

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

Docket No. EL05-022

In the Matter of Otter Tail Power  
Company on behalf of Big Stone II  
Co-owners for an Energy-Conversion  
Facility Permit for the Construction  
of the Big Stone II Project

**BIG STONE II CO-OWNERS'  
RESPONSES AND OBJECTIONS TO  
PROPOUNDING INTERVENORS  
SIXTH SET OF INTERROGATORIES  
AND COMBINED REQUEST FOR  
PRODUCTION OF DOCUMENTS**

The Big Stone II Co-owners (hereinafter referred to as "Applicants"), by and through their attorneys of record, make the following responses and objections to the Sixth Set of Interrogatories and Combined Request for Production of Documents propounded by Minnesotans For An Energy-Efficient Economy, Izaak Walton League of America – Midwest Office, Union of Concerned Scientists, and Minnesota Center for Environmental Advocacy ("Propounding Intervenor") dated April 5, 2006.

In order to avoid unduly lengthy objections and responses and in order to avoid repetition of objections, objections that appear frequently in the responses or that have general applicability to all the responses are set forth below. The "objections of General Application" apply to each and every one of the Interrogatories and Request for Documents. Any answers provided or documents produced are subject to and provided notwithstanding any objections. The "objections Raised by Reference" describe the objections that are specifically set forth as to each Interrogatory.

**Objections of General Application**

A. Applicants object to each and every one of the Interrogatories and Requests for Documents to the extent that the same purport to seek responses from Applicants' counsel of record, who are not parties to this matter; seek attorney-work product; or seek information which is privileged and therefore not subject to discovery.

B. Applicants object to any and all instructions or definitions beyond the requirements imposed by the South Dakota Rules of Civil Procedure.

C. Applicants object to each request to the extent it is unreasonably cumulative or duplicative, or the information sought by the request is obtainable from some other source that is more convenient, less burdensome, or less expensive.

D. Applicants do not waive any of their general or particular objections in the event answers or documents coming within the scope of any such objections are furnished.



c) SMMPA would generally expect the avoided cost numbers to change with each of its IRP filings. This would be a reflection of both the changing costs in the market for energy and capacity as well as the different resource mixes of SMMPA plans in the future. SMMPA has updated its avoided costs as a part of its 2006 resource planning process scheduled for completion later this year. Updated avoided energy cost estimates are higher for years 2006-2012 and lower for years 2013-2021. The reason for the higher costs in the early years is due primarily to the increase cost of natural gas and its effects on the generation market. The estimated cost of 2006 avoided energy is \$31.50/MWh. The new avoided energy estimate is based upon an energy mix of 78% baseload (at \$15.55/MWh), 13% intermediate (at \$68.70/MWh), and 9% peaking energy (at \$116/MWh). Avoided energy costs decrease in the 2012 – 2021 period given the inclusion of new baseload generation in 2011. Avoided energy costs in 2012 are \$16.60/MWh and increase to \$20.80/MWh in 2021. Conversely, avoided capacity costs go from \$20/kW-yr to \$210/kW-yr reflecting the larger capital costs associated with the installation of the base load generating plant.

(Response by Larry Johnston, Southern Minnesota Municipal Power Agency)

69. Refer to Applicants' Exhibit 23-A, page 4-18. Regarding the pairing of 600 MW of wind capacity with a 600 MW CCGT, answer the following:

- a) Was the combination analyzed because Mr. Greig, Mr. Gosoroski and/or the Co-owners believe that "non-firm" capacity such as wind requires firm backup power rated at 100% of the non-firm resource's capacity?

Response: No.

- b) If the answer to a) is "yes," list which of the individual Co-owners, Mr. Greig and/or Mr. Gosoroski believe this to be the case.

Response: Not applicable.

- c) If the answer to a) is "yes," provide copies of the analyses or assessments that provide the basis for this conclusion.

Response: Not applicable.

- d) If the answer to a) is “no,” why was this assumption made? Could a CCGT of a size smaller than 600 MW serve as backup to a 600 MW wind farm?

**OBJECTION.** The Applicants object to subpart (d) of the request because it is grounded on a false premise. The referenced Exhibit 23-A Burns & McDonnell study is not applicable to answer the premise of the question.

Exhibit 23-A is an analysis of busbar costs of various BSPH alternatives based on comparison of *plant-to-plant* characteristics. In this analysis, the reliability benefits of being connected to the transmission network are not considered, in order to examine the reliability and cost impacts of the various individual plant options by themselves and to compare them to each other. So, to achieve a comparable reliability level for the wind energy option compared to others, and considering there would be amounts of time each year when the output of the wind energy system would be zero, it was completely appropriate in this analysis to use 600 MW of CCGT capacity in combination with the wind resource. Again, this was done to achieve a comparable *plant* reliability and level of baseload dependable dispatchability compared to the other individual plant options in the Exhibit 23-A study.

The premise of the question appears to be expecting that wind would be eligible for some form of capacity value. To do this, and in contrast to the purpose of the Exhibit 23-A Burns & MacDonald study, a system-level analysis is required instead. Such an analysis would take into account the interaction of various regional generating resources, interconnected by an unconstrained transmission system. This analysis is far more complicated than the Exhibit 23-A study, and is the approach that each of the Co-Owners use as part of their resource planning process to actually determine the appropriate mix of all resources to be planned for and proposed.

Ironically with regard to this question, the ability to allocate any form of equivalent capacity value to wind energy resources is dependent upon the existence of a robust, non-constrained diverse transmission and generation network that allows regional firm generating capacity resources like the proposed BSPII plant to back up the non-dispatchable, variable wind energy resource when the wind is not blowing. So, it is the transmission system and transmission improvements like those included in the proposed BSPII Project that enable any recognition of equivalent capacity value for wind at all.

It is these same transmission capabilities, in concert with appropriate regional reliability studies, that allow regional capacity installed reserve margins, established in the interest of regional reliability, to be as low as they are. This keeps costs low while providing acceptable generation system reliability. In a constrained or non-existent transmission environment, where it is not universally possible to move unlimited amounts of energy from wherever it is generated to wherever it is needed at any time, the local reserve margins would need to be much greater. The Exhibit 23-A study was not a regional reliability study.

- e) Are any of the Co-owners, Mr. Greig and/or Mr. Gosoroski, aware of any utility-scale wind capacity which has a firm resource backup of equal capacity rating dedicated solely to the purpose of backing up the wind capacity so that it can be dispatched as a firm, baseload resource? If your answer is yes, provide the details of any such examples.

**OBJECTION.** Relevance Objection. The question is grounded on a false assumption.

See response to I.R. 69(d), above. Notwithstanding any objections, the Applicants do not utilize wind-generated energy as a firm, dispatchable capacity resource. Therefore, it is a *non sequitur* to talk about “backing up wind capacity.”

- f) For those Co-owners with existing wind capacity, list the backup firm resource for that capacity, if any, and indicate whether any or a portion of the firm resource’s capacity is dedicated solely to backing up the wind capacity and provide that backup capacity’s MW rating.

**OBJECTION.** See response to I.R. 69(e). There is no individual discrete backup resource dedicated solely for wind energy. The backup for wind energy is the integrated system network, interconnected with transmission lines to move firm generating capacity to where it is needed. As discussed in the response to #69, part d), an integrated system-level analysis is necessary to assess these impacts; not Exhibit 23-A.

(Response by Bryan Morlock, Otter Tail Power)

70. Refer to Exhibit 25-B the "Applicants' Supplemental Information Required by Commission's Order of December 19, 2005." Provide the annual revenue requirements of the alternatives to Big Stone Unit II by utility.

**RESPONSE:** Documents responsive to this request are contained on the attached CD ROM disk in the folder labeled bates stamp JCO0002479-4000.

(Response by Kiah Harris, Burns & McDonnell)

71. Regarding the Direct Testimony of Peter Koegel and the 2005 MAPP Load & Capability Report, please answer the following:

- a) In electronic spreadsheet format for each MAPP resource, provide the following: Plant Name, Plant Owner (indicate % ownership if jointly owned), Primary Energy Source, Summer Capacity, Winter Capacity and years through 2014 for which the resource was forecasted to be available. If any of the resources were assumed to have capacity derates or uprates at any point through 2014, state what assumption was made.
- b) Does the 2005 L&C Report include in its capability forecast all MAPP utility owned capacity currently under construction? If not, why not? If your answer is yes, indicate which resources in the Report are under construction.
- c) Does the 2005 L&C Report include in its capability forecast, all MAPP utility owned capacity that have been permitted but have not yet started construction? If your answer is yes, indicate which resources in the Report are permitted. If your answer is no, explain.
- d) Does the 2005 L&C Report include in its capability forecast, all MAPP utility owned capacity currently that is currently in the permitting process? If your answer is yes, indicate which resources in the Report are currently in the permitting process. If you answer is no, explain.