

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

DIRECT TESTIMONY

OF

JOHN KNOFCZYNSKI

MANAGER OF ENGINEERING

HEARTLAND CONSUMERS POWER DISTRICT

MARCH 15, 2006



TESTIMONY OF JOHN KNOFCZYNSKI

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1 **BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION**

2 **DIRECT TESTIMONY OF JOHN KNOFCZYNSKI**

3 **I. INTRODUCTION**

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

5 A: John Knofczynski, 205 West Center Street, Madison, South Dakota 57042.

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

7 A: Heartland Consumers Power District (Heartland), as the Manager of Engineering. I am
8 responsible for forecasting the power and energy needs of Heartland's customers (whom are
9 municipalities, several state institutions and an electric cooperative), and securing the power
10 supply resources to meet those needs.

11 **Q: What is your educational background?**

12 A: I received my Bachelor's Degree in Electrical Engineering from South Dakota State
13 University in 1987.

14 **Q: What is your employment history?**

15 A: After graduation I began working for Burns & McDonnell Engineering Company in
16 Kansas City, Missouri. At Burns & McDonnell I was involved in planning and designing
17 electric generation and transmission facilities. In April 2000 I began working for Ulteig
18 Engineers in Minneapolis, Minnesota, where I designed electric power transmission facilities. In
19 January of 2002, I left Ulteig to take the position of Manager of Engineering at Heartland.

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

21 **Q: What is the purpose of your testimony?**

1 A: The purpose of my testimony is to generally describe Heartland's method of forecasting
 2 the power and energy requirements of its customers and to describe Heartland's plan to meet
 3 those requirements through Big Stone Unit II, among other resources.

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

5 A: In developing its long-range forecast, Heartland utilizes econometric models based on
 6 demographic and economic factors and weather conditions developed for each of its customers
 7 to determine annual energy projections. Heartland's energy and demand allocations for each
 8 customer are then aggregated to provide Heartland's monthly forecast. Heartland's energy
 9 requirements are forecast to increase by approximately 3.9% per year from 2005-2015. See
 10 Exhibit 3-9 in the Application. Heartland's capacity needs show summer season capacity
 11 deficits beginning in 2007 (8 MW), and increasing to 111 MW by 2014. See Exhibit 3-8 in the
 12 Application. Big Stone Unit II will help accommodate Heartland's forecast load growth through
 13 2016.

14 **Q: What regulations relating to the Big Stone Unit II project are covered in your**
 15 **testimony?**

16 A: My testimony provides the information for Heartland required by ARSD 20:10:22:10. I
 17 helped prepare Section 3.1.4.3 and Exhibits 3-8 and 3-9 of the Application, which address
 18 Heartland's forecasted capacity needs and annual energy requirements, and which are
 19 incorporated herein by reference.

20 **III. RESOURCE PLANNING**

21 **Q: Does Heartland engage in resource planning, and if so, explain how the resource**
 22 **planning process works?**

1 A: Yes. Heartland's resource planning process involves the preparation of its members'
 2 forecasts and analyzes the generation resources necessary to meet members' capacity and energy
 3 requirements. Once the total customer demand and energy resource requirements are
 4 determined, Heartland's existing resources and other selected resources are evaluated using
 5 production cost modeling to determine which types and capacity of resources can economically
 6 and reliably supply the customers' resource requirements. Resources to cover planning reserves
 7 and contingencies are also included to cover Heartland's total resource requirements.

8 **IV. FORECASTING**

9 **Q: Please describe the manner in which Heartland forecasts the future power and**
 10 **energy demands of its customers.**

11 A: Heartland periodically performs a long-term demand and energy forecast for each of its
 12 customers, whom are 18 municipalities located across eastern South Dakota, southwestern
 13 Minnesota and northwestern Iowa, as well as several state institutions and one electric power
 14 cooperative. The forecasts provide the annual and monthly demand and energy requirements for
 15 each customer, which are then separated into the portions supplied by the primary (typically
 16 Western Area Power Administration (WAPA)), supplemental (typically Heartland) and, if
 17 applicable, other suppliers. The Heartland portion of each forecast is then adjusted for system
 18 losses and the loss-adjusted forecasts are aggregated to determine the customers' total power and
 19 energy requirements for each period.

20 **Q: What are the sources of information for your forecasts?**

21 A: The current customer forecasts were derived from two sources. The primary source was
 22 an econometric load forecast that was performed in 2002 for Heartland by Power Systems
 23 Engineers. That forecast included the customers that Heartland had contracts with at that time.

1 The second source was data received for new customers from third parties, typically consultants
 2 retained by the new customers. The forecast from the econometric model and the forecasts from
 3 the new customers were added together to provide the total customer power and energy
 4 requirements.

5 **Q: What are the future capacity and energy requirements for Heartland according to**
 6 **the forecasts?**

7 A: The forecast shows Heartland's demand and energy growing from 94 MW and
 8 approximately 620,000 MWhs in 2005 to about 145 MW and 897,000 MWhs in 2015. The
 9 forecast shows steady growth from 2005 until 2016 when a power purchase agreement with
 10 Heartland's largest customer expires. In 2016 the forecast shows that demand and energy drops
 11 to 91 MW and 487,000 MWhs respectively, and then increases from 2017 through 2019.

12 The total forecast of Heartland's power and energy needs includes the customer forecasts as well
 13 as an additional growth component added to reflect the goals of Heartland's Board of Directors.

14 **V. GENERATION RESOURCES**

15 **Q: What are Heartland's existing generation resources?**

16 A: Heartland has a 50 MW undivided ownership interest in Laramie River Station- a 1,650-
 17 MW baseload coal-fired power plant near Wheatland, Wyoming. In addition to Laramie River
 18 Station, Heartland contracts for 57 MW of baseload capacity through several participation power
 19 agreements with Basin Electric Power Cooperative (BEPC) and the Nebraska Public Power
 20 District (NPPD). Heartland's baseload contracts begin expiring in 2006 and all expire by the end
 21 of 2013. The remainder of Heartland's resource mix consists of several contracts with its
 22 customers and other utilities for peaking resources. Heartland currently has a total of 52 MW of
 23 diesel generation under contract in the winter season and 56 MW of diesel generation in the

1 summer season. Of the peaking capacity described, 28 MW of capacity has been contracted
 2 since the Application was submitted.

3 **Q: Are Heartland's costs of generating resources accurately represented as part of**
 4 **Exhibit 3-3 to the Application?**

5 A: Yes; the exhibit accurately reflects the relative costs that Heartland anticipates for the
 6 various resource types represented. Heartland has historically had more baseload resource in its
 7 portfolio than a typical utility might have due to the high load factor of our customers and the
 8 arrangements Heartland has to market its surplus baseload capacity.

9 **Q: Are Heartland's existing generating resources sufficient to meet its forecasted**
 10 **demand and energy requirements?**

11 A: No. Heartland currently contracts for most of the capacity and energy resources required
 12 to meet its customers' power and energy requirements. In anticipation of these contract
 13 expirations, Heartland is seeking resources to replace those contracts.

14 More than half of Heartland's baseload resources in its resource portfolio are
 15 participation power agreements with BEPC and NPPD. These agreements begin expiring in
 16 2006 and all terminate by the end of 2013. Heartland is pursuing baseload resources to replace
 17 these agreements and accommodate future growth, and Big Stone Unit II is one such resource.
 18 Heartland also has contracts for about 50 percent of its peaking resources, which expire at the
 19 end of 2009. Heartland will need to procure resources to meet this capacity deficiency.

20 Heartland's capacity resource needs are presented in Section 3.1.4.3 and Exhibit 3-8 of
 21 the Application. As illustrated in Exhibit 3-8, Heartland experiences capacity deficits beginning
 22 in 2007 (8 MW) and continuing through 2014 (111 MW). The deficit is primarily due to
 23 increased load growth and a power purchase agreement that expires in 2009.

1 **VI. DSM AND CONSERVATION PLANNING**

2 **Q: Does Heartland consider the effects of demand-side management and conservation**
 3 **measures as part of its resource planning process?**

4 A: Yes.

5 **Q: Please explain Heartland's ongoing DSM efforts.**

6 A: Heartland, as a supplemental wholesale power supplier, works with its wholesale
 7 customers to promote demand-side management programs and conservation. It assists its
 8 municipal customers in the evaluation and development of many conservation and load
 9 management programs. Each of Heartland's municipal customers is responsible for monitoring
 10 the effectiveness and accomplishments of its individual energy conservation efficiency programs
 11 and reporting those efforts to Heartland. Heartland's customers report a reduction in peak
 12 demand of approximately four MW through their load management efforts. The demand-side
 13 activities of Heartland's customers are reflected in the forecasts that are developed for each
 14 customer.

15 **VII. SELECTION OF BIG STONE II**

16 **Q: What are the results of Heartland's resource planning activities?**

17 A: Big Stone Unit II is the least-cost option to replace the expiring baseload purchase power
 18 agreements.

19 **Q: Will Big Stone Unit II meet all of Heartland's projected demand?**

20 A: No.

21 **Q: Why is Heartland relying on Big Stone Unit II to provide only a portion of its**
 22 **baseload requirements?**

1 A: Heartland has elected to participate in more than one baseload project to provide greater
 2 resource diversity for its customers. For many years, Heartland relied on a single generating unit
 3 to supply all of its baseload resource requirements. When that unit was unavailable or curtailed,
 4 Heartland was required to purchase replacement energy from the market, potentially exposing its
 5 customers to the market price for a significant portion of its power supply. As its load has
 6 grown, Heartland has entered into contracts with other utilities to purchase the output of other
 7 baseload resources, diversifying its resource portfolio. Heartland has a goal to maintain that
 8 diversity and not rely on any one resource for more than half of its baseload needs. Having three
 9 baseload resources provides better availability for a large portion of Heartland's primary power
 10 supply, increasing reliability and ensuring more stable power costs for its customers.

11 **Q: Did Heartland have the option to continue purchasing its baseload requirements**
 12 **through participation power agreements?**

13 A: No. Heartland considered the option to continue purchasing a portion of its baseload
 14 resources, however, at the time the utilities contacted did not have excess baseload resources or
 15 their excess baseload resources were not available for contract on a long-term basis. To fulfill its
 16 future baseload resource needs and provide long-term price stability, Heartland elected to
 17 participate in new coal-fired projects available in the region.

18 **Q: What resources will be available to meet Heartland's future power and energy**
 19 **requirements if Big Stone Unit II is not approved?**

20 A: If Big Stone Unit II is not built, Heartland would attempt to rely on purchases of energy
 21 from the market to replace its proposed ownership share of Big Stone Unit II. It would continue
 22 to participate in the market until it was able to participate in another, lower cost resource option,
 23 most likely another pulverized coal baseload generation project.

1 **VIII. ADDITIONAL INFORMATION**

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

3 **A: Yes.**