APPLICANTS' EXHIBIT 48

SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

CASE NO. EL05-022

IN THE MATTER OF THE APPLICATION BY OTTER TAIL POWER COMPANY

ON BEHALF OF THE BIG STONE II CO-OWNERS

FOR AN ENERGY CONVERSION FACILITY SITING PERMIT FOR THE

CONSTRUCTION OF THE BIG STONE II PROJECT

PREFILED REBUTTAL TESTIMONY

OF

HOA NGUYEN

POWER SUPPLY COORDINATOR

MONTANA-DAKOTA UTILITIES CO.

JUNE 16, 2006

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BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

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I. INTRODUCTION

Q: Please state you name and business address.

A: My name is Hoa Nguyen. My business address is 400 North 4th Street, Bismarck, North Dakota 58501.

Q: Did you previously submit testimony in this proceeding?

A: Yes. I submitted direct testimony, Applicants' Exhibit 11.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q: What is the purpose of your testimony?

A: I am responding on behalf of Montana-Dakota Utilities Co. (Montana-Dakota) to the May 26, 2006 testimony of Minnesota Center for Environmental Advocacy (MCEA) witnesses Schlissel and Sommers regarding the need for baseload capacity and resource planning issues specifically affecting Montana-Dakota.

Q: Please summarize your testimony.

A: Montana-Dakota has a need for the additional baseload capacity and energy that Big Stone Unit II is designed to provide, as determined in our resource planning studies.

Moreover, our resource planning includes demand-side management (DSM) and renewables, in concert with Big Stone Unit II and other developments.

III. NEED FOR AND TIMING OF BASELOAD CAPACITY

Q: At pages 3 to 4 of their May 26 testimony, MCEA witnesses Schlissel and Sommers state that Montana-Dakota and the Applicants do not need additional baseload capacity in 2011. Do you agree?

A: No. As described in Andrea Stomberg's direct testimony on pages 4 through 6 (Applicants' Exhibit 7), Montana-Dakota's 2005 Integrated Resource Plan showed a need for new baseload capacity in 2011 and beyond. In sum, this need is driven by the loss of 66.4 MW of baseload capacity and energy in late 2006, on-system growth of 31 MW and associated reserve requirements of 4.6 MW, resulting in a need of 102 MW of baseload capacity by the time the proposed Big Stone Unit II would be on-line and in commercial operation.

IV. DEMAND-SIDE MANAGEMENT (DSM)

Q: MCEA witnesses Schlissel and Sommers advocate the use of demand-side management (DSM) in their testimony. Does Montana-Dakota include DSM in their resource plans?

A: Yes, as I describe below.

Q: What has Montana-Dakota accomplished in DSM to date?

A: Montana-Dakota has implemented additional DSM measures that will result in 8.1 MW of demand savings by 2010, resulting in energy savings of .13% of energy requirements.

Q: What are Montana-Dakota's plans with respect to doing more DSM?

A: Montana-Dakota plans to implement an additional 6.5 MW of demand-side management and conservation measures during the 2006-2010 time period. These programs will result in approximately 38,000 MWh savings.

Q: How does Montana-Dakota consider the effects of DSM as part of its resource planning?

A: As I discuss in my direct testimony (Applicants' Exhibit 11), demand-side analysis is part of Montana-Dakota's Integrated Resource Planning process. Demand-side analysis is an evaluation process to determine the available and most cost-effective demand-side management programs applicable to Montana-Dakota's system. Using the ratepayer impact and societal tests, DSM evaluation is performed for Montana-Dakota's residential and commercial sectors.

Q: Please describe Montana-Dakota's participation in renewable energy projects.

A: The last effort occurred in December 2005, Montana-Dakota signed a contract to purchase all of the energy and capacity output from a wind farm to be constructed in South Dakota by the end of 2007. We estimate the wind farm will have a nameplate capacity of 31.5 MW, with an accredited summer capacity of up to 7 MW. The annual energy produced by this wind farm is estimated to be 110,000 MWh. In addition, Montana-Dakota expects to comply with the Montana Renewable Power Production and Rural Economic Development Act by purchasing or installing up to an additional 30 MW of renewable power generation by 2015. This may be wind or other approved renewable power sources.

Q: What do you conclude from Montana-Dakota's renewables efforts?

A: Montana-Dakota is already including a substantial amount of renewables in their plans. Similar to DSM, these are efforts that MCEA witnesses Schlissel and Sommers have neglected to mention or acknowledge in their testimony.

Q: Schlissel and Sommer talk about scenarios that include 800 MW to 1,200 MW of additional wind development as alternatives, in theory, to Big Stone Unit II. Does this magnitude of wind developments make sense for Montana-Dakota?

A: No. Montana-Dakota considered performing additional system capacity expansion computer modeling to examine the system-level results of adopting the Schlissel and Sommer wind/gas combination scenarios in proportion to our share of the proposed Big Stone Unit II. But, upon inspection of their plan, Montana-Dakota concluded such a system analysis does not require a computer model to assess. The Schlissel and Sommer plan would not work on the Montana-Dakota system, because, by inspection, the resulting amount of wind energy would be far more than the Montana-Dakota system could reliably accommodate. In addition, the operational impacts of the amount of wind being proposed would result in an economic penalty greater than that demonstrated by Mr. Gerald Tielke in his June 16, 2006 rebuttal testimony, Applicants' Exhibit 44.

Q: Why does the Schlissel and Sommer wind/gas combination result in far more wind energy that Montana-Dakota's system can accommodate?

A: As I mentioned, Montana-Dakota is already proceeding with a 31 MW wind farm. As described in my direct testimony, the Montana-Dakota system has a total forecasted peak

demand of 514 MW in 2011, when Big Stone Unit II is slated to come on-line. Montana-Dakota's currently planned 31.5 MW wind development alone represents about 6% of our system peak demand in 2011.

Montana-Dakota proposes to own 116 MW, or 19.3%, of the 600 MW Big Stone Unit II. If Montana-Dakota were to adopt its pro-rata share of the additional wind energy that Schlissel and Sommer seem to be suggesting, that would mean, for instance, Montana-Dakota would install approximately 154 MW of an 800 MW development (19.3% of 800 MW), or 232 MW of a 1,200 MW development, over and above its current plan, resulting in a total of 186 MW to 263 MW applied to Montana-Dakota's 514 MW system, or 36% to 51% of the total system peak demand.

Studies suggest and Schlissel and Sommer agree on page 10 of their May 26 testimony that, for system operating considerations, a maximum ratio of installed (nameplate) wind capacity to system peak would be in the 15% to 20% range. So, applying the Schlissel and Sommer recommendation to our system would result in quantities of wind capacity that are *two and one half times* the maximum allowable operating range. This is an unworkable and dangerously unreliable result. In the interest of system reliability and operating stability, this is not a viable alternative for Montana-Dakota.

Q: Why does the Schlissel and Sommer wind/gas combination result in economic penalties greater than those described by Mr. Tielke?

A: Since wind resources are non-dispatchable, the electric system must be able to accommodate the output of the wind generation at any time of the day. The non-dispatchability

of an additional 154 to 232 MW of wind generation poses potentially significant economic impacts during those hours of the day when Montana-Dakota's load is at reduced levels.

In order to respond to higher customer demands during the afternoon and evenings, existing base-load generation is kept on line but at reduced levels. During periods when the existing plants are at or near minimum load, if the wind speed is such that there is an additional 154 or 232 MW of wind generation being injected into the system, generation would be injected into the MISO market in order to maintain system frequency. However, in the MISO Locational Marginal Pricing (LMP) market, it is not uncommon for the LMP on Montana-Dakota's generation to be negative during the low load hours of the morning because of excess power in the market. The result is that Montana-Dakota would be supplying the 154 or 232 MW of generation into the market at negative LMPs, resulting in Montana-Dakota having to pay to inject into the market, rather than receiving revenues to offset the cost of the generation. This further increases the cost of the Schlissel and Sommer alternatives. In addition, during any hours that LMPs are less then production costs, the revenues received from injecting into the market would not cover the production costs, resulting in further increased costs to customers.

Q: Do you have an estimate of those costs?

A: Based on the first year of the MISO market operation, the estimated costs would be approximately $4 million for the 154 MW wind scenario and over $6 million for the 232 MW wind scenario.

V. RESOURCE PLANNING

Q: Schlissel and Sommers state the Applicants have no evidence to suggest you need baseload capacity. Do you agree?

A: No. As I described in my direct testimony, as supported by Montana-Dakota's September 15, 2005 IRP, Montana-Dakota experiences a capacity deficit in 2011 of 101 MW, and the capacity deficits increase to 134 MW in 2016 and 164 MW by the summer of 2021. The deficits are largely caused by the 2006 expiration of the 66.4 MW baseload purchase agreement with Basin Electric Cooperative and growth in customer demand for electricity.

Q: Could Montana-Dakota use more baseload capacity than their proposed share of Big Stone Unit II?

A: Yes. Although we find that the proposed 116 MW share in 2011 is generally a good fit for Montana-Dakota, having another 10 MW would be acceptable for two reasons. First, the additional capacity would provide an additional, incremental level of risk management to cover the load forecast uncertainty, future resource uncertainty, and the potential for extreme weather conditions. This would further improve system reliability. Second, with the current forecast, a 126 MW share would satisfy our customers' demand for capacity and energy requirements through 2015, and would thereby delay the need for the next resource addition for another two years.

Q: Why is Montana-Dakota proposing to own a 116 MW share in Big Stone Unit II in 2011, when your most recent forecast shows you only need 101 MW in that year?

A: We are doing this for very practical reasons. First, Montana-Dakota's capacity needs must be compared to the 15% minimum installed Reserve Capacity Obligation of MAPP in order to ensure reliability. In addition, baseload additions bring low energy costs, and savings result from offsetting higher-priced energy sources fueled by oil and natural gas. Our analyses confirm that this is an important consideration in the appropriate timing of our share of Big Stone Unit II.

Second, as MAPPCOR witness Peter Koegel describes in his testimony, for purposes of measuring compliance, the MAPP minimum installed Reserve Capacity Obligation (and I emphasize this requirement is a *minimum)* is measured in terms of actual peak demand; not forecasted demand. To the extent Montana-Dakota experiences higher-than-expected peak demands due to extreme weather or other unforeseen circumstances, we are at risk of falling below our minimum reserve requirements unless we provide a modest amount of reserves above the 15% requirement calculated using our forecast alone. Failing to meet our minimum reserves would bring significant financial penalties via the MAPP agreements, as well as jeopardizing the reliability of the region's generation supply. In this regard, it is far better from both an economic and reliability standpoint to be somewhat early in installing new capacity, rather than being surprised by high customer demands if installed too late.

Our capacity needs are projected to grow between five to seven MW per year during the 2011 to 2013 time period. Our forecasts show we will need our entire 116 MW share of Big Stone Unit II by 2013, even using our forecast-based 15% minimum reserve requirements as a guide. Installing our share of Big Stone Unit II in 2011 provides for only two years of our

forecasted growth before we need additional resources. We see this not only as a reasonable thing to do, but prudent as well.

Further, in Montana-Dakota's region, the opportunity to participate in a large baseload plant happens only occasionally. Big Stone Unit II allows us to obtain significant economies of scale over Montana-Dakota's other baseload alternative – the smaller 175 MW Gascoyne power plant.

VI. USE OF ENVIRONMENTAL EXTERNALITIES

Q: MCEA witnesses Schlissel and Sommers use environmental externalities to say that Montana-Dakota and other Applicants should not install Big Stone Unit II. Do you agree?

A: No. In fact, in Montana-Dakota's case, use of externality values is not permitted under North Dakota law.

Q: Does this conclude your testimony?

A: Yes.