Direct Testimony
Fred Carl

Before the Public Service Commission
of the State of Wyoming

Joint Application of
Cheyenne Light, Fuel and Power Company and Black Hills Power, Inc.
For a Certificate of Public Convenience
and Necessity for a Gas-Fired
Electric Generating Power Plant and
Related Facilities

Docket No.20003-____-EA-11

Docket No. 20002-____-EA-11
Record No. _____

November1, 2011

EXHIBIT
17

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EXHIBITS

None

I. INTRODUCTION AND QUALIFICATIONS

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Fred Carl. My business address is 625 Ninth Street, P. O. Box 1400, Rapid
3 City, South Dakota.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am Director of Environmental Services for Black Hills Corporation. My areas of
6 responsibility include environmental permitting and compliance for all the Black Hills
7 Corporation business units, to include the public utility subsidiaries.

8 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

9 A. I am testifying on behalf of Black Hills Power, Inc. ("Black Hills Power") and Cheyenne
10 Light, Fuel and Power Company ("Cheyenne Light").

11 **Q. BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
12 **EMPLOYMENT HISTORY.**

13 A. I obtained a Bachelor of Science Degree in Zoology from South Dakota State University
14 in 1975 and Master of Science Degree in Biology from South Dakota State University in
15 1978. I have thirty-three years of experience managing environmental programs in the
16 energy industry, cement industry and state air quality regulatory programs, including 18.5
17 years with Black Hills Corporation.

18 **Q. WOULD YOU PLEASE DESCRIBE YOUR RESPONSIBILITIES AS DIRECTOR**
19 **OF ENVIRONMENTAL SERVICES FOR BLACK HILLS CORPORATION?**

20 **A.** My areas of responsibility include directing the environmental permitting and
21 compliance support efforts for all of Black Hills Corporation, to include the public utility
22 subsidiaries of Black Hills Corporation.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony in this proceeding is to provide a summary of the Environmental Protection Agency's (EPA) rules affecting Black Hills Power's and Cheyenne Light's generation fleet.

III. ENVIRONMENTAL POLICY INITIATIVES

Q. PLEASE DESCRIBE THE ENVIRONMENTAL POLICY INITIATIVES AFFECTING BLACK HILLS POWER'S GENERATION FLEET IN THE NEAR TERM.

A. The EPA issued National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial and Institutional Boilers (herein "Area Source Rules"), on March 21, 2011 with an effective date of May 20, 2011. The deadline to comply with these rules is March 21, 2014.

Q. PLEASE GIVE A BRIEF DESCRIPTION OF THESE RULES?

A. The Area Source Rules are designed to reduce emissions of hazardous air pollutants from various small boilers, to include coal fired units of 25 MW or less. Specifically, the rules implement new emission requirements for mercury and carbon monoxide, work practice standards addressing startup and shutdown and energy assessments, operating restrictions defining mercury sorbent injection rates and coal quality, continuous monitoring and compliance testing. Compliance with these rules require the addition of emission controls, installation of monitoring equipment, restrictions on quality of the coal received and adherence to new operating parameters established during the compliance test.

1 **Q. WHICH GENERATING RESOURCES OWNED BY BLACK HILLS POWER**
2 **ARE AFFECTED BY THESE RULES?**
3 A. Black Hills Power owns three coal-fired power plants equipped with boilers of 25 MW or
4 less; Neil Simpson I, Osage and Ben French, all of which are subject to the Area Source
5 Rules.
6 **Q. ARE ANY OF CHEYENNE LIGHT'S GENERATING RESOURCES IMPACTED**
7 **BY THE AREA SOURCE RULES?**
8 A. No.
9 **Q. PLEASE BRIEFLY EXPLAIN OTHER ENVIRONMENTAL INITIATIVES**
10 **THAT COULD FURTHER AFFECT BLACK HILLS POWER'S OR CHEYENNE**
11 **LIGHT'S GENERATING RESOURCES.**
12 A. There are several environmental initiatives that could affect Black Hills Power's and
13 Cheyenne Light's generating resources including the Greenhouse Gas Tailoring Rule, the
14 Regional Haze Rule and revision of the Ozone National Ambient Air Standard.
15 As of July 1, 2011, EPA's Greenhouse Gas Tailoring Rule requires Greenhouse Gas
16 emissions to be addressed upon renewal of a facility's Title V operating permit.
17 Therefore, when the Title V operating permits for Neil Simpson I, Osage, Ben French,
18 Neil Simpson 2, Gillette CT 1, Wygen 2 and Wygen 3 units are renewed, Greenhouse
19 Gas emissions will need to be addressed. In Wyoming, state statute prevents the
20 Wyoming Department of Environmental Quality from regulating greenhouse gases. Until
21 and if this issue is resolved, EPA will retain primacy over this program, resulting in a
22 bifurcated permitting process, with future requirements and processes largely unknown at
23 this point.

It is anticipated that EPA's Regional Haze Rule and subsequent state plans to implement that rule, will impact Neil Simpson 1, Osage, Ben French and Neil Simpson 2 in the near future. EPA issued the Regional Haze Rule July 1, 1999, requiring states to submit to EPA for approval a NOx, SO2 and particulate matter emissions reduction plan that provides for reasonable further progress towards achieving natural visibility conditions for each Class I area within the state by 2064. Both Wyoming's and South Dakota's plans, submitted January 2011, are currently under EPA Region 8 review. EPA Region 8 has been scrutinizing and rejecting state plans, as recently as September 21, 2011 where EPA Region 8 proposed a Federal Implementation Plan to address perceived inadequate emission reductions in the North Dakota Regional Haze Plan. EPA Region 8 also pressed Colorado to address inadequate emission reductions in their 2007/2008 Regional Haze Plan, culminating in a revised submittal in April 2011 that expanded the initial list of regulated facilities to include the Black Hills Colorado Electric 42 MW coal fired Clark Plant. As a result of these requirements the Clark Plant will be retired in 2013. Once state plans are approved, they are required to submit progress reports every 5 years, along with additional mitigation measures if visibility improvement milestones are not being met.

EPA's review of the ozone national ambient air standard will be completed in 2013 and it is anticipated the current standard will be made more restrictive. According to maps on EPA's website, there is a potential for nonattainment designations for the counties in which our Wyoming and South Dakota generation is located. If a nonattainment designation is issued, the states are then required to submit plans to EPA, detailing the emission reductions necessary to return the area to attainment status.

1 **Q. TAKEN TOGETHER, WHAT WOULD BE THE EFFECT OF THE AREA**
2 **SOURCE RULES AND THE ADDITIONAL REGULATIONS MENTIONED**
3 **ABOVE ON THE NEIL SIMPSON I, OSAGE AND BEN FRENCH UNITS?**
4 A. The impact of these rules would be to require either 1) the retrofit of expensive new
5 environmental controls on Neil Simpson I, Osage and Ben French or 2) retirement of the
6 affected units. Furthermore, if these older facilities were to continue to operate with new
7 emission controls to meet these regulations, life extension upgrades would be required. It
8 is highly likely that if this happens, EPA will initiate New Source Review investigations,
9 which historically have lead to significant capital costs to meet Best Available Control
10 Technology emission limits similar to those of new plants.
11 **Q. HAS BLACK HILLS POWER STUDIED THE COST OF COMPLIANCE WITH**
12 **REGARD TO THESE PLANTS?**
13 A. Yes. As discussed in more detail in the testimony of Mark Lux and Dr. Richard L.
14 Pearson, Black Hills Power commissioned a study entitled Future Emissions Control
15 Technology Cost Estimates for Neil Simpson 1, Osage 1-3 and Ben French 1 to evaluate
16 the costs of compliance.
17 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**
18 A. Yes, it does.