

Exhibit No.:  
Issue: Weather Normalization  
Witness: Aaron J. Doll  
Type of Exhibit: Direct Testimony  
Sponsoring Party: Empire District Gas  
Case No.  
Date Testimony Prepared: June 2009

**Before the Public Service Commission  
Of the State of Missouri**

**Direct Testimony**

**of**

**Aaron J. Doll**

**June 2009**

DIRECT TESTIMONY OF  
AARON J. DOLL  
ON BEHALF OF  
THE EMPIRE DISTRICT GAS COMPANY  
BEFORE THE  
MISSOURI PUBLIC SERVICE COMMISSION

1 **I. INTRODUCTION**

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

3 A. Aaron J. Doll. My business address is 602 Joplin Street, Joplin, Missouri.

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

5 A. I am employed by Empire District Electric Company (“Empire” or “Company”), as a  
6 Planning Analyst.

7 **Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS MATTER?**

8 A. I am appearing on behalf of The Empire District Gas Company (“EDG”). EDG is a  
9 wholly owned subsidiary of Empire that was formed to hold the Missouri Gas assets  
10 acquired from Aquila, Inc. on June 1, 2006.

11 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL**  
12 **BACKGROUND FOR THE MISSOURI PUBLIC SERVICE COMMISSION**  
13 **(“COMMISSION”).**

14 A. I graduated from Missouri State University in 2003 with a Bachelor of Science Degree in  
15 Psychology. Additionally, I received my Masters of Business Administration from  
16 Missouri State University in 2008. I have worked for Empire for two and a half years in  
17 the Planning and Regulatory Department. During my tenure with Empire I have worked  
18 on planning related projects such as the Demand & Energy Forecast as well as the Sales  
19 & Revenue Forecast. I am also responsible for the Sales & Revenue Forecast for the

1 Empire District Gas Company. In addition, I provided data and analysis for the Load  
2 Forecast for the 2007 Internal Resource Plan Empire filed with the Missouri Public  
3 Service Commission.

4 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS CASE?**

5 A. My direct testimony addresses the weather normalization of natural gas sales for the  
6 weather sensitive customers of EDG.

7  
8 **II. WEATHER NORMALIZATION**

9 **Q. WHAT PRICING PLANS DID YOU ADJUST TEST YEAR NATURAL GAS**  
10 **SALES TO WEATHER NORMAL CONDITIONS?**

11 A. I weather normalized the Residential (“Res”), Small Commercial Firm (“SCF”), and the  
12 Small Volume Firm (“SVF”) rate plans for EDG.

13 **Q. HOW MANY REGIONS OF THE EDG SERVICE TERRITORY DID YOU**  
14 **WEATHER NORMALIZE?**

15 A. I adjusted the North, South, and Northwest regions. The North and South regions are  
16 served from the Panhandle and Southern Star Pipelines, respectively. The Northwest  
17 region is served from the ANR pipeline.

18 **Q. WHAT VARIABLE DID YOU USE TO MEASURE WEATHER AND HOW IS IT**  
19 **CALCULATED?**

20 A. Heating Degree Days (“HDD”) are based on a 65° F base level. If the average  
21 temperature for the day is below the base level, the difference of the actual average  
22 temperature from 65° F is the daily HDD.

1 **Q. WHY IS IT IMPORTANT TO ADJUST TEST-YEAR NATURAL GAS SALES TO**  
2 **NORMAL WEATHER?**

3 A. The rates for natural gas consumption are designed based upon normal weather  
4 conditions. If abnormal weather patterns are not removed from the test year, the revenue  
5 will be distorted by the deviations from normal weather during the test year. Weather  
6 normalization removes actual consumption levels based upon actual test-year weather by  
7 supplanting actual HDD with 30-year normal HDD. The result is then a forecast of  
8 natural gas consumption levels based on normal weather.

9 **Q. HOW IMPORTANT IS WEATHER ON NATURAL GAS CONSUMPTION**  
10 **LEVELS?**

11 A. Although natural gas can be used in appliances such as gas ranges and gas-fueled drying  
12 machines, Missouri natural gas consumption levels are primarily related to space heating  
13 and central heating. Central heating and space heating refers to natural gas that is burned  
14 in order to heat space in homes and businesses.

15 **Q. HOW DOES WEATHER IMPACT NATURAL GAS CONSUMPTION LEVELS?**

16 A. If there is a lack of HDD when compared with the 30-year normal level, meaning the  
17 weather was warmer than normal for a particular period, less natural gas is needed to heat  
18 spaces in homes and buildings. Inversely, if the weather is cooler than the 30-year  
19 normal based upon HDD, more natural gas is consumed than normal for the purpose of  
20 heating spaces.

21 **Q. WHAT DATA, RELATED TO NATURAL GAS CONSUMPTION, DID YOU USE**  
22 **DURING THE TEST YEAR?**

1 A. I used billed natural gas consumption organized according to pricing plan and billing  
2 cycle.

3 **Q. WHY DID YOU RELY ON BILLED DATA ORGANIZED ACCORDING TO**  
4 **PRICING PLAN AND BILLING CYCLE?**

5 A. Billing data comes straight from EDG's customer billing records and is an accurate  
6 measure of what was read on the meters during a particular billing cycle. Calendar data  
7 incorporates information included in an unbilled estimate which would abate some of the  
8 accuracy of the forecast. In addition, the model I used for the weather normalization  
9 process was provided by staff and sent to me courtesy of Henry Warren. The model uses  
10 billing information by billing cycle and pricing plan and normalizes consumption on a  
11 use-per-customer basis.

12 **Q. WHAT WERE THE RESULTS OF THE WEATHER NORMALIZATION WITH**  
13 **RESPECT TO HDD FOR THE TEST YEAR?**

14 A. The Northwest region was 15.0% cooler than normal based on the sum of annual HDD.  
15 The North and South regions were 15.2% and 4.6% cooler than normal, respectively.

16 **Q. AS A RESULT OF THE COOLER THAN NORMAL WEATHER IN THE**  
17 **NORTHWEST, NORTH, AND SOUTH REGION'S, WHAT WERE THE**  
18 **RESULTS OF THE WEATHER NORMALIZATION PROCESS AS IT RELATES**  
19 **TO VOLUMES?**

20 A. The Northwest district's volumes were lowered by 702,141 Ccf to account for the cooler  
21 than normal weather. The North and South district's volumes were lowered by 2,246,896  
22 Ccf.

1   **Q.   HOW DID THE WEATHER NORMALIZATION PROCESS IMPACT TEST**  
2       **YEAR REVENUE?**

3   A.   Empire witness Jayna Long quantified the impact my weather normalization analysis had  
4       on test year revenue in her direct testimony.


5   **Q.   DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

6   A.   Yes, at this time.

**AFFIDAVIT OF AARON J. DOLL**

STATE OF MISSOURI )  
 ) ss  
COUNTY OF JASPER )

On the 4<sup>th</sup> day of June, 2009, before me appeared Aaron J. Doll, to me personally known, who, being by me first duly sworn, states that he is a Planning Analyst of The Empire District Electric Company and acknowledges that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

  
\_\_\_\_\_  
Aaron J. Doll

Subscribed and sworn to before me this 4<sup>th</sup> day of June, 2009.

Sherrill Blalock  
Notary Public

My commission expires: Nov 16, 2010.

