-peak, seasonal, and annual hours. This represents the forecasted avoided cost for an average of 9 MW for a target year.

- The process is repeated for each year of the 20 target years or for the 20-year contract period in this case.

- A levelized price for peak, off-peak, and annual avoided cost is then calculated from the 20 years of estimated pricing.

Q: How is the avoided cost calculated for the input of baseload supply?

A: NorthWestern's baseload supply is composed of partial ownership in three coal-fired generation stations. The rate calculated for the estimated incremental costs uses the most expensive unit of the baseload units. For NorthWestern, the most expensive unit is Big Stone. To forecast incremental costs for the next 20 years for Big Stone, we must include variable costs that can be avoided when energy is purchased from a different resource. The estimated avoided cost for the Big Stone plant uses a base year of 2010, as described in Dick Green's testimony, and is escalated using real and nominal escalation factors.

Q: What is included in the rates used for the input of estimated baseload avoided costs?

A: As described in Dick Green's testimony, a baseload year cost of $18.54 for 2010 was used to calculate the forward cost of Big Stone. As shown in Exhibit 1 on the Blend Rate Summary tab, the base year cost was escalated using the AEO 2011-Coal Mine mouth price forecast and the inflationary escalation provided by Steve Lewis. For the purposes of this docket, only information that was available prior to February 25, 2011, was utilized.

Q: What is included in the rates used for the input of market purchases?

A: As described in Steve Lewis's testimony, an electric market price forecast for market purchases to meet NorthWestern's South Dakota customer needs was calculated using index pricing that

correlates directly to NorthWestern's service territory. This process uses information that is publicly available and can be repeated using the same reference points. Since there is no forecasted regional pricing for this area, the process relies on historical public information to establish a correlation between a forecasted liquid market and NorthWestern's regional pricing. For years beyond the publicly available information for a liquid forward market, escalation of the published EIA electric forecast was used. For the purposes of this docket, only information that was available prior to February 25, 2011, was utilized.

Q: How does the hybrid method specify when to use baseload and/or market purchases to forecast the incremental cost?

A: This method calculates the blend rate for a given-sized load based on the amount of time NorthWestern uses baseload generation, market purchases, or both as the marginal resource(s) to serve NorthWestern's customers. As described in Dick Green's testimony, utilizing the load profile from 2010, the historic and forecasted availability of the baseload resources was averaged hour by hour compared to the load of NorthWestern's customers. Using the very steady load growth experienced by NorthWestern, the blend rate for each year can be forecasted for the next 20 years.

NorthWestern Avoided Cost Model - Capacity

Q: What is the MISO method?

A: The MISO method provides a capacity credit amount for year one based on the system averages for wind generation. As described in the MISO PLANNING YEAR 2011 LOLE STUDY REPORT (December 2010), any new wind farm that comes on line will use the MISO system-wide average for 2011–2012 of 12.9% of registered capacity for its first year. After that, the capacity credit will be based on historical data gathered during peak conditions on a yearly average added together over time and averaged as described in Dick Green's testimony.

Q: Using the MISO method, what would be the capacity accredited to Oak Tree for the first year?

A: Using the registered wind farm capacity of 18.915 MW times 12.9% yields 2.44 MW in capacity credits. Oak Tree's registered wind capacity was provided in its FERC Form 556, Certification of Qualifying Facility (QF) Status for an Existing or a Proposed Small Power Production or Cogeneration Facility, which was attached as Exhibit 1 to Oak Tree's Complaint in this docket.

Q: What would be the capacity accredited to Oak Tree for the following years using the MISO method?

A: As described in Dick Green's testimony, the capacity value for future years would be based on the historical data generated by Oak Tree once it is operational. This methodology would be

subject to change based on changes within MISO or changes in requirements of regulating bodies.

Q: How do you determine the cost of capacity?

A: NorthWestern's avoided cost for capacity is related to the market costs of capacity. NorthWestern has for several years—and will continue for several more years (with or without the completion of the Aberdeen Peaker)—purchased market capacity to fulfill the requirements for its portfolio. The costs that NorthWestern's customers will be able to avoid will be a reduction in the amount of capacity purchased under contract.

NorthWestern's existing contract set to expire at the end of 2012 was for [*begin confidential information*] $X.XXX/kw-month for four months. The existing contract also required a transmission charge of $X.XX/kw-month for the same four months. The total cost under the existing contract annualized equaled the monthly rates times four months equaling $XX.XX/kW-year. On November 10, 2010, NorthWestern had received a preliminary offer from Basin Electric for additional market capacity representing the market price for capacity of $XX/kW-year. [*end confidential information*] Using these contracts as guidance for pricing and terms, which were available on February 25, 2011, NorthWestern's annualized purchased capacity cost that would have been able to be avoided would equal the QF capacity credit at the contracted Basin proposed rate.

For estimation purposes for the years beyond 2012, NorthWestern's forecasted avoided cost capacity rate would be based on the capital escalation rate provided in Steve Lewis's testimony.

NorthWestern's 20-Year Avoided Cost

Q: What is the 20-year levelized avoided costs for energy based on data from February 25, 2011?

A: NorthWestern's avoided cost is broken down into peak and off-peak rates. Wind is an intermittent resource that generates at different levels during different times of day. To keep NorthWestern's customers indifferent to the effects of wind generation, it is appropriate to provide a 20-year levelized price for peak and off-peak generation. Using 2012 as year one of a contract, the 20-year levelized avoided cost peak price is $47.67 and the off-peak price is $28.66. Using 2012 as year one of the contract, the levelized avoided cost is $37.99. All of this pricing utilizes market data available on or before February 25, 2011.

Q: What is the 20-year levelized avoided costs for capacity based on data from February 25, 2011?

A: The rate for capacity for year 2012 would be $36 per kW-year matching the offer rate received from Basin Electric in November 2010. The rate for capacity would then increase at a rate of

5.84% for the remaining years. The 20-year levelized cost would be $56.56 per kW-year as shown in the model in Exhibit 1.

NorthWestern's 20-Year Avoided Cost for Oak Tree

Q: Are there any other issues not accounted for in the avoided cost for Oak Tree?

A: Yes. Currently the Western Area Power Administration (WAPA) does not charge for balancing wind on the regional system. As renewable energy resources increase on WAPA's system, costs to integrate those resources will be allocated to the renewable energy generators. Any agreement with Oak Tree should include a clause that any future costs allocated from WAPA for renewable energy integration onto WAPA's system will either be paid by Oak Tree or be offset in payments made to Oak Tree from NorthWestern.

Q: What factors need to be included for the determination for an avoided cost rate for Oak Tree pursuant to 18 C.F.R. § 292.304 (e)?

A: (1) The data proved pursuant to Section 292.302(b), (c), or (d), including state review of any such data;

(2) The availability of capacity or energy from a qualifying facility during the system daily and seasonal peak periods, including:

(i) The ability of the utility to dispatch the qualifying facility;

(ii) The expected or demonstrated reliability of the qualifying facility;

(iii) The terms of any contract or other legally enforceable obligation, including the duration of the obligation, termination notice requirements, and sanctions for non-compliance;

(iv) The extent to which scheduled outages of the qualifying facility can be usefully coordinated with scheduled outages of the utility's facilities;

(v) The usefulness of energy and capacity supplied from a qualifying facility during system emergencies, including its ability to separate its load from its generation;

(vi) The individual and aggregate value of energy and capacity from qualifying facilities on the electric utility's system; and

(vii) The smaller capacity increments and the shorter lead times available with additions of capacity from qualifying facilities; and

(3) The relationship of the availability of energy or capacity from the qualifying facility as derived in paragraph (e)(2) of this section, to the ability of the electric utility to

avoid costs, including the deferral of capacity additions and the reduction of fossil fuel use; and

(4) The cost or savings resulting from variations in line losses from those that would have existed in the absence of purchased from a qualifying facility, if the purchasing electric utility generated an equivalent amount of energy itself or purchased an equivalent amount of the electric energy or capacity.

Q: Do any of these factors for Oak Tree differ from incremental resources?

A: Oak Tree differences include:

1. The utility is unable to dispatch Oak Tree. NorthWestern does not have the ability to back down the baseload generation to react to swings in the Oak Tree wind farm.

2. NorthWestern is not guaranteed service of energy or capacity through this contract as it is with the other incremental resources.

3. The duration of the Oak Tree contract is much longer than other contracts available to NorthWestern, presenting significant price risk for outlying years as compared to the other incremental resources.

4. The Oak Tree QF is not usable in an outage due to energy fluctuations and requirements of system power.

The remaining items are either accounted for in the incremental cost or do not positively or negatively affect the incremental costs.

Q: What adjustments should be made to the Oak Tree avoided cost offer?

A: Although the differences related to a resource like Oak Tree and to resources it is said to replace are significant from an operational point of view (as addressed in the question above), these traits are very difficult to quantify. Any comparisons of replacement energy costs from a baseload dispatchable resource to intermittent resources should be conservative due to all of the traits intermittent resources lack and the risks they impose.

Q: What is the 20-year levelized avoided cost for energy based on data from February 25, 2011?

A: Using 2012 as year one of a contract, the 20-year levelized avoided cost peak price is $47.67 and the off-peak price is $28.66. Using 2012 as year one of the contract, the levelized avoided cost is $37.99 as shown in the model in Exhibit 1. All of this pricing utilizes market data available on or before February 25, 2011.

Q: What is the 20-year levelized avoided cost for capacity based on data from February 25, 2011?

A: The rate for capacity for years 2012 would be $36 per kW-year matching the offer rate received from Basin in November of 2010. The rate for capacity would then increase at a rate of 5.84% for the remaining years. The 20-year levelized cost would be $56.56 per kW-year as shown in the model in Exhibit 1

Q: How would the capacity credit be added in?

A: For 2012, the Oak Tree project would have been accredited for 2.44 MW of capacity for the first year, and the following years would be calculated based on the MISO method as described previously. The payment would be distributed evenly each month starting at rate of $4.71 per kW-month. For year one (2012), the annualized capacity credit cost for Oak Tree would have been $138,066.40. For subsequent years, the rate will be according to the levelized avoided cost, but the amount will be calculated as determined above.

Q: Does this conclude your testimony?

A: Yes.