

CASE NOS. PU-06-481 & PU-06-482
BEFORE THE NORTH DAKOTA PUBLIC SERVICE COMMISSION
IN THE MATTER OF THE APPLICATION BY OTTER TAIL CORPORATION D/B/A
OTTER TAIL POWER COMPANY

AND

MONTANA-DAKOTA UTILITIES CO., A DIVISION OF MDU RESOURCES GROUP, INC.

FOR AN ADVANCED DETERMINATION OF PRUDENCE

For the Big Stone II Generating Plant

SUPPLEMENTAL PREFILED DIRECT TESTIMONY

OF

ANDREA L. STOMBERG

VICE PRESIDENT OF ELECTRIC SUPPLY

MONTANA-DAKOTA UTILITIES CO.

MARCH 10, 2008



SUPPLEMENTAL PREFILED DIRECT TESTIMONY OF ANDREA L. STOMBERG

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2 **SUPPLEMENTAL PREFILED DIRECT TESTIMONY OF ANDREA L. STOMBERG**

3 **I. INTRODUCTION**

4 **Q: Please state your name and business address.**

5 A: My name is Andrea L. Stomberg. My business address is 400 North Fourth Street,
6 Bismarck, ND 58501.

7 **Q: By whom are you employed, and in what capacity?**

8 A: I am the Vice President of Electric Supply for Montana-Dakota Utilities Co. (Montana-
9 Dakota), a Division of MDU Resources Group, Inc. My responsibilities include power
10 production and planning, transmission and system operations, and electric sales and dispatch.

11 **Q: Did you previously submit testimony in this matter?**

12 A: Yes. I provided prefiled testimony admitted as Exhibit MDU-203.

13 **II. PURPOSE AND SUMMARY OF TESTIMONY**

14 **Q: Describe the purpose of your testimony.**

15 A: My testimony provides an update to the Commission on Montana-Dakota's continued
16 participation in the Big Stone Unit II power plant following departure of two of the original
17 project participants. I am also presenting an overview of the results of Montana-Dakota's
18 updated resource planning modeling, which continues to support the selection of Big Stone Unit
19 II as the most cost effective electric supply-side resource addition for Montana-Dakota's
20 customers.

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1 **Q: Please summarize your testimony.**

2 A: After last fall's withdrawal of Great River Energy and Southern Minnesota Municipal
3 Power Agency as participants in the Big Stone Unit II project, the remaining project owners
4 considered the possibility of downsizing the plant to either 500 MW or 580 MW. The resizing of
5 the plant caused the remaining participants to reevaluate the costs. Montana-Dakota also used
6 this opportunity to amend and refine its generation expansion modeling to include various
7 parameters as a sensitivity analysis. Montana-Dakota's pro-rata share of a 500 MW Big Stone
8 Unit II would be 133 MW. Montana-Dakota's resource planning models continue to select Big
9 Stone Unit II as the best new resource for meeting our customers' future electric needs. Our
10 expert resource planning witness Jim Heidell provides further testimony on this issue.

11 **III. RESOURCE PLANNING UPDATES**

12 **Q: What inputs changed in Montana-Dakota's resource planning model?**

13 A: In my previous testimony, I discussed Montana-Dakota's need for baseload capacity and
14 energy to: (1) replace a power supply contract between Montana-Dakota and Basin Electric
15 Power Cooperative (Basin) that expired in October, 2006, and (2) support steadily increasing
16 load in the area we serve. The existing and forecasted requirement for a baseload resource has
17 not changed materially in the last year. Indeed, 2007 provided an affirmation of the Company's
18 continued load growth. As a Big Stone Unit II development participant, the cost of the plant is
19 an important component in our power supply planning and resource selection. When the two
20 partners withdrew and the remaining partners decided to examine a smaller unit, we believed it
21 necessary and prudent to re-run our planning models with more current cost estimates to test the

1 selection of the Big Stone Unit II plant. We also used this opportunity to reevaluate and refine
2 other model inputs, as discussed in more detail by Jim Heidell.

3 Each of Montana-Dakota's Integrated Resource Plans has been the product of a strategic
4 planning exercise that is based on a snapshot of conditions that exist at the time the plan is
5 prepared. The model inputs are therefore subject to change as critical assumptions such as
6 economic and business conditions change. To update or refine the models presented in our
7 earlier testimony, we modified some model inputs including plant costs, alternative generation
8 resource costs, including wind and combined and simple cycle turbines, natural gas pricing, the
9 availability or unavailability of the wind energy production tax credit, sale of energy in excess of
10 our customers' needs to the MISO market, full implementation of conservation and demand-side
11 management programs, and reductions in existing generation capability that may be caused by
12 regulation or obsolescence.

13 **Q: Why did Montana-Dakota make changes in its resource planning model input data?**

14 A: Resource planning models are just that - models of the system at a particular point in
15 time. Given that all the project participants were updating their models to include new project
16 price information, we felt it appropriate to update other input data and assumptions that had
17 changed since our last round of testimony, to confirm for ourselves and the Commission the
18 accuracy of our assumptions, and to assess the sensitivity of prior results to changes from more
19 current input parameters.

20 **Q: What were the results of the new resource planning model analyses?**

21 A: Given reasonable model inputs, our resource planning modeling selects the 500 MW Big
22 Stone Unit II plant as the best new resource to serve our customers.

1 **Q: Would consideration of a 580 MW Big Stone Unit II change the result of the**
2 **analyses?**

3 A: No. Our results show that even at the higher 500 MW price, the Big Stone II Unit is still
4 cost-effective. Thus a lower cost 580 MW unit (on a per kW basis) will do nothing but enhance
5 the selection of the Big Stone II Unit as the best resource.

6 **Q: Why is Montana-Dakota estimating it will own 133 MW of Big Stone Unit II?**

7 A: Ownership of the 500 MW plant was assumed to be on a pro-rata basis, based on the
8 ownership percentage of the original design with the original seven participants. There may be
9 some further small adjustments in plant ownership once the plant size is finally determined. At
10 this time, Montana-Dakota is asking for an advance prudence decision based on ownership of up
11 to 133 MW of either a 500 or 580 MW plant.

12 **Q: Why did the updated modeling include a scenario with the sale of excess energy into**
13 **the MISO market?**

14 A. Most baseload expansion results in “lumpy” investment, i.e., it is rarely possible or
15 reasonable to build exactly the amount of baseload capacity that forecasts or resource plan
16 models predict are needed at any particular moment. Often, a resource that is acquired and that
17 will provide for needs over a long period will have energy excess to the customers needs in the
18 early years, leaving energy available for off-system sales from time to time. The Commission is
19 aware of how our customers benefited when we had significant off-system sales during the term
20 of the Basin contract. Owning 133 MW of Big Stone Unit II will work in much the same
21 manner, and should allow Montana-Dakota the opportunity to make off-system sales,
22 particularly in the first years after it comes on line, and share the benefit of those sales with our

1 retail customers through the Commission-approved margin sharing adjustment. As a result, we
2 believed it important in the updated modeling to include a scenario where we had approximately
3 the same volume of pool sales as we did in 2006, as well as a scenario showing no pool sales.
4 As Mr. Heidell explains, the pool sales do not provide a basis for Montana-Dakota's
5 participation in the project, but do provide the company with a more realistic picture of the way
6 in which we operate our utility system within the MISO market, and how our customers may
7 benefit from participation in the plant.

8 **Q: What were the results of the models that demonstrated that Big Stone Unit II**
9 **continues to be the best resource for your customers?**

10 A: With or without pool sales our customers are better off with Big Stone Unit II than they
11 would be with what the models show to be the next best resource, which includes wind plus
12 natural gas resources based upon assumptions of a high capacity factor for wind resources and
13 continuation of production tax credits for wind resources. Without the high capacity factor and
14 production tax credit assumptions, no wind was selected as an economic resource, and the next
15 most economic option after Big Stone Unit II is primarily natural gas generation. The model of
16 course is dependent upon its inputs and changing any of the assumptions can result in the
17 selection of an entirely different resource. I believe the selection of Big Stone Unit II over the
18 next selected resource boils down to an assessment of risks, including the risk of the affordability
19 of natural gas to generate electricity versus the known long-term availability and affordability of
20 domestic coal, which has historically had far less price volatility than natural gas. Given what
21 Montana-Dakota views as probable increases in the use of natural gas as a fuel source for electric
22 power generation regionally and nationwide going forward, we are very concerned about what

1 that increased reliance on natural gas for electric generation might mean for our electric
2 customers, as well as for our customers that use natural gas to heat their homes and for
3 commercial and industrial uses in their businesses.

4 **Q: What is the status of wind generation in Montana-Dakota's models?**

5 A: Mr. Heidell modeled wind with and without the production tax credit (PTC), as currently
6 the credit will expire at the end of 2008. While it is possible the PTC will be extended for
7 another short period of time, we do not believe that it will be extended indefinitely. And given
8 its considerable impact on the economic competitiveness of wind energy, we believed it prudent
9 to model a scenario on the assumption the PTC will not be available. It is important to note that
10 no transmission upgrade costs were attached to wind in the models, as these costs are very
11 difficult to estimate with reasonable precision. Without transmission upgrade costs, the PTC,
12 and based on a capacity factor of 38 percent, the model selected no wind in addition to the
13 Diamond Willow project.

14

15 Montana-Dakota recognizes that wind energy can be part of our overall resource plan.
16 Montana-Dakota intends to expand the Diamond Willow wind farm from its current size of 20
17 MW by at least another 10 MW, and continue to evaluate other wind projects both within and
18 outside of North Dakota as a supplement to our other resources.

19 **Q: Did you consider future environmental regulations that could drive up the cost of**
20 **energy from Big Stone Unit II?**

21 A: Montana-Dakota has closely followed the developments in Congress and some of the
22 states relative to carbon dioxide regulation, as well as the recent change in mercury regulations.

1 A substantial direct tax on carbon dioxide emissions, or a high allowance price in a “cap and
2 trade” system – particularly one that singles out coal instead of applying equally to coal and
3 other carbon dioxide containing fossil fuels -- would change the results of our modeling. As the
4 Commission is aware, Montana-Dakota is prohibited by state law from considering
5 environmental cost regulation in its resource selection process, so we did not perform a
6 quantitative analysis of a range of CO₂ costs, for instance. But based on the considerable
7 amount of information that I have reviewed, I firmly believe that any penalty attached to coal as
8 part of climate change regulation will most certainly increase the cost of natural gas going
9 forward, and that too will change the model results. This is where judgments considering risk
10 must be applied: what is likely and how does that affect the business decision of selecting the
11 generation alternative that is the best long-term resource to customers?

12 **Q: What is Montana-Dakota’s current resource mix?**

13 Montana-Dakota’s current mix of installed generation capacity resources is 77 percent
14 coal, 23 percent dual fuel turbines, which can burn either gas or oil, and under one percent wind.
15 The 50 MW Lewis & Clark Station can be fired on coal or natural gas alone. Once Big Stone
16 Unit II is constructed, and retaining all of our current generation, the percentage of coal
17 generation in our mix would increase to 82 percent. Replacing the generation from Big Stone
18 Unit II primarily with natural gas, which the model suggests is the next best alternative to Big
19 Stone Unit II in the absence of PTCs, would double our natural gas generation capacity to about
20 40 percent. This would significantly increase Montana-Dakota’s customers’ exposure to natural
21 gas price risk. And it is important to point out that many of our customers - over 80 percent -
22 also use natural gas for home heating. If Montana-Dakota increases the use of natural gas for

1 electric generation, these customers are exposed to additional natural gas price risk on their
2 electric bills. We are very concerned about this.

3 Big Stone Unit II is a highly efficient plant that will burn a domestic fuel that Montana-
4 Dakota is confident will be available for the long term at a price we believe will be relatively
5 stable even with the likelihood of carbon dioxide regulation. In contrast, Montana-Dakota
6 believes that natural gas supply and pricing is far less certain.

7 **Q: What benefits do you see Big Stone Unit II affording Montana-Dakota's customers?**

8 A: As discussed in my previous testimony in this case, Big Stone Unit II is intended in part
9 to replace the 66.4 MW of baseload power supplied under the now expired power purchase
10 agreement between Montana-Dakota and Basin. Until the Big Stone Unit II plant is in
11 commercial operation, Montana-Dakota will continue to need to purchase energy from the MISO
12 market. The cost of this energy cannot accurately be predicted and, as the Commission is aware,
13 can fluctuate widely. Once Big Stone Unit II is available, Montana-Dakota's customers will be
14 more insulated from the uncertainty and variability of the price of power from the market.

15 In addition, when the Company has available energy from Big Stone Unit II, Montana-
16 Dakota will also be able to sell surplus power into the MISO market and therefore benefit our
17 customers under the Commission-approved margin sharing adjustment.

18 **Q: Describe why you believe Big Stone Unit II is the best resource option for Montana-
19 Dakota's electric customers.**

20 A: There continue to be several reasons why Big Stone Unit II is the best new resource for
21 Montana-Dakota's customers. Montana-Dakota's customers will benefit from economies of
22 scale in the ownership of a large, efficient baseload coal plant. Additional efficiencies will be

1 achieved from having Big Stone II built adjacent to the existing plant. Also, this highly efficient
2 unit will reduce Montana-Dakota's overall carbon-intensity, and the dual scrubber will be an
3 efficient way to reduce emissions of both units. Last, Montana-Dakota takes comfort in having
4 the considerable experience and talent of the other participants available to assist in the design
5 and operation of this plant.

6 Montana-Dakota focuses on providing our customers with the best overall resource.
7 Montana-Dakota believes the Big Stone Unit II is the best resource to provide customers with
8 reliable power for a predictable and affordable price well into the future. Using the most
9 efficient commercially-proven technology allows us to continue to reduce our net company
10 emissions per MWh for a reasonable cost. Considering all this, plus finding a way to leverage
11 this new resource to clean the emissions of the existing Big Stone Unit I plant, Big Stone Unit II
12 remains Montana-Dakota's clear first and prudent choice.

13 **Q: Does this conclude your testimony?**

14 A: Yes.

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