Synapse
Energy Economics, Inc.

Summary of the Direct Testimony of David A. Schlissel

North Dakota Public Service Commission
Case Nos. PU-06-481, PU-06-482

June 27, 2007

Overall Conclusion

- The Commission should reject the request by Otter Tail Power and Montana-Dakota Utilities for an Advance Determination of Prudence for their participation in the Big Stone II Project.

Supporting Findings

- OTP and MDU have not adequately considered the risks associated with building a new coal-fired generating unit in their modeling and economic analyses.
- The most significant uncertainties and risks associated with the proposed Big Stone II Project are the potential for further increases in the project's capital cost; the potential for fuel supply disruptions that could affect plant operating performance and fuel costs; and future restrictions on CO_2 emissions.

Supporting Findings (Continued)

- In particular, it is vitally important for OTP and MDU to justify their participation in Big Stone II in light of coming federal regulation of greenhouse gas emissions. It would be imprudent for each Company to continue its participation in the Project without doing so.
- OTP and MDU have not shown that their demand for electricity cannot be met more cost effectively through alternatives including renewable energy resources, energy conservation and load-management measures than through the Big Stone II Project.
- The economic and modeling analyses prepared by OTP and MDU are biased in favor of the Big Stone II Project.

OTP and MDU have failed to consider the potential for further increases in the cost of Big Stone II

- Big Stone II co-owners testified last fall in Minnesota that major power plant construction commodities have increased 30% to 80% during past 2 years.
- Labor rate escalation has doubled.
- Other utilities have noted similar increases in key power plant commodities and design and construction labor resources.
- For example, Duke Energy Carolinas increased the estimated cost of its Cliffside Project by 47% in October 2006.
- Duke testimony to North Carolina Utilities Commission noted that new coal-fired power plant capital costs had increased approximately 90% to 100% since 2002

OTP and MDU have failed to consider the potential for further increases in the cost of Big Stone II

- Big Stone II co-owners in August 2006 adopted a plan to minimize their cost exposure until all of the needed permits for the Project are approved.
- Short-term spending limitation plan suspended most, if not all engineering work and equipment procurements until mid-2007 and required that the equipment bids that had been received be rebid.
- Black & Veatch estimated this plan would increase the estimated cost of the Project by about $199 million. This increase would be above and beyond the $1.366 billion project cost estimate adopted in July/August 2006.
- B&V also estimated that the actual commercial operation date of the Project might be pushed into 2013.

OTP and MDU have failed to consider the potential for federal regulation of GHG emissions

- It is prudent to expect that a policy to address climate change will be implemented in the U.S. in the near future in a way that should be of concern to coal-dependent utilities in the Midwest.
- If Big Stone II is built, it would emit more than 4.7 million tons of CO_2 into the atmosphere for the next 60 years or so.
- If Big Stone II is build, carbon regulation is not an issue could reasonably be dealt with in the future, once the timing and stringency of the regulation is known.
- There are currently no commercial or economical method for post-combustion of carbon dioxide from supercritical pulverized coal plants.
- It is imprudent to ignore the risk of future U.S. carbon regulations. However, OTP and MDU have done so.

OTP and MDU have failed to consider the potential for federal regulation of GHG emissions

- A number of increasingly stringent legislative initiatives for mandatory emissions reductions proposals have been introduced in the current U.S. Congress. Many of these proposals have as their ultimate goal, reductions in CO2 emissions by 2050 of 60% to 80% from current levels. These proposals are listed in Table 1 on pages 31 and 32 of my Direct Testimony.
- OTP and MDU already are heavily dependent upon coal-fired generation. It is not prudent to continue this heavy dependence.
- The failure by OTP and MDU to accept that there will be significant restrictions on future greenhouse gas emissions and to reflect the potential for such restrictions in their resource planning is not prudent.

Flaws in OTP's Modeling Analyses

- OTP used an obsolete and out-dated model in its resource planning studies for Big Stone II. OTP has acknowledged that the model has significant limitations and it is in the process of changing to another model. OTP has said that it is the only utility in the nation to use this model in recent years.
- The model used by OTP optimizes for lowest cost based on a defined predictable future without assessment of uncertainty or risk. OTP did not conduct any sensitivity analyses based on variations in such critical input assumptions as the cost of Big Stone II, fuel costs, or limitations in plant performance due to fuel supply disruptions.
- OTP did not model any greenhouse gas regulation costs.
- OTP assumed a January 1, 2011 commercial operation date for Big Stone II in its modeling analyses. The plant is now not scheduled to start commercial operations before late spring or summer 2012, at the earlier.
- As a result, the North Dakota Commission cannot rely on the results of OTP's modeling to show that the Company's participation in the Big Stone II Project is prudent.

Flaws in MDU's Modeling Analyses

- Prior to June 2006, MDU had not prepared any economic analyses that showed that Big Stone II was the lowest cost option for its ratepayers or when considering whether to participate in the Big Stone II Project.
- MDU has estimated that the addition of Big Stone II will increase its residential customer rates by approximately 20%.
- The modeling presented by MDU witness Heidell is flawed.
- That modeling did not consider any risks related to fuel prices, load deviations, environmental regulations, MISO market design, or a range of other factors.
- In particular, MDU did not include in its modeling any costs associated with mandated restrictions on greenhouse gas emissions.
- We reran MDU's STRATEGIST model. The results showed that the model picked zero MW of Big Stone II if the capital cost was increased by 10% or the amount of potential cost-effective DSM was increased
- Results of MDU modeling shows that Big Stone II is marginal. Relatively low capacity factors. Potential for off-system sales from which MDU profits.

Flaws in the two economic studies presented by OTP/MDU witness Rolfes

- Big Stone II Co-owners have said that relying on a simple $/MWh busbar cost comparison of dissimilar projects “is misleading and violates the most basic principles of integrated resource planning.”
- Yet now they want the North Dakota Commission to accept that their participation in the Big Stone II Project is prudent based on the results of such comparisons.

Flaws in the two economic studies presented by OTP/MDU witness Rolfes studies

- Neither study presented by Mr. Rolfes compared Big Stone II to DSM and/or renewable alternatives in a complete and unbiased manner.
- September 2005 *Generation Alternatives Study* did not consider DSM at all.
- September 2005 *Generation Alternatives Study* assumed that wind resources had no capacity value and, therefore, required 100 percent backup.
- This is contrary to the assumption in OTP's most recent IRP filing which credits wind with an approx. 15% capacity value in the summer and 20% in the winter.
- The study also incorrectly calculated the value of the wind production tax credit. It also did not reflect the currently estimated cost of Big Stone II and/or any greenhouse gas regulation costs.

Flaws in the two economic studies presented by OTP/MDU witness Rolfes

- *The Revised Analysis of Baseload Generation Alternatives* also is flawed and biased in favor of Big Stone II.
- Also did not examine DSM or hydro at all.
- Rejected wind as a baseload resource and considers it as only a non-firm resource.
- Assumed no continuation of the federal wind Production Tax Credit.
- Did not reflect the additional $199 million capital cost that Black & Veatch has estimated will result from the short-term spending reduction plan adopted by Co-owners in August 2006.
- The CO_2 cost breakeven analysis presented in this study shows that other options would be more economic than Big Stone II at CO_2 prices lower than those we believe are reasonable.

