McDowell Rackner & Gibson pc

ADAM LOWNEY
Direct (503) 595-3926
adam@mcd-law.com

July 16, 2010

VIA ELECTRONIC FILING AND U.S. MAIL

PUC Filing Center
Public Utility Commission of Oregon
PO Box 2148
Salem, OR 97308-2148

Re: Docket UM 1355

Enclosed for filing in the above captioned docket are the original and five copies of Idaho Power Company's Direct Testimony of John Carstensen. A copy of this filing was served on all parties to this proceeding as indicated on the attached Certificate of Service.

Please contact me with any questions.

Very truly yours,

Adam Lowney

cc: Service List

Idaho Power/100
Witness: John Carstensen

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

UM 1355

IN THE MATTER OF	)
	)
PUBLIC UTILITY COMMISSION OF OREGON	)
	)
	)
INVESTIGATION INTO FORECASTING FORCED OUTAGE RATES FOR ELECTRIC GENERATING UNITS.	)

IDAHO POWER COMPANY

DIRECT TESTIMONY

OF

JOHN CARSTENSEN

July 16, 2010

Q. Please state your name, business address and present position with Idaho Power Company (the Company).

A. My name is John Carstensen. I am employed by Idaho Power Company ("Idaho Power" or "Company") as a Project Engineering Leader in the Power Supply department. My business address is 1221 West Idaho Street, Boise, Idaho 83702.

Q. Please describe your education background.

A. I received a Bachelor of Science degree in Mechanical Engineering from Brigham Young University.

Q. Please describe your work experience?

A. In April 1991, I accepted a position as Engineer with Idaho Power Company in the Generation Engineering Department. In December 1994, I changed departments from Generation Engineering to Thermal Production. I am currently an Engineering Project Leader in the Joint Projects. I am responsible for the operations, maintenance, and engineering for Idaho Power's three co-owned coal fired facilities (Jim Bridger, Boardman, and North Valmy). I am the Idaho Power representative on the Ownership and Engineering committees for these facilities.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe the Company's methodology for calculating Forced Outage Rates (FOR) for its coal-fired generating units. I will also respond to issues raised in testimony filed by the Industrial Customers of Northwest Utilities ("ICNU") relating to its proposed collar mechanism for excluding extreme outages from the forecast outage rate.

Q. Please explain how the Company calculates its FOR and EFOR.

A. The company uses the North American Electric Reliability Council (NERC) Generating Availability Data System (GADS) methodology as indentified in Appendix F – Performance Indexes and Equations from the GADS Data Reporting Instructions – January 2010. The formulae used by the Company are as follows:

$$FOR = \frac{FOH}{FOH + SH + Synchronous\ Hrs + Pumping\ Hrs} \times 100\%$$

The EFOR is calculated as follows:

$$EFOR = \frac{FOH + EFDH}{FOH + SH + Synchronous\ Hrs + Pumping\ Hrs + EFDHRS} X\ 100\%$$

FOR – Forced Outage Rate
FOH – Forced Outage Hours
SH – Service Hours
EFOR – Equivalent Forced Outage Rate
EFDH – Equivalent Forced Derated Hours
EFDHRS – Equivalent Forced Derated Hours During Reserve Shutdowns

Although the NERC method includes Synchronous Hours, EFDHRS, and Pumping Hours, the Company's operating partners do not report these values to Idaho Power. As I discuss in more detail below, the Company is a co-owner of three different coal-fired plants. Idaho Power is not the operator of these plants; however it participates in the operational decision-making of how these plants are run. Therefore, the Company relies on its operating partners to provide it with the data used to calculate its outage rates. Despite the lack of the Synchronous Hours, EFDHRS, and Pumping Hours, the exclusion of these values from the FOR and EFOR calculations do not significantly change the outcome of the analysis.

Q. Please explain how the Company currently accounts for extreme events when calculating its EFOR for coal units.

A. When a particular year includes a forced outage that is extraordinary, the Company excludes the actual operating data from the months of the extreme event. To normalize the EFOR the Company then replaces those values with the EFOR for that particular plant from the last planning period.

Q. Does the Company currently use the methodology described above for planning and ratemaking purposes?

A. Yes. The Company currently uses this methodology when preparing its Operations Plan. It is also the methodology used by the Company when determining its outage rates for purposes of forecasting its net variable power supply expenses.

Q. Do you believe this methodology produces the Company's best estimate for calculating an EFOR for units that experience an extreme event?

A. Yes. It utilizes the most recent generation information that is available to properly forecast the EFOR for the next planning period. As discussed below, using long-term historical data presents significant problems that can be avoided through the use of more recent operating data.

Q. Please explain the proposal set forth by the Industrial Customers of Northwest Utilities ("ICNU") relating to the exclusion of extreme events from the FOR calculation for coal units.

A. ICNU witness Randy Falkenberg proposes that all extreme events—defined as events falling outside the 90th and 10th percentile of NERC data—be replaced by a 20-year historical average of the unit's FOR. After this proposal, the Commission also proposed a collar mechanism that used the same method to exclude extreme events, only

instead of replacing those excluded events with a 20-year historical average, the Commission's collar replaces those excluded events with the historical average based on the life of the plant.

Q. Was ICNU's proposal designed specifically for PacifiCorp?

A. Yes. Mr. Falkenberg's proposal was based on an analysis he specifically performed for PacifiCorp's generating fleet, which he mentioned in his testimony.

Q. Are there any differences between Idaho Power's coal generating fleet and PacifiCorp's?

A. Yes. According to PacifiCorp's testimony in this docket, PacifiCorp has 26 coal plants. PacifiCorp's service area also extends to six different states. Idaho Power, on the other hand, co-owns three plants: the Jim Bridger Power Plant, which has four generating units and is 36 years old; the Boardman Power Plant, which has one generating units and is 30 years old; and the North Valmy Power Plant, which has two generating units and is 29 years old.

As noted above, Idaho Power is not the sole owner and operator of these plants. Idaho Power is the minority co-owner of the Jim Bridger Power Plant with PacifiCorp, it is the minority co-owner of the Boardman Power Plant with Portland General Electric, and it co-owns the North Valmy Power Plant with NV Energy. Idaho Power is also subject to two state regulatory commissions—Oregon and Idaho. The following table further illustrates the differences between the Idaho Power and PacifiCorp fleet. The PacifiCorp data was taken from Staff's testimony in this docket.[1]

[1] Staff/300, Brown/11, l. 16.

Size of Unit (MW)	Number of Idaho Power Units	Idaho Power Average Age (Years)	Number of PacifiCorp Units	PacifiCorp Average Age (Years)
0-99	–	–	1	54
100-199	–	–	5	48
200-299	2	27	3	40
300-399	–	–	4	34
400-599	5	33	11	31
600-799	–	–	2	24

The fact that Idaho Power does not solely own and operate these plants is important because each operating partner has their own philosophy on maintenance and operating procedures, outage schedules, routine replacement and repair, capital expenditures and upgrades. Idaho Power works closely with these operating partners to ensure that the plants are run in a safe, efficient, and economical manner. However, because it is a co-owner it cannot dictate the terms of operation and is limited in its ability to influence plant operation. As noted above, Idaho Power also relies on the actual plant operator to provide it with the data necessary to perform its outage rate calculations for planning and ratemaking purposes.

Q. Both the ICNU and the Commission proposals use long-term historical averages as replacement values for excluded outages. Do you have any concerns about the use of long-term historical averages to forecast future outage rates?

A. Yes. Over time the physical and operational characteristics of the Company's thermal fleet have changed. These changes include the implementation of new

maintenance practices designed to ensure optimal plant performance. The maintenance procedures used at the Company's plants 20 or 30 years ago, when the plants were much younger, are not the same practices used today. For example, as the plants age, boiler tubes start to thin and experience fatigue and fans, motors, and pumps start to wear. This wear and tear requires the operator of the plant to modify its practices to ensure that the necessary maintenance occurs with minimal disruption.

Also, today our plants are undergoing significantly greater large-scale equipment replacement. In the past, the industry assumed that a coal-fired plant had a 30 to 35 year life. As plants now start to near the end of this projected life, plant operators have realized that the assumed 30 to 35 year life was not realistic and that with proper maintenance and replacement of worn equipment the life of these assets could be extended. This realization has lead plant operators to start large replacement programs of worn items, such as sections of boilers, turbines, or generators. These replacement programs have caused scheduled or planned outages to change and this, in turn, causes forced outage rates to change. These large-scale replacement projects were much less common 20 or 30 years ago.

Prudent utility practices also have changed over time to account for an aging national fleet of coal fired plants.

Q. What do these changes mean for using long-term historical average to forecast future outage rates?

A. Because of these changes I do not have confidence in the reliability of the entire historical outage rate data. The purpose of this docket is to determine the method that best predicts future outage rates. Both the ICNU and Commission proposals assume that outage data from 20 years ago is an accurate predictor of the outage rate a plant will

experience in the next year. I disagree. For instance, data from 20 years ago is not necessarily predictive of next year's outage rate because the data from 1990 may have been collected in a different manner (*e.g.* the plant operator may have characterized outages differently), the plant was likely governed by a different operating philosophy (*e.g.* the operator may have worked to minimize scheduled maintenance outages which increases forced outages), and the maintenance procedures 20 years ago were different than those used today. The Company has no way to verify that the data from 20 or 30 years ago is reliable and substantially the same data that would have been collected using today's maintenance and operational standards.

Idaho Power's method, on the other hand, utilizes much more recent historical data to forecast future outage rates. This recent data is reliable because it was collected under substantially the same operational and maintenance practices as the forecasting period.

Q. Does this conclude your testimony?

A. Yes it does.

CERTIFICATE OF SERVICE

I hereby certify that I served a true and correct copy of the foregoing document in Docket UM 1355 on the following named person(s) on the date indicated below by email and first-class mail addressed to said person(s) at his or her last-known address(es) indicated below.

Michael Weirich
Department Of Justice
1162 Court St NE
Salem, OR 97301-4096
michael.weirich@state.or.us

Kelcey Brown
Public Utility Commission of Oregon
PO Box 2148
Salem, OR 97301
Kelcey.brown@state.or.us

Melinda J. Davison
Davison Van Cleve PC
333 SW Taylor- Ste 400
Portland, OR 97204
mail@dvclaw.com

Randall J. Falkenberg
RFI Consulting, Inc
PMB 362
8343 Roswell Rd
Sandy Springs, GA 30350
consultrfi@aol.com

Patrick Hager
Rates and Regulatory Affairs
Portland General Electric
121 SW Salmon St 1WTC0702
Portland, OR 97204
pge.opuc.filings@pgn.com

Douglas Tingey
Portland General Electric
121 SW Salmon 1WTC1301
Portland, OR 97204
doug.tingey@pgn.com

Oregon Dockets
PacifiCorp Oregon Dockets
oreqondockets@pacificorp.com

Michelle R. Mishoe
Pacific Power & Light
Michelle.mishoe@pacificorp.com

Catriona McCracken
Citizens' Utility Board of Oregon
catriona@oregoncub.org

OPUC Dockets
Citizens Utility Board Of Oregon
dockets@oreqoncub.orq

Robert Jenks
Citizens' Utility Board Of Oregon
bob@oreqoncub.org

Gordon Feighner
Citizens' Utility Board of Oregon
Gordon@oregoncub.org

McDowell Rackner & Gibson PC
520 SW Sixth Avenue, Suite 830
Portland, OR 97204

Irion A. Sanger
Davison Van Cleve PC
ias@dvclaw.com

DATED: July 16, 2010

Ben Poland

McDowell & Rackner PC
520 SW Sixth Avenue, Suite 830
Portland. OR 97204