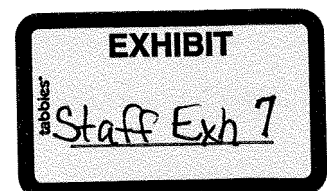


**BEFORE THE
PUBLIC UTILITIES COMMISSION
STATE OF SOUTH DAKOTA**

Black Hills Power, Inc.
Application to Increase Electric Rates in South Dakota
Docket No. EL09-018

**Rebuttal Testimony of George W. Evans
on Behalf of the Commission Staff**

June 4, 2010



1
2
3 **I. Qualifications**

4
5 **Q. Please state your name, business address and occupation.**

6 A. George W. Evans. I am currently a Vice President with Slater Consulting.
7 My address is P.O. Box 2449, Robbinsville, North Carolina.

8 **Q. Does the Appendix to this testimony describe your education and**
9 **summarize your experience in public utility regulation?**

10
11 A. Yes, it does.

12
13 **Q. Have you testified previously before the South Dakota Public Utilities**
14 **Commission?**

15
16 A. Yes. I presented expert testimony on behalf of the South Dakota Public Utilities
17 Commission Staff in Docket No. EL95-003, which was filed in June 1995. In that
18 testimony, I discussed the modeling and assumptions utilized in the development
19 of the Black Hills Power, Inc. ("Company" or "BHP") Integrated Resource Plan.

20
21 **Q. Have you presented expert testimony in other jurisdictions concerning**
22 **integrated resource planning?**

23
24 A. Yes, I have. I presented expert testimony concerning integrated resource
25 planning on eleven previous occasions, before the Georgia Public Service
26 Commission, the Alabama Public Service Commission, the Mississippi Public

1 Service Commission, the Public Service Commission of Oklahoma, and the
2 South Carolina Public Service Commission.

3
4 **II. Purpose of Testimony and Summary of Conclusions**

5
6 **Q. What is the purpose of your rebuttal testimony in this case?**

7
8 A. My testimony responds to certain aspects of the direct testimony of Mr.
9 Christopher A. James, witness for the Residential Consumers Coalition
10 (“RCC”).

11
12 **Q. Please summarize your conclusions.**

13
14 A. Mr. James’ claim that BHP could meet current and future customer
15 demand through energy efficiency programs, demand side measures and
16 demand response programs, in place of Wygen III, is simply incorrect. Mr.
17 James fails to show that the capacity need that led to the construction of
18 Wygen III could be filled using demand-side management (or DSM)
19 programs.

20
21 **III. Direct Testimony of Christopher James**

22
23 **Q. What has Mr. James claimed concerning the impact of DSM programs on
24 the Company’s customer needs?**

25
26 A. Mr. James makes the following claims in his direct testimony¹:
27

¹ The direct testimony of Mr. James was not page numbered or line numbered, so the references to his direct testimony are based on assumed page and line numbering.

- 1 • “Black Hills Power (BHP) can provide reliable and affordable electricity to its
2 customers without the generating output from Wygen 3;”²
3
4 • “BHP can meet current and future customer demand more cost-effectively
5 through energy efficiency, demand side measures and demand response.”³
6
7 • “BHP’s IRP should have included the energy and capacity resources that
8 would be realized from even a modest DSM program that achieves energy
9 savings equal to 1% of annual electricity sales; a level that is considered to
10 be a good program goal per ACEEE. Inclusion of this factor alone would
11 have shown that Wygen 3 was unnecessary.”⁴
12

13 **Q. What issue do you have with these claims?**

14
15 A. These claims have no basis in fact. Had BHP instituted DSM programs that
16 achieved energy savings of one percent (1%) of annual electricity sales, the
17 capacity savings would be approximately one percent (1%) of peak demand,
18 which is a capacity savings of only 6.15 mega-watts (forecasted peak demand for
19 2010 is 615 mega-watts⁵). Mr. James has not disputed the Company’s claimed
20 need for an additional 77 mega-watts in 2010, but is claiming that this 77 mega-
21 watt need can be met with only 6 mega-watts of capacity savings from DSM
22 programs.
23

² Page 5, lines 3-4 of Mr. James’ direct testimony

³ Page 5, lines 15-16 of Mr. James’ direct testimony

⁴ Page 15, lines 8-12 of Mr. James’ direct testimony.

⁵ Page 61 of Exhibit JST-2

1 **Q. Is it reasonable to assume that new DSM programs could provide 77 mega-**
2 **watts of capacity savings for BHP?**

3
4 A. No, it is not reasonable. Mr. James makes this very clear when he describes the
5 capacity savings that other utilities in the region are projecting from new DSM
6 programs⁶:

- 7
- 8 • Otter Tail Power – 0.4 mega-watts
 - 9 • MidAmerican Energy – 0.6 mega-watts
 - 10 • Xcel Energy – 2.9 mega-watts

11
12 If a utility as large as Xcel Energy forecasts less than 3 mega-watts of capacity
13 savings from new DSM programs, it is highly unlikely that BHP could find 77
14 mega-watts of capacity savings from new DSM programs.

15
16 **Q. Near the bottom of page 25 of his direct testimony, Mr. James claims that**
17 **BHP could achieve 128 mega-watts of capacity savings from new DSM**
18 **programs. Do you agree?**

19
20 A. No, I do not agree. It appears that Mr. James is claiming this capacity savings by
21 the year 2020, which would mean that he is claiming that new DSM programs
22 could reduce BHP's peak demand by 17 percent (17%) in the year 2020.
23 According to the U.S. Energy Information Administration ("EIA"), realized peak
24 demand reductions through the year 2008 have achieved total reductions of only
25 four percent (4%) of peak demand throughout the country (see Exhibit ___ GWE-
26 1). If BHP were to meet this average peak demand reduction of four percent
27 (4%), it would reduce peak demand by only 30 mega-watts in the year 2010.

⁶ Page 28 of Mr. James' direct testimony

1 Under this hypothetical (and highly unlikely) scenario, BHP would still need
2 Wygen III.

3
4 **Q. Does this mean that you do not recommend that BHP investigate additional**
5 **DSM programs?**

6
7 A. No, it does not. DSM programs can provide substantial benefits to both BHP and
8 the ratepayers of BHP, and should be considered in all long range planning
9 performed by the Company. However, Mr. James has greatly exaggerated the
10 potential impacts of new DSM programs.

11
12 **Q. Does this conclude your rebuttal testimony?**

13
14 A. Yes it does.

George W. Evans
Vice President
Slater Consulting - (828) 479-4814

EDUCATION: Master of Science, Applied Mathematics, Georgia Institute of Technology, 1976
Bachelor of Science, Applied Mathematics, Georgia Institute of Technology, 1974

PROFESSIONAL MEMBERSHIP: Institute of Electrical and Electronic Engineers

EXPERIENCE:

Mr. Evans is currently a Vice President with Slater Consulting – a group of eight professionals, including Kenneth J. Slater and Mark D. Younger. He has served the electric power utility industry for over twenty-eight years. His primary areas of expertise include market price forecasting, integrated resource planning, the analysis of purchased power, system operations, interruptible rates, the optimal scheduling of generator maintenance and the computer simulation of electric power systems. As an expert witness in these areas, Mr. Evans has submitted testimony before the FERC, the Georgia Public Service Commission, the Pennsylvania Public Utilities Commission, the South Dakota Public Utility Commission, the Michigan Public Service Commission, the Alabama PSC, the Mississippi PSC, the Colorado PUC, the Delaware PSC, and the Arkansas PSC. In addition, he has assisted in the development of expert testimony filed before the Public Utility Commission of Texas, the Michigan Public Service Commission and the New Jersey Board of Public Utilities.

Specific Experience Includes:

1997-Present Slater Consulting (770) 499-0930

Golden Spread Electric Cooperative – Presented expert testimony in a FERC complaint concerning the actual operation of an economy sales agreement between Golden Spread and Southwestern Public Service Company.

Cooper Nuclear Plant - Development of the estimated damages caused by imprudent outages of a Nebraska nuclear generating unit.

Millstone 3 Nuclear Unit - Analysis of the replacement energy costs for the Millstone 3 nuclear unit on behalf of the co-owners.

Independent Power Producers - Presented expert testimony before the Alabama and Mississippi PSCs concerning the construction of new combined cycle facilities in those states.

S.C. State Energy Office - Developed a report summarizing and evaluating the Integrated Resource Plans filed by the electric utilities of South Carolina.

1989-1997 GDS Associates, Inc. (770) 425-8100

George W. Evans
Vice President
Slater Consulting - (828) 479-4814

Mr. Evans served as a principal and the Manager of the System Modeling group, where he was responsible for performing analyses, providing expert testimony and developing customized software. He is an expert in the use of the industry standard computer models PROMOD III, PROSCREEN II, PROVIEW, MAINPLAN, CAT II and ENPRO. A sampling of representative assignments follows:

Tenaska, Air Liquide & Tenneco - Developed forecasts of market clearing prices for electricity in the ERCOT region.

GEMC - Produced a forecast of market clearing prices for electricity in the SERC region and estimated stranded costs.

Central Virginia Electric Cooperative - Designed, developed and installed software to allow the Cooperative to purchase economy energy in an optimal manner on a daily basis.

City of Grand Island, Nebraska - Developed the initial Integrated Resource Plan for the City of Grand Island.

Georgia PSC - Evaluated the 1995 Integrated Resource Plans filed by Georgia Power and Savannah Electric. Developed alternative Integrated Resource plans that were approved by the Commission.

Nucor Steel - Audited the bills for electric service for the Nucor-Hickman Steel Mill.

Nucor Steel - Testified before the Arkansas PSC concerning the reasonableness of a buy-through clause for interruptible customers.

Nucor Steel - Developed a comprehensive forecast of the likely levels of interruptions of service over the next ten years.

South Dakota Public Utility Commission - Evaluated the rate filing and Integrated Resource Plan filed by Black Hills Power & Light.

Georgia PSC - Evaluated Georgia Power's initial RFP for power, all bids received and Georgia Power's selection process. Testified before the Georgia PSC concerning the reasonableness of Georgia Power's evaluation process and resulting request for certification.

Michigan Attorney General - Performed studies concerning the availability of the Midland Cogeneration Venture and Consumer Power Company's avoided costs.

George W. Evans
Vice President
Slater Consulting - (828) 479-4814

Michigan Attorney General - Developed estimates of cost reductions due to improved projected fossil performance and changes in cogeneration levels in a Consumers Power rate case.

Pennsylvania PUC - Testified concerning the capacity needs of a Pennsylvania utility and the appropriate avoided costs due potential cogeneration projects.

Golden Spread Electric Cooperative - Developed detailed historical reconstructions of five years of hourly operations of a major Texas utility to illustrate the penalties arising to wholesale ratepayers as a result of off-system sales.

Sam Rayburn G&T - Designed, developed and implemented a PC-based software system to facilitate daily load forecasting, optimal resource scheduling and inadvertent accounting in a user-friendly fashion.

Tex-La Electric Cooperative - Designed, developed and implemented a similar software system for daily load forecasting and optimal resource scheduling. This application also included the development of an optimization process which maximizes the total economy energy scheduled while adhering to limitations on load factor and the number of hourly changes.

PG&E-Bechtel Generating Company - Assisted this NUG developer in forecasting the dispatchability of a project and estimating likely costs in a power bidding solicitation.

1980-1989 Energy Management Associates, Inc. - now known as New Energy Associates

While with EMA, Mr. Evans performed product development, maintenance programming and client support on the three major products marketed and developed by EMA - PROMOD III, PROSCREEN II, and MAINPLAN. He is extremely well-versed in the development of databases for these tools and in applying these tools to particular studies.

As MAINPLAN Product Manager (1985-1989), Mr. Evans supervised and directed the development, maintenance, and client support for MAINPLAN - the software package that is the industry leader in the area of generating unit maintenance scheduling. The client base for MAINPLAN grew from two clients to over thirty clients during his involvement. Also during his tenure, a chronological production costing model was added to MAINPLAN. This highly detailed model has been used to evaluate interchange opportunities, the cost of forced outages, short-term fuel requirements and unit commitment strategies.

George W. Evans
Vice President
Slater Consulting - (828) 479-4814

Publications:

Backcasting - A new computer application can determine historical truth for utilities that must refute damage claims, Fortnightly, October 1, 1993.

"Avoiding and Managing Interruptions of Electric Service Under an Interruptible Contract or Tariff", Industrial Energy Technology Conference, April, 1995.

"Analysis and Evaluation of the Integrated Resource Plans of the Investor-Owned and State-Owned Electric Utilities in South Carolina", for the South Carolina State Energy Office, April, 1998.

Programming Languages: C++ for Windows, C , FORTRAN and COBOL

Expert Testimony of George W. Evans

1. On Behalf of Golden Spread Electric Cooperative, Inc., Before the Federal Energy Regulatory Commission, Docket No. EL89-50-000, filed April 2, 1990. Subject matter: The effect of off-system sales on wholesale customers.
2. On Behalf of Bethlehem Steel Corporation, Before the Pennsylvania Public Utility Commission, Docket No. P-870235, filed March 18, 1992. Subject matter: Need for capacity and avoided costs of a Pennsylvania Utility.
3. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket No. 4133-U and 4136-U, filed October 1992. Subject matter: Integrated resource planning and analysis of purchase power offers.
4. On Behalf of the State of Michigan Department of Attorney General, Before The Michigan Public Service Commission, Case No. U-10127, filed November 1992. Subject matter: Availability of MCV, the worth of the proposed CAPS on availability payments to MCV, and the costs to the rate payers from the proposed MCV Settlement.
5. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket Nos. 4311-U, filed June 1993. Subject matter: Application for Certification of The Robins Combustion Turbine Project.
6. On Behalf of Nucor-Yamato Steel Company, Before the Arkansas Public Service Commission, Docket No. 93-132-U, filed November 1, 1993. Subject matter: AECC Hydro CCN and the need for a "buy-through" clause in interruptible contracts.
7. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket No. 4895-U, filed May 1994. Subject matter: Application for Certification of The Florida Power Corporation Power Purchase and the Intercession City Combustion Turbine Project.

Expert Testimony of George W. Evans

8. On Behalf of the State of Michigan Department of Attorney General, Before The Michigan Public Service Commission Case No. U-10685, filed March 1995. Subject matter: Authority to increase its rates for the sale of electricity.
9. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket No. 5601-U and 5602-U, filed May 1995. Subject matter: Application for Approval of an Integrated Resource Plan and Commission Review of DSM Certificates.
10. On Behalf of The South Dakota Public Utilities Commission Staff, Before the South Dakota Public Utilities Commission, Docket No. EL95-003, filed June 1995. Subject matter: Modeling and assumptions utilized in the development of the IRP filed by Black Hills Power & Light.
11. On Behalf of the Residential Ratepayer Consortium, Before the Michigan Public Service Commission, Case No. U-10427-R, filed August, 1995. Subject Matter: Computation of Fermi 2 Replacement Power Costs.
12. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket No. 4900-U, filed December 1995. Subject matter: Georgia Power Company's Application for Certification of the Mid-Georgia Cogeneration PPA.
13. On Behalf of the Residential Ratepayer Consortium, Before the Michigan Public Service Commission, Case No. U-10702-R, filed August 8, 1996, Subject Matter: Computation of Fermi 2 Replacement Power Costs.
14. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket No. 6737-U, filed November 1996. Subject matter: Integrated Resource Planning and Certification of Supply-Side Resources.

Expert Testimony of George W. Evans

15. On Behalf of Progress Energy Corporation, Destec Energy, Inc., and U.S. Generating Company,, Before the Alabama Public Service Commission, Docket No. 26115, filed October 1997. Subject Matter: Alabama Power's application for approval of the construction of an 800 MW combined cycle generating facility.
16. On Behalf of Progress Energy Corporation, Destec Energy, Inc., and U.S. Generating Company, Before the Mississippi Public Service Commission, Docket No. 97-UA-496, filed November 1997. Subject Matter: Mississippi Power Company's petition for approval for the construction of a 1000 MW combined cycle generating facility.
17. On Behalf of the State of Michigan Department of Attorney General, Before the Michigan Public Service Commission, Case No. U-11180-R, filed October 1998. Subject Matter: The Application of Consumers Energy Company for a reconciliation of power supply recovery costs.
18. On Behalf of NRG Energy, Inc., in an Arbitration between NRG Generating (U.S.), Inc., and NRG Energy, Inc., filed June 1998. Subject Matter: The market value of the disputed generating resource.
19. On Behalf of the Delaware Division of the Public Advocate, Before the Delaware Public Service Commission, Docket No. 99-328, filed February 2000. Subject Matter: Investigation into the July 1999 Outages and General Service Reliability
20. On Behalf of Holy Cross Energy, Before the Public Utilities Commission of the State of Colorado, filed July 2001, Docket No. 01A-181E. Subject Matter: Restructuring of Thermo QF Contracts
21. On Behalf of Golden Spread Electric Cooperative, Inc., Before the Federal Energy Regulatory Commission, filed October 2001, Docket No. EL02-1-000. Subject Matter: Dispute concerning the Commitment and Dispatch Agreement between Golden Spread and Southwestern Public Service Company.

Expert Testimony of George W. Evans

22. On Behalf of Golden Spread Electric Cooperative, Inc., Before the Federal Energy Regulatory Commission, filed January 2002, Docket No. EL02-21-000. Subject Matter: Dispute concerning the Commitment and Dispatch Agreement between Golden Spread and Southwestern Public Service Company.
23. On Behalf of Lawton Cogeneration, LLC, Before the Corporation Commission of the State of Oklahoma, filed September 2002, Cause No. PUD 200200038: Establishment of Purchased Power Rates and a Purchase Power Contract with Public Service Company of Oklahoma Pursuant to PURPA.
24. On Behalf of Aquila, Inc., Intermountain Rural Electric Association, Inc., Holy Cross Energy and Yampa Valley Electric Association, Inc., Before the Federal Energy Regulatory Commission, filed April 2003, Docket Nos. EL02-25-000, EL02-76-000 and EL03-33-000: PSCo Fuel Clause.
25. On Behalf of Blue Canyon Windpower II, LLC, Before the Corporation Commission of the State of Oklahoma, filed May 2004, Cause No. PUD 200300633: For Establishment of Purchased Power Rates and a Purchase Power Contract with AEP - Public Service Company of Oklahoma Pursuant to PURPA.
26. On Behalf of Blue Canyon Windpower V, LLC, Before the Corporation Commission of the State of Oklahoma, filed May 2004, Cause No. PUD 200300634: For Establishment of Purchased Power Rates and a Purchase Power Contract with AEP - Public Service Company of Oklahoma Pursuant to PURPA.
27. On Behalf of the Staff of the Public Utilities Commission of Colorado, Before the Public Utilities Commission of the State of Colorado, filed July 2004, Docket No. 04A-050E: Review of the Electric Commodity Trading Operations of Public Service Company of Colorado.

Expert Testimony of George W. Evans

28. On Behalf of Chermac Energy Corporation and Sleeping Bear, LLC, Before the Corporation Commission of the State of Oklahoma, filed June 2005, Cause No. PUD 200500059: Application for the establishment of purchased power rates and a PPA with Oklahoma Gas & Electric.
29. On Behalf of Lawton Cogeneration, LLC, Before the Corporation Commission of the State of Oklahoma, filed October 2005, Cause No. PUD 200200038: Remand proceeding on the Application for establishment of purchased power rates and a PPA with Public Service Company of Oklahoma.
30. On Behalf of Golden Spread Electric Cooperative et al, Before the Federal Energy Regulatory Commission, Docket No. EL05-19-002: Fuel Clause complaint against Southwestern Public Service Company.
31. On Behalf of Johns Manville, Inc. and others, Before the United States District Court for the Northern District of Alabama, Civil Action No.: 2:99-CV-2294-VEH-HGD: Damage Computations for Interruptible Customers of the Tennessee Valley Authority.
32. On Behalf of the Georgia Public Service Commission Public Interest Advocacy Staff, before the Georgia Public Service Commission, Docket No. 24505-U: Georgia Power Company's Application for Approval of its 2007 Integrated Resource Plan.
33. On Behalf of the Attorney General of Michigan, before the Michigan Public Service Commission, Case No. U-15001: Application of Consumers Power Company for Approval of a Power Supply Cost Recovery Plan and for Authorization of Monthly Power Supply Cost Recovery Factors for the Calendar Year 2007.
34. On Behalf of Golden Spread Electric Cooperative, Inc., before the 108th District Court of Texas, Cause No. 95,028-E: Contract Dispute concerning Denver City Energy Associates L.P.

Expert Testimony of George W. Evans

35. On Behalf of the South Carolina Office of Regulatory Staff, before the South Carolina Public Service Commission, Docket No. 1008-196-E, Combined Application of SCE&G for the Construction and Operation of a Nuclear Facility in Jenkinsville, South Carolina.
36. On Behalf of the Utah Division of Public Utilities, before the Public Service Commission of Utah, Docket No. 09-035-23, Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Service Rates.