

MONTANA-DAKOTA UTILITIES CO.
A Division of MDU Resources Group, Inc.

Before the North Dakota Public Service Commission

Case No. PU-17-_____

Direct Testimony
of
Matthew T. Shoemake

1 **Q. Would you please state your name and business address?**

2 A. Yes. My name is Matthew T. Shoemake, and my business address
3 is 400 North Fourth Street, Bismarck, North Dakota 58501.

4 **Q. What is your position with Montana-Dakota Utilities Co.?**

5 A. I am a Regulatory Analyst in the Regulatory Affairs Department for
6 Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU
7 Resource Group, Inc.

8 **Q. Would you please describe your duties as a Regulatory Analyst?**

9 A. I prepare monthly purchase gas adjustment filings, weather
10 normalization of volumes, assist in monthly fuel cost adjustment filings,
11 and other filings required by state commissions.

12 **Q. Would you please describe your education and professional
13 background?**

14 A. I graduated from Texas A&M University in College Station, Texas
15 with a Bachelor of Science degree in Economics with a minor in Business

1 Administration. Prior to starting in my current role May of 2016, I was a
2 quality control analyst for Knife River, a subsidiary of MDU Resources, for
3 approximately 8 years.

4 **Q. What is the purpose of your testimony in this proceeding?**

5 A. The purpose of my testimony is to present the calculation of
6 customer counts and normalized and projected volumes for each rate
7 class underlying the projected revenues.

8 **Q. What statements, schedules and exhibits are you sponsoring?**

9 A. I am sponsoring the billing units presented on Statement K, pages
10 4 through 5.

11 **Q. Would you describe the methodology used to calculate customer
12 counts?**

13 A. The Company's Customer Care and Billing System (CC&B) was the
14 starting point for the development of the customer counts. A Microsoft
15 Excel file containing the service address identification numbers (SA IDs)
16 for each rate class was extracted from CC&B. The method to determine
17 customer counts is a feature in Excel named Distinct Count, which counts
18 the number of unique values. The Count feature in Excel counts the total
19 number of values corresponding to a range of data. The Distinct Count
20 was used to determine the number of customers billed each month as this

1 was a method which accounted for adjustments and corrections to
2 customer bills in the data set.

3 **Q. Would you describe the development of the normalized volumes?**

4 A. Volumes for residential, firm general, propane, Minot Air Force
5 Base, and select interruptible and transportation customers were adjusted
6 to reflect normal weather patterns. Each of the aforementioned customer
7 classes were adjusted separately. Billing period sales volumes and
8 customers, by month, were the starting point for the data utilized in the
9 models. To incorporate seasonal weather patterns, billing period degree
10 days were based on a 60 degree day. A 36 month OLS (ordinary least
11 squares) regression analysis was then performed for each class of
12 service. Using the results of the regression analysis for residential and
13 firm general service, the daily baseload use per customer (the intercept of
14 the OLS) was multiplied by the respective number of days in each
15 calendar month to arrive at the monthly baseload use per customer. The
16 use per degree day per customer (the slope of the OLS) was then applied
17 to the normal billing period degree days (based on normal weather for 30
18 years) to determine the normalized heating use per customer. The results
19 of each of these equations was then combined by the number of

1 customers in each respective month to determine the normalized usage
2 for the twelve months ended December 31, 2016.

3 **Q. Would you describe how interruptible and transportation class**
4 **customers and volumes were generated?**

5 A. Interruptible customer counts (sales and transportation) were
6 determined by using the Distinct Count feature in Excel. Volumes for Rate
7 71 (small interruptible sales), interruptible transportation Rates 81 (small),
8 and 82 (large) were determined by first separating customers into heat
9 sensitive and non-heat sensitive groups, based on usage patterns. For
10 heat sensitive customers, a 36 month OLS regression was utilized at a
11 district level with each district's respective degree days. For non-heat
12 sensitive customers, a 3 year average was calculated for each customer
13 except in a select few instances where 2 year averages were calculated
14 (due to customers being in service for less than 3 years). Due to the low
15 number of large interruptible transportation customers (Rate 82), an OLS
16 regression was modeled for each customer rather than at a district level.

17 The Projected 2017 and 2018 customers and volumes for the
18 interruptible service schedules were held at the normalized 2016 levels.

19 **Q. Were customers added or removed and, if so, for what reasons?**

1 A. Yes, specifically in Rates 70, 71, 81, and 85. During the time period
2 of 2014 through 2016 there were a number of customers that changed
3 rates under which they took service. To ensure that each customer's data
4 was represented consistently throughout the data set, each customer
5 account that changed rate classes was moved to the appropriate set. The
6 majority of these customers were previously under Rate 71 and moved to
7 their respective firm rates that represent the current rate at which they are
8 billed.

9 Additional removal of customers from Rate 71 was also required.
10 Due to the margin sharing adjustment for grain dryers through the PGA as
11 authorized in Case No. PU-13-803 and maintained in PU-15-90, all grain
12 drying customers were removed from normalized and projected volumes.
13 To further ensure the integrity of the projected volumes, customers that
14 were not active at the end of 2016 were completely removed from the
15 entirety of the underlying data for rate 71.

16 **Q. How were growth rates for customers for the projected years**
17 **calculated?**

18 A. A 2 year average growth rate for the Residential, Small Firm
19 General and Large Firm General was determined to be representative of
20 the growth expected for the future. In addition, the growth rate for the

1 Small Firm General class was applied to both the Small and Large Firm
2 General classes as the growth rate for the Large Firm General class was
3 not representative of the future. For the remaining classes, no growth was
4 used so customer counts were left at their respective levels at the end of
5 2016. For the three rates that accounted for customer growth, the growth
6 in the distinct count of customers for December 2015 through 2016 was
7 averaged for each rate class. These average growth rates were applied to
8 the year end 2016 customer counts for each rate to project 2017 and for
9 2017 to project 2018. The percentage of each rate's respective monthly
10 customer counts for 2016 were applied to each of the total projections for
11 2017 and 2018 to obtain monthly customer projections that were used to
12 determine projected volumes based on the OLS models.

13 **Q. Does this complete your direct testimony?**

14 A. Yes, it does.