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Direct Testimony and Schedules
John M. Goodenough

Before the North Dakota Public Service Commission
State of North Dakota

In the Matter of the Application of Northern States Power Company
for Authority to Increase Rates for Natural Gas Service in North Dakota

Case No. PU-26-____
Exhibit____(JMG-1)

Sales Forecast

January 30, 2026

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I. INTRODUCTION AND QUALIFICATIONS

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Q. PLEASE STATE YOUR NAME AND OCCUPATION.

A. My name is John M. Goodenough. I am the Director of the Sales, Energy, and Demand Forecasting department for Xcel Energy Services Inc. (XES), which is the service company subsidiary of Xcel Energy Inc. (XEI).

Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS AND EXPERIENCE.

A. I graduated from the University of Delaware with a Doctor of Philosophy degree in Economics. I also hold a Master of Arts degree in Economics from the University of Delaware and a Bachelor of Arts degree in Economics from the University of Maryland. I have worked in a sales forecasting role since 2007. I began my career in forecasting as a Regulatory Affairs Analyst at Pepco Holdings, Inc. from 2007–2010, followed by a role as a Principal Analyst at Baltimore Gas and Electric from 2010–2014. I worked as an Energy Markets Specialist at Southern California Edison from 2014–2016 and as a Manager, Energy and Revenue Forecasting and Analysis at Arizona Public Service from 2016–2019. I started my prior role as Manager, Energy Forecasting for Xcel Energy in October 2019 and was promoted to my current role as Director of Sales, Energy, and Demand Forecasting in May 2022. My resume is included as Exhibit___(JMG-1), Schedule 1.

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

A. I sponsor the Company’s forecasts of sales and customers for the 2026 test year. I recommend that the North Dakota Public Service Commission (Commission) adopt my forecasts of sales and customers for the purpose of determining the

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1 revenue requirement and final rates in this proceeding. In support of my
2 recommended forecasts, I first compare our customer and sales forecast to
3 historical customer and decatherm (Dkt) sales trends for Xcel Energy's North
4 Dakota service territory. Then, I present details of the methods I used to
5 develop the gas Dkt sales and customer forecasts and the results.

6
7 Q. Are THERE DEFINED TERMS YOU PLAN TO USE IN YOUR TESTIMONY?

8 A. Yes. The definitions of terms that are included in my testimony are provided in
9 Exhibit___(JMG-1), Schedule 2.

10
11 **II. CUSTOMER AND SALES FORECAST**

12
13 Q. WHAT GEOGRAPHICAL AREA DO THE TEST YEAR SALES REFLECT?

14 A. My testimony and exhibits reflect gas usage and customers in Xcel Energy's
15 North Dakota service territory. Xcel Energy's North Dakota service territory
16 includes approximately 65,000 customers in and around Fargo and Grand
17 Forks, North Dakota.

18
19 Q. PLEASE DESCRIBE THE CUSTOMER CATEGORIES INCLUDED IN XCEL ENERGY'S
20 CUSTOMER AND SALES FORECASTS.

21 A. The following customer classes comprise Xcel Energy's North Dakota gas
22 customer and sales forecasts:

- 23 • *Residential* – service to any residential customer for domestic use of
24 natural gas.
- 25 • *Commercial and Industrial* – service to any commercial and industrial
26 customer for general use of natural gas.

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- 1 • *Small Interruptible* – interruptible service to a commercial or industrial
2 customer whose maximum hourly requirements are in excess of 10
3 Therms and whose maximum daily requirements are less than 2,000
4 Therms.
- 5 • *Large Interruptible* – interruptible service to a commercial or industrial
6 customer whose maximum hourly requirements are in excess of 10
7 Therms and whose maximum daily requirements are 2,000 Therms or
8 more.
- 9 • *Large Commercial Interruptible Transportation Service* – interruptible service to
10 a customer who has made arrangements to have gas other than Company
11 system supply delivered to a Company town border station, whose
12 maximum daily requirements are more than 2,000 Therms.
- 13 • *Large Commercial Firm Transportation Service* – firm service to a customer
14 who has made arrangements to have gas other than Company system
15 supply delivered to a Company town border station and whose maximum
16 daily requirements are more than 2,000 Therms.

17
18 The Large Commercial Interruptible Transportation Service and Large
19 Commercial Firm Transportation Service classes are comprised of a small
20 number of customers. Therefore, to maintain customer confidentiality,
21 information for the Large Commercial Interruptible Transportation Service
22 class has been combined with the Large Interruptible class, and information for
23 the Large Commercial Firm Transportation Service class has been combined
24 with the Commercial and Industrial class.

25
26 Q. HOW ARE CUSTOMER AND SALES FORECASTS USED IN THIS PROCEEDING?

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- 1 A. The customer and sales forecasts are used to calculate the following:
- 2 1) Test year revenue under present rates; and
- 3 2) Test year revenue under proposed rates.
- 4
- 5 Q. PLEASE PROVIDE AN OVERVIEW OF THE ECONOMIC LANDSCAPE OF XCEL
- 6 ENERGY'S NORTH DAKOTA GAS SERVICE TERRITORY.
- 7 A. Xcel Energy's North Dakota customers are primarily located in Fargo, West
- 8 Fargo, and Grand Forks, with 91 percent of the customer base in these three
- 9 locations. About two-thirds of the customers are located in Fargo and West
- 10 Fargo and about one-quarter are in Grand Forks.
- 11
- 12 Q. WHAT IS XCEL ENERGY'S FORECAST OF GAS SALES AND CUSTOMERS FOR THE
- 13 TEST YEAR ENDING DECEMBER 31, 2026?
- 14 A. Exhibit___(JMG-1), Schedule 3 summarizes monthly test year Dkt sales and
- 15 number of customers for each customer class. Total sales are projected to be
- 16 14,723,466 Dkt for the test year, with an average of 66,256 total customers. For
- 17 context, total sales in 2024 were 15,176,035 Dkt with an average of 64,398 total
- 18 customers.
- 19
- 20 Q. WHAT HAS BEEN THE RECENT HISTORICAL CUSTOMER GROWTH IN NORTH
- 21 DAKOTA?
- 22 A. Over the past 5 years (2019-2024) the total number of gas customers has
- 23 increased by 11 percent or 6,208 customers, growing from an average of 58,190
- 24 in 2019 to 64,398 in 2024. This equals a 2.0 percent average annual growth rate
- 25 over this period of time. The largest class of customers is the Residential class,
- 26 which represented 85 percent of total customers in 2024, and has averaged

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1 growth of 2.0 percent per year on average during the period from 2019 through
2 2024. The Commercial and Industrial class accounted for 15.1 percent of total
3 customers in 2024, and averaged growth of 2.4 percent 2019 through 2024. The
4 remaining 0.1 percent of customers are in the Interruptible classes and in
5 aggregate has been decreasing, driven by a 7.0 percent average annual decline
6 between 2019 and 2024 in the Small Interruptible class.¹

7
8 Q. HOW DOES THE PROJECTED TEST YEAR CUSTOMER GROWTH COMPARE WITH
9 HISTORICAL GROWTH?

10 A. Test year total customer growth is expected to be slightly lower than the 2019-
11 2024 average historical growth. As shown in Figure 1 below, customer growth
12 has ranged from about 1,050 to 1,450 customers per year since 2020 and the
13 forecast for 2025 and 2026 is to add between 790 and 1,070 customers per year.
14 The growth rates in 2025 and 2026 are 1.7 percent and 1.2 percent, respectively,
15 which is slightly slower than the recent five-year trend.

¹ The Transport class consists of three customers as of January 2021.

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**Figure 1
Annual Customer Additions and Percent Growth, 2020-2026**

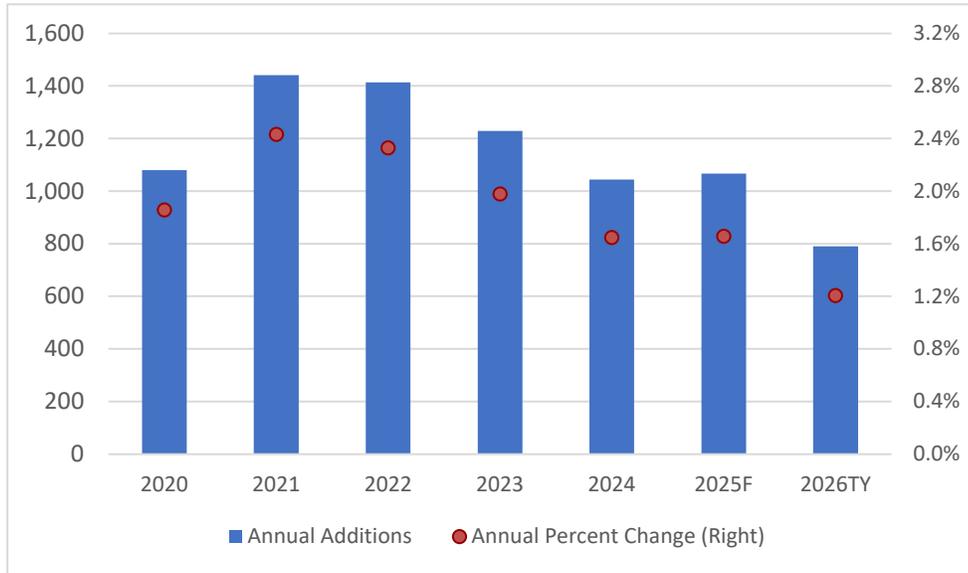


Table 1 below provides the historical and forecast annual customer growth rate by class for the time period 2019-2026. I will explain the methodologies used to develop this forecast in the following section of my testimony.

**Table 1
2019-2026 Avg Annual Percent Change in Customers**

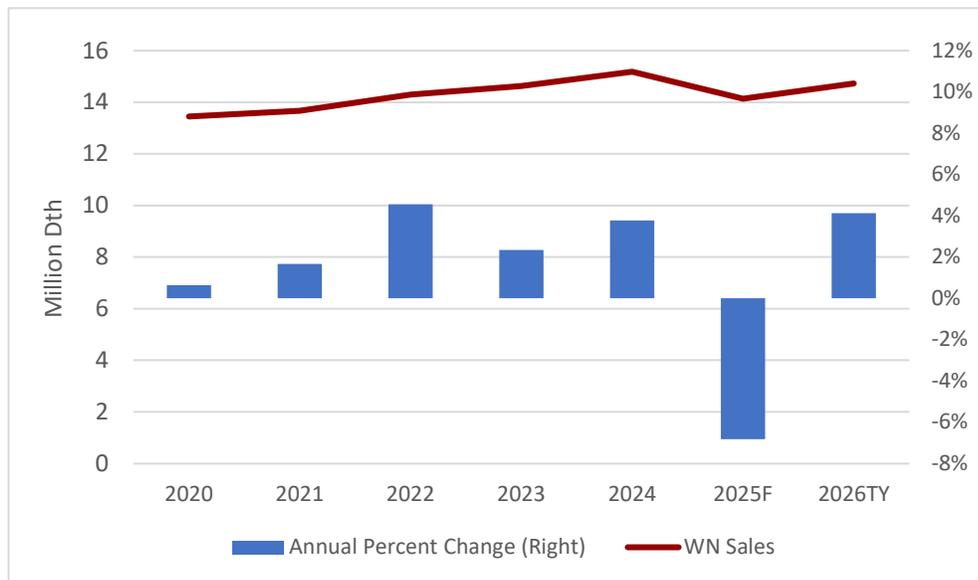
Customer Class	2019-2024	2024-2026
Residential	2.0%	1.4%
Commercial & Industrial	2.4%	1.8%
Interruptible	-5.7%	-5.3%
Total	2.0%	1.4%

Q. WHAT HAS BEEN THE RECENT HISTORICAL WEATHER NORMALIZED GAS SALES GROWTH IN NORTH DAKOTA?

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1 A. After normalizing for weather,² Xcel Energy’s North Dakota service territory
2 total gas sales have increased an average of 2.6 percent per year during the
3 period of 2019 through 2024. During that same period, Residential sales have
4 increased 2.5 percent, Commercial and Industrial sales have increased 8.6
5 percent, Small Interruptible sales have decreased 6.3 percent, and Large
6 Interruptible sales have decreased 11.2 percent per year on average. Figure 2
7 shows the 2020-2026 historical and forecasted weather normalized sales and
8 annual growth rates.

Figure 2
Annual WN Sales and Percent Growth, 2020-2026



12
13
14 Q. PLEASE EXPLAIN THE CHANGES IN SALES FROM 2024 THROUGH 2026.

² In order to calculate sales growth from year to year not influenced by weather, the Company estimates the Dkt impact of abnormal weather to arrive at “weather normalized” (W/N) sales. The Company uses actual and normal weather, along with the actual number of customers and weather response coefficients to conduct this weather normalization of historical sales. The weather normalization is performed for the Residential, Commercial and Industrial, Small Interruptible, and Large Interruptible sales classes.

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1 A. The 2025 decline in sales from 2024 levels is due to several factors. The first is
2 one less day of gas usage in 2025 compared to the 2024 leap-year, which the
3 Company estimates to account for approximately 7.6 percent of the total year-
4 over-year decline.

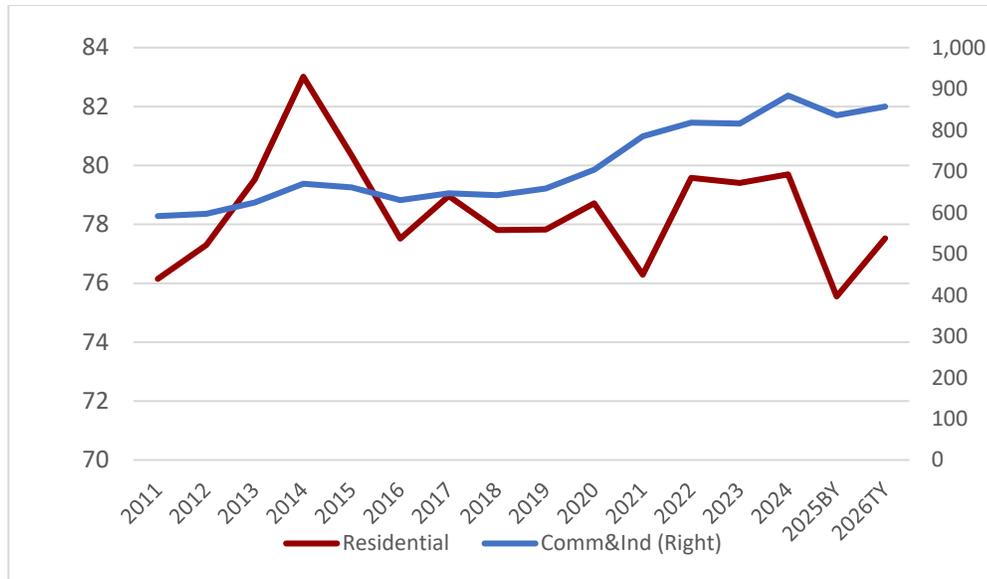
5
6 Secondly, slightly more than half (56.6 percent) of the decrease in 2025 sales
7 can be attributed to interruptible sales, primarily the Large Interruptible class.
8 Three customers made up about the majority of the decline in this class. One
9 of the customers shut down and the other two reduced operations.

10
11 Finally, significant reductions in use per customer for the Residential and
12 Commercial & Industrial classes, even after accounting for leap year, were
13 observed in the actual weather normalized sales through the first half of 2025.

14
15 In 2026, sales are expected to increase, driven primarily by the Residential and
16 Commercial and Industrial classes. The increase in sales for these classes is due
17 to a rebound in use per customer driven by an expected return to recent
18 historical trends. As shown in Figure 3 below, residential use per customer had
19 seen a modest sustained increase from 2022 through 2024, but the rough range
20 of consumption has remained fairly stable since 2016. The Company expects to
21 see a recovery from the significant drop in 2025, but below the elevated 2022-
22 2024 values. Similarly, while 2024 saw a significant increase in Commercial and
23 Industrial use per customer, the subsequent decline in 2025 appears most likely
24 to reflect a return to recent longer-term trends rather than a shift to declining
25 use per customer.

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**Figure 3
Annual WN Use Per Customer by Class, 2011-2026 (Dth)**



Q. DO 2025 SALES DECLINES REFLECT CUSTOMER RESPONSE TO RECENTLY INTRODUCED VOLUMETRIC CHARGES?

A. In the previous rate case filing, the Commission ordered an assessment of the impact on customer usage from the introduction of volumetric charges beginning in 2025.³ Despite the subsequent drop in customer consumption described above, the Company believes a clear relationship cannot be determined.

The Company intends to continue to monitor usage throughout the 2025-2026 winter for further evidence of sustained declines in use per customer, which could support additional analysis of responsiveness to volumetric charges.

³ *In the Matter of the Application of Northern States Power Company for Authority to Increase Rates for Natural Gas Service in North Dakota*, Case No. PU-23-367, FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER at 5 (Nov. 7, 2024).

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1 Similarly, energy conservation achievements totaled 14,186 Dkt through
2 October 2025, on pace to be roughly in line with the average achievements over
3 the prior five years of roughly 17,000 Dkt. While representing an increase over
4 the 12,490 Dkt achievements in 2024, there is insufficient evidence to suggest
5 that volumetric charges have meaningfully changed customer behavior around
6 efficiency and conservation.

7
8 Further consideration of rate impacts from the introduction of volumetric
9 charges can be found in the Direct Testimony of Company witness Martha E.
10 Hoschmiller.

11
12 Q. HOW DO 2026 TEST YEAR SALES COMPARE TO HISTORICAL SALES?

13 A. Total Dkt sales reflected in the 2026 test year are expected to be lower than the
14 2024 weather normalized levels, decreasing 1.5 percent per year on average. As
15 I noted above, this represents a forecasted increase from the 2025 sales. Table
16 2 below provides the historical and forecast annual weather normalized sales
17 growth rate by class for the time period 2019-2026. I will explain the
18 methodologies used to develop this forecast in the following section of my
19 testimony.

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Table 2
2019-2026 Avg Annual Percent Change in Sales

Customer Class	2019-2024	2024-2026
Residential	2.5%	0.0%
Commercial & Industrial	8.6%	0.3%
Small Interruptible	-6.3%	-7.2%
Large Interruptible	-11.2%	-13.4%
Total	2.6%	-1.5%

3
4 Q. PLEASE DISCUSS HISTORICAL AND PROJECTED RESIDENTIAL SALES.

5 A. Residential sales accounted for 28.7 percent of total sales in 2024 and have
6 increased at an average annual rate of 2.5 percent over the 2019 to 2024 time
7 period. This growth has been driven by a 2.0 percent average annual increase in
8 the number of residential customers as I previously discussed, and a 0.5 percent
9 average annual increase in use per customer. Use per customer is expected to
10 decrease at about 1.4 percent per year from 2024 through the 2026 test year.

11
12 Q. PLEASE DISCUSS HISTORICAL AND PROJECTED FIRM COMMERCIAL AND
13 INDUSTRIAL SALES.

14 A. Firm sales to the Commercial and Industrial sector accounted for the largest
15 share of total sales in 2024 (56.8 percent) and have increased at an average
16 annual rate of 8.6 percent over the 2019 to 2024 time period. Firm Commercial
17 and Industrial sales are expected to continue increasing at about 0.3 percent per
18 year from 2024 through the 2026 test year.

19
20 Q. PLEASE DISCUSS HISTORICAL AND PROJECTED INTERRUPTIBLE SALES.

21 A. Sales to the Small Interruptible and Large Interruptible classes account for 14.5
22 percent of total sales. Small Interruptible sales have been declining 6.3 percent

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1 per year on average since 2019 as customers migrate from the Interruptible class
2 to the Commercial and Industrial class. The Small Interruptible class is expected
3 to decline through the 2026 test year, with 2026 sales projected to be 13.9
4 percent lower than 2024. Sales in the Large Interruptible class are very volatile
5 due to customers moving into or out of this class. Sales in the sector declined
6 significantly in 2024 with customer movement to the Commercial and Industrial
7 class and are expected to be significantly lower in both 2025 and 2026.

8
9 Q. PLEASE DISCUSS THE FIRM AND INTERRUPTIBLE TRANSPORT CLASSES.

10 A. Prior to 2021, the Interruptible Transport class had a single customer, and there
11 were no customers in the Firm Transport class. **[PROTECTED DATA**
12 **BEGINS**

13
14
15
16
17 **PROTECTED DATA ENDS]**

18
19 Q. WHAT OVERALL TREND ARE YOU FORECASTING FOR CUSTOMER SALES AS
20 COMPARED TO HISTORICAL SALES?

21 A. Compared to historical sale trends, the Company is anticipating a slight increase
22 in Commercial and Industrial sales, steady Residential sales, and a slight decrease
23 in Interruptible sales.

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1 economic indicators, historical weather (expressed in heating-degree days
2 (HDD),⁴ number of billing days, and historical number of customers. In all of
3 the models except for residential customers, monthly historical data from June
4 2010 through May 2025 was used to determine these relationships. The
5 residential customer model used data from June 2012 through May 2025. The
6 modeled relationships were then simulated over the forecast period by assuming
7 normal weather (expressed in terms of 20 -year-averaged HDD) and the
8 projected levels of the independent predictor variables.

9
10 Q. WHAT PROCESS WAS USED TO FORECAST SALES IN THE OTHER CUSTOMER
11 CLASSES?

12 A. Sales in the Firm Transport and Interruptible Transport classes were developed
13 by assessing historical trends of each customer in these classes.

14
15 Q. WHAT PROCESS WAS USED FOR FORECASTING THE NUMBER OF CUSTOMERS?

16 A. The number of customers by customer class for the Residential and Commercial
17 and Industrial classes is forecasted using demographic data in regression
18 models. The historical number of customers by class is derived from the
19 Company's billing system. The customer forecasts for all other classes were
20 developed either by holding constant the average number of customers at the
21 May 2025 level or applying a trend based on historical actual data.

⁴ I describe the calculation of HDD in Section VI.

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IV. STATISTICALLY MODELED FORECASTS

1
2
3 Q. PLEASE DESCRIBE THE REGRESSION MODELS AND ASSOCIATED ANALYSIS USED
4 IN XCEL ENERGY'S STATISTICAL PROJECTIONS OF SALES AND CUSTOMERS.

5 A. The regression models used in Xcel Energy's statistical projections of sales are
6 provided in Exhibit___(JMG-1), Schedule 4, and the regression models used in
7 Xcel Energy's statistical projections of customers are provided in
8 Exhibit___(JMG-1), Schedule 5. These schedules include, by customer class,
9 the models with their summary statistics and descriptions for each variable
10 included in the model.

11
12 Q. WHAT TECHNIQUES DID XCEL ENERGY EMPLOY TO EVALUATE THE
13 REASONABLENESS OF ITS QUANTITATIVE FORECASTING MODELS AND SALES
14 PROJECTIONS?

15 A. There are a number of quantitative and qualitative validity tests that are
16 applicable to regression analysis.

17
18 First, the coefficient of determination (Rsquared-) test statistic is a measure of
19 the quality of the model's fit to the historical data (expressed as a decimal
20 number between 0.0 and 1.0). It represents the proportion of the variation of
21 the historical sales around their mean value that can be attributed to the
22 functional relationship between the historical sales and the explanatory variables
23 included in the model. If the Rsquared- statistic is high, the model is explaining
24 a high degree of the historical sales variability. The regression models used to
25 develop the Residential, Commercial and Industrial, and Small Interruptible
26 sales forecast demonstrate very high Rsquared- statistics, ranging between 0.860

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1 and 0.996. The regression model used to develop the Large Interruptible sales
2 forecast demonstrated an R-squared statistic of 0.695, which is acceptable given
3 the amount of volatility seen in the historical sales in this class.

4
5 Next, the t-statistics of the variables indicate the degree of correlation between
6 that variable's data series and the sales data series being modeled. The t-statistic
7 is a measure of the statistical significance of each variable's individual
8 contribution to the prediction model. Generally, the absolute value of each t-
9 statistic should be greater than 1.98 to be considered statistically significant at
10 the 95 percent confidence level and greater than 1.66 to be considered
11 statistically significant at the 90 percent confidence level. This criterion was
12 applied in the development of the regression models used to develop the sales
13 forecast. The final regression models used to develop the Company's test year
14 sales forecast tested satisfactorily under this standard. All variables except for
15 one were statistically significant at greater than the 94 percent confidence level,
16 and most variables were statistically significant at the 95 percent confidence
17 level or higher.

18
19 In addition, each model was inspected for the presence of first-order
20 autocorrelation, as measured by the Durbin-Watson (DW) test statistic.
21 Autocorrelation refers to the correlation of the model's error terms for different
22 time periods. For example, an overestimate in one period is likely to lead to an
23 overestimate in the succeeding period, and vice versa, under the presence of
24 firstorder autocorrelation. Thus, when forecasting with a regression model,
25 absence of autocorrelation between the error terms is very important. The DW
26 test statistic ranges between 0 and 4 and provides a measure to test for

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1 autocorrelation. In the absence of firstorder autocorrelation, the DW test
2 statistic equals 2.0. Autocorrelation was present in each of the Company's initial
3 regression models. Therefore, the Company applied an autocorrelation
4 correction process so that the final regression models used to develop the sales
5 forecast tested satisfactorily for the absence of -firstorder- autocorrelation, as
6 measured by the DW test statistic.

7
8 Next, the Company conducted a graphical inspection of each model's error
9 terms (i.e., actual less predicted) to verify that the models were not misspecified,
10 and that statistical assumptions pertaining to constant variance among the
11 residual terms and their random distribution with respect to the predictor
12 variables were not violated. Analysis of each model's residuals indicated that the
13 residuals were homoscedastic (constant variance) and randomly distributed,
14 indicating that the regression modeling technique was an appropriate selection
15 for each customer class' sales that were statistically modeled.

16
17 Finally, the statistically-modeled sales forecasts for each customer class have
18 been reviewed for reasonableness as compared to the respective monthly sales
19 history for that class. Graphical inspection reveals that the patterns of the test
20 year sales forecast fit well with the respective historical patterns for each
21 customer class. The annual total forecast sales have been compared to their
22 respective historical trends for consistency. Similar qualitative tests for
23 reasonableness and consistency have been performed for the customer level
24 projections.

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1 The results of these quantitative and qualitative validity tests support the
2 reasonableness of the quantitative forecasting models and test year customer
3 count and sales projections.

4
5 **V. WEATHER NORMALIZATION OF TEST YEAR SALES**

6
7 Q. HOW DID XCEL ENERGY ADJUST ITS TEST YEAR SALES FORECAST FOR THE
8 INFLUENCE OF WEATHER ON SALES?

9 A. Residential, Commercial and Industrial, Small Interruptible, and Large
10 Interruptible sales projections were developed through the application of
11 quantitative statistical models. For each of these classes, sales were not weather
12 adjusted prior to developing the respective statistical models. The respective
13 regression models used to forecast sales included weather, as measured in terms
14 of heating-degree days, as an explanatory variable. In this way, the historical
15 weather impact on historical consumption for each class was modeled through
16 the respective coefficients for the HDD variables included in each class' model.
17 Test year sales were then projected by simulating the established statistical
18 relationships over the forecast horizon.

19
20 Q. HOW WAS NORMAL WEATHER DETERMINED?

21 A. Normal daily weather was calculated based on the average of historical HDD
22 for the 20-year time period 2005 to 2024. These normal HDD were related to
23 the forecasted billing month in the same manner as were the actual HDD.

24
25 Q. WHAT WAS XCEL ENERGY'S MEASURE OF WEATHER, AND WHAT WAS THE
26 SOURCE?

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1 A. The measure of weather used was HDD, using a 65-degree temperature base.
2 This information was obtained from the National Oceanic and Atmospheric
3 Administration (NOAA) weather station in Fargo, North Dakota, which
4 captures the weather impact to our service area.

5

6 Q. IS IT APPROPRIATE TO USE THE FARGO WEATHER STATION TO REPRESENT XCEL
7 ENERGY'S NORTH DAKOTA SERVICE TERRITORY?

8 A. Yes, it is. As I mentioned previously, about two thirds of Xcel Energy's North
9 Dakota gas customers reside within the Fargo area. The coefficients for the
10 HDD variables included in each class' model were determined based on the
11 historical relationship between sales throughout Xcel Energy's eastern North
12 Dakota service territory and Fargo weather. Therefore, the coefficients
13 accurately reflect the distribution of customers geographically within the North
14 Dakota service territory. Since this geographic distribution is not expected to
15 change during the test year, it is appropriate to use this historical relationship
16 and Fargo weather.

17

18 Q. DID THE WEATHER REFLECT THE SAME BILLING DAYS AS THE SALES DATA?

19 A. Yes. The HDD were weighted by the number of times a particular day was
20 included in a particular billing month. These weighted HDD were divided by the
21 total billing days to arrive at average daily HDD for a billing month.

22

23

VI. DATA PREPARATION

24

25 Q. PLEASE DESCRIBE THE DATA AND DATA SOURCES XCEL ENERGY USED TO
26 DEVELOP THE TEST YEAR SALES AND CUSTOMER COUNT FORECASTS.

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1 A. Historical billing-month sales and number of customers were obtained from
2 Xcel Energy's billing system reports. Monthly historical data from June 2010
3 through May 2025 was obtained and used.

4
5 Q. WHAT IS THE SOURCE OF WEATHER DATA?

6 A. As I explained previously in my testimony, NOAA weather data measured at
7 the Fargo weather station was my data source, and the measure of weather used
8 was HDD. Eight temperature readings per day were obtained, and the average
9 daily temperature was determined by averaging the eight temperature readings.
10 The Company used HDD as a measure of cold weather. HDD were calculated
11 for each day by subtracting the average daily temperature from 65 degrees
12 Fahrenheit. For example, if the average daily temperature was 45 degrees
13 Fahrenheit, then 65 minus 45 or 20 HDD were calculated for that day. If the
14 average daily temperature was greater than 65 degrees Fahrenheit, then that day
15 recorded zero HDD. Normal daily HDD were calculated by averaging 20 years
16 of daily HDD using data from 2005 to 2024.

17
18 Q. WHAT WAS YOUR SOURCE OF ECONOMIC AND DEMOGRAPHIC DATA?

19 A. Historical and forecasted economic and demographic variables for the state
20 and the Fargo metropolitan area were obtained from IHS Markit, a respected
21 economic forecasting firm frequently relied on by forecasting professionals
22 and by the Company since the 1990s. These variables include Fargo and
23 North Dakota employment and the Fargo population. This information is
24 used to determine the historical relationship between customers and sales, and
25 economic and demographic measures. The Company used the most current

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1 economic and demographic data available from IHS Markit at the time of
2 modeling.

**VII. UNBILLED SALES AND CALENDAR MONTH SALES
DERIVATION**

3
4
5
6
7 Q. PLEASE EXPLAIN THE TERM “UNBILLED SALES.”

8 A. Xcel Energy reads gas meters each working day according to a meter-reading
9 schedule based on 21 billing cycles per billing month. Meters read early in the
10 month mostly reflect consumption that occurred during the previous month.
11 Meters read late in the month mostly reflect consumption that occurred during
12 the current month. Therefore, the “billing month” sales recorded by the current
13 month’s meter reads reflect consumption that occurred in both the previous
14 month and the current month. Thus, billing-month sales lag calendar-month
15 sales. Unbilled sales reflect gas consumed in the current calendar month that is
16 not billed to the customer until the succeeding month.

17
18 Q. WHAT IS THE PURPOSE OF THE UNBILLED SALES ADJUSTMENT?

19 A. The purpose is to align the test year revenues with the relevant projected test
20 year expenses, which have been estimated on a calendar-month basis.

21
22 Q. IS XCEL ENERGY REFLECTING UNBILLED REVENUE ON ITS BOOKS FOR
23 ACCOUNTING AND FINANCIAL PURPOSES?

24 A. Yes. Xcel Energy adopted this practice during fiscal year 1992.

25
26 Q. HOW WERE THE ESTIMATED MONTHLY NET UNBILLED SALES VOLUMES
27 DETERMINED?

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1 A. Xcel Energy determined its test year monthly net unbilled sales as the difference
2 between the estimated monthly calendar-month sales, and the projected billing-
3 month sales. The projected billing-month sales were created using the statistical
4 models and other forecasting methods previously described.

5
6 Q. HOW WERE THE ESTIMATED MONTHLY CALENDAR-MONTH SALES
7 DETERMINED?

8 A. For the Residential, Commercial and Industrial, Small Interruptible, and Large
9 Interruptible classes, Xcel Energy calculated the test year calendar-month sales
10 based on the projected billing-month sales. The test year calendar-month sales
11 were calculated in terms of the sales load component that is not associated with
12 weather (base load), and the sales load component that is influenced by weather
13 (total weather load). The weather was measured in terms of normal HDD, as
14 described above. The base-load sales and the total weather sales components
15 were calculated for each class. The two components were then combined to
16 provide the total calendar-month volumes.

17
18 The calendar-month base-load component was calculated as follows:

19 *Step 1* The billing-month total weather load was calculated. This was
20 accomplished by multiplying the billing-month sales weather
21 normalization regression coefficients (defined in terms of billing-
22 month HDD and number of customers), times billing-month normal
23 HDD, times the projected customers.

24 *Step 2* The billing-month base-load component was calculated by taking the
25 difference between the projected total billing-month sales and the
26 billing-month total weather load (as calculated in Step 1).

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1 *Step 3* The billing-month base-load sales per billing day was determined by
2 dividing the billing-month base-load sales (from Step 2) by the average
3 number of billing days per billing month.

4 *Step 4* The calendar-month base-load sales were then calculated by multiplying
5 the billing-month base-load sales per billing day (from Step 3) times the
6 number of days in the calendar month.

7
8 The calendar-month total weather load component was calculated the same way
9 the billing-month total weather load was calculated (as described in Step 1
10 above). However, the calculation was performed by substituting the calendar-
11 month sales weather normalization regression coefficient (defined in terms of
12 calendar-month HDD and number of customers) and the calendar-month
13 normal HDD. The calendar-month total sales were calculated by combining the
14 calendar-month base-load and calendar-month total weather load components.

15
16 The Firm Transport and Interruptible Transport classes are forecasted on a
17 calendar-month basis. Therefore, for these classes, no conversion from a billing-
18 month sales forecast to a calendar-month sales forecast is necessary.

VIII. CONCLUSION

19
20
21
22 Q. IN YOUR OPINION, DO THE XCEL ENERGY SALES AND CUSTOMER FORECASTS
23 PROVIDE A REASONABLE BASIS FOR ESTABLISHING RATES IN THIS CASE?

24 A. Yes. The forecast data is reasonable based on the economic conditions that were
25 foreseeable when the forecast was developed and supports the test year revenue
26 projections.

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- 1 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?
- 2 A. Yes, it does.

JOHN GOODENOUGH, PHD

EDUCATION

PhD in Economics , University of Delaware Dissertation: <i>Economic Welfare Impacts of Real-Time Pricing and CO2 Emissions Trading: Simulation Results at the Customer Class Level for an Investor-Owned Utility</i>	2012
MA in Economics , University of Delaware	2006
BA in Economics , University of Maryland	2002

PROFESSIONAL EXPERIENCE

XCEL ENERGY Manager, Energy Forecasting Director of Sales, Energy, and Demand Forecasting	Denver, CO 10/2019-05/2022 05/2022-Present
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Management and Leadership:

- Manage the work and development of six employees
- Serve as company witness for sales forecasting and weather normalization in rate cases and resource plans
- Provide regulatory support for routine filings, Integrated Resource Plans, and rate cases
- Provide analytical and statistical analysis for special projects

Load Forecasting:

- Develop monthly short and long-term forecasts of electric customers, sales, and peak demand using time-series analysis and end-use modeling for four OpCos operating in eight states
- Sponsor projects to improve forecast accuracy and develop new forecasting tools
- Track regional economic indicators in support of forecasting models

ARIZONA PUBLIC SERVICE (APS) Manager, Energy and Revenue Analysis and Forecasting	Phoenix, AZ 11/2016-10/2019
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Management and Leadership:

- Manage the work and development of six employees
- Serve as expert on matters related to load forecasting and act as liaison to external stakeholders
- Provide regulatory support for monthly fuel cost filings, annual transmission filings, bi-annual Integrated Resource Plans, and rate cases
- Provide economic commentary for quarterly earnings release
- Provide analytical and statistical analysis for special projects

Load Forecasting:

- Develop monthly short and long-term forecasts of electric customers, sales, prices, and revenue using time-series analysis and end-use modeling
- Provide hourly system demand forecasts for use in medium and long-term dispatch modeling
- Develop company forecasts of customer adoption of electric vehicles and distributed generation
- Develop price elasticity models to assess customer response to changing rate design
- Track and forecast regional economic indicators in support of forecasting models

Financial Analysis:

- Analyze monthly financial impacts of fuel prices, plant dispatch, and plant outages
- Conduct monthly variance analysis and financial reporting
- Evaluate billing determinants and rate design impacts on company revenue

SOUTHERN CALIFORNIA EDISON (SCE)
Senior Energy Market Specialist, Short-Term Demand Forecasting

Rosemead, CA
07/2014-10/2016

Load Forecasting:

- Developed hourly short-term load forecasts using time-series analysis
- Created hourly prompt month load forecasts for the territory and the ISO
- Monitored short-term load forecasting errors and analyzed the impacts on procurement costs
- Developed semi-parametric econometric model for forecasting bundled load
- Created daily market bids for integrated demand response resources

EXELON CORPORATION, BALTIMORE GAS AND ELECTRIC (BGE)
Principal Analyst, Load Analysis and Settlements

Baltimore, MD
06/2010-06/2014

Management and Leadership:

- Supervised the work of employees in the forecasting unit
- Participated in quarterly calls with senior management explaining regional trends in energy usage and economics
- Represented BGE Load Forecasting in the PJM Load Forecasting Group
- Supported conservation and electric supply groups in policy development and goal setting
- Conducted ad-hoc analysis for senior management

Load Forecasting and Financial Analysis:

- Provided monthly short and long-term forecasts of gas and electric sales, customers, prices, and revenue using time-series analysis
- Developed annual gas design-day forecast
- Conducted monthly variance analyses and financial reporting

PEPCO HOLDINGS, INC.
Regulatory Affairs Analyst

Washington, DC
12/2007-06/2010

DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION
Program Assistant

Washington, D.C.
Summer, 2007

DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS
Economist

Washington, D.C.
02/2003-08/2004

DEPARTMENT OF COMMERCE, BUREAU OF THE CENSUS
Survey Statistician

Suitland, MD
06/2002-01/2003

Definition of Terms

Base Load - Component of sales not associated with weather.

Billing Days - Based on the meter reading schedule for the 21 billing cycles. For example, there are approximately 651 (21 cycles * 31 days) billing days during a typical billing month period.

Billing-Month Sales - Billed sales based on the meter reading schedule for the 21 billing cycles.

Calendar-Month Sales - Estimated sales, equal to the billing month sales, adjusted for the estimated unbilled sales of the current calendar month, less the estimated unbilled sales from the previous calendar month.

Commission – North Dakota Public Service Commission.

Company – Northern States Power Company, a Minnesota corporation.

Dkt – decatherm; measure of gas sales

DW Test Statistic - Durbin-Watson test statistic; tests for the presence of first-order autocorrelation. In the absence of first-order autocorrelation, the statistic equals 2.0.

Error Terms - The difference between the actual values of the data series being modeled (customers or sales) and the regression model's predicted, or "fitted" values for that series. Also called Residual Terms.

HDD - Heating Degree Days - Measure of weather. Calculated by subtracting the average daily temperature from a base of 65 degrees Fahrenheit.

NOAA – National Oceanic and Atmospheric Administration.

Normal Weather – the average of twenty years of historical weather.

NSP – Northern States Power Company

Definition of Terms (continued)

R-squared - Coefficient of determination; measures the quality of the model's fit to the historical data. The higher the R-squared statistic, the better the model is explaining the historical data.

Regression Model - Statistical technique employing multiple independent variables to model the variation of the dependent variable about its mean value.

Residual Terms - The difference between the actual values of the data series being modeled (customers or sales) and the regression model's predicted, or "fitted" values for that series. Also called Error Terms.

t-Statistic - Measures the importance of the independent variable to the regression. The higher the absolute value of the t-statistic, the more likely it is that the variable has a relationship to the dependent variable and is making an important contribution to the equation.

Test Year – January 1, 2026-December 31, 2026.

Total Weather Load - Component of sales influenced by weather.

Unbilled Sales – Gas consumed in the current month but not billed to customers until the succeeding month.

W/N – Weather normalized

Weather Normalized – Dkt sales adjusted to remove the impact of abnormal weather.

Xcel Energy – Northern States Power Company.

XES – Xcel Energy Services Inc.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Xcel Energy - North Dakota State													
2	Test Year Sales and Customers by Customer Class													
3														
4	Weather Normalized Calendar Month Sales (Dkt)													
5														
6		<u>Jan 2026</u>	<u>Feb 2026</u>	<u>Mar 2026</u>	<u>Apr 2026</u>	<u>May 2026</u>	<u>Jun 2026</u>	<u>Jul 2026</u>	<u>Aug 2026</u>	<u>Sep 2026</u>	<u>Oct 2026</u>	<u>Nov 2026</u>	<u>Dec 2026</u>	<u>Year 2026</u>
7														
8	Residential	865,775	743,924	576,840	325,644	160,726	61,342	40,003	50,931	71,208	212,020	478,013	763,699	4,350,125
9	Commercial & Industrial ⁽¹⁾	1,412,688	1,275,594	1,079,416	726,644	442,184	306,798	231,295	251,738	290,166	494,035	885,670	1,276,150	8,672,380
10	Small Interruptible	48,893	39,662	49,767	33,375	26,437	21,262	17,283	21,446	20,188	27,134	40,207	42,283	387,936
11	Medium Interruptible ⁽²⁾	128,992	123,662	150,881	106,616	93,929	81,810	77,510	85,858	84,961	101,106	128,646	149,052	1,313,025
12														
13	Total Sales	2,456,348	2,182,842	1,856,904	1,192,280	723,276	471,213	366,091	409,973	466,524	834,295	1,532,536	2,231,184	14,723,466
14														
15														
16														
17	Number of Customers													
18														
19		<u>Jan 2026</u>	<u>Feb 2026</u>	<u>Mar 2026</u>	<u>Apr 2026</u>	<u>May 2026</u>	<u>Jun 2026</u>	<u>Jul 2026</u>	<u>Aug 2026</u>	<u>Sep 2026</u>	<u>Oct 2026</u>	<u>Nov 2026</u>	<u>Dec 2026</u>	<u>Year 2026</u>
20														
21	Residential	55,917	55,934	55,939	55,951	55,952	55,955	56,006	56,065	56,126	56,265	56,403	56,540	56,088
22	Commercial & Industrial ⁽¹⁾	10,096	10,104	10,113	10,105	10,094	10,083	10,065	10,074	10,081	10,118	10,157	10,190	10,106
23	Small Interruptible	42	42	41	41	41	41	40	40	40	40	39	39	40
24	Medium Interruptible ⁽²⁾	21	21	21	21	21	21	21	21	21	21	21	21	21
25														
26	Total Customers	66,075	66,100	66,114	66,118	66,108	66,099	66,132	66,200	66,268	66,443	66,620	66,790	66,256

⁽¹⁾ Includes Large Commercial Firm Transportation

⁽²⁾ Includes Large Interruptible Transportation

Xcel Energy North Dakota Residential 2026 Test-Year Sales Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value
WeatherTrans_ND.ResCust_HDD65_Jan	0.009	0.000	108.465	0.00%
WeatherTrans_ND.ResCust_HDD65_Feb	0.009	0.000	96.183	0.00%
WeatherTrans_ND.ResCust_HDD65_Mar	0.008	0.000	89.352	0.00%
WeatherTrans_ND.ResCust_HDD65_Apr	0.008	0.000	54.668	0.00%
WeatherTrans_ND.ResCust_HDD65_May	0.007	0.000	26.206	0.00%
WeatherTrans_ND.ResCust_HDD65_Jun	0.006	0.001	6.359	0.00%
WeatherTrans_ND.ResCust_HDD65_Oct	0.005	0.000	14.578	0.00%
WeatherTrans_ND.ResCust_HDD65_Nov	0.006	0.000	33.574	0.00%
WeatherTrans_ND.ResCust_HDD65_Dec	0.007	0.000	70.586	0.00%
WeatherTrans_ND.ResCust_Fcst	0.908	0.076	11.866	0.00%
SALES_ND_Res_2025v2_Customers.Outlier_2024_Jul	121603.312	17108.449	7.108	0.00%
SALES_ND_Res_2025v2_Customers.Outlier_2024_Aug	-111818.763	17034.968	-6.564	0.00%
AR(1)	0.268	0.077	3.499	0.06%
SAR(1)	0.160	0.081	1.965	5.14%

Xcel Energy North Dakota Residential 2026 Test-Year Sales Forecast

Model Statistics

Iterations	11
Adjusted Observations	154
Deg. of Freedom for Error	140
R-Squared	0.996
Adjusted R-Squared	0.995
AIC	19.727
BIC	20.003
F-Statistic	#NA
Prob (F-Statistic)	#NA
Log-Likelihood	-1,723.49
Model Sum of Squares	11,155,219,490,350.50
Sum of Squared Errors	47,408,391,592.44
Mean Squared Error	338,631,368.52
Std. Error of Regression	18,401.94
Mean Abs. Dev. (MAD)	12,304.23
Mean Abs. % Err. (MAPE)	5.62%
Durbin-Watson Statistic	1.959
Durbin-H Statistic	#NA
Ljung-Box Statistic	30.44
Prob (Ljung-Box)	0.1706
Skewness	-0.221
Kurtosis	5.120
Jarque-Bera	30.096
Prob (Jarque-Bera)	0.0000

Xcel Energy North Dakota Commercial and Industrial 2026 Test-Year Sales Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	-243080.877	48300.609	-5.033	0.00%
WeatherTrans_ND.SmCommCust_Fcst	44.817	5.817	7.704	0.00%
WeatherTrans_ND.SmCommCust_HDD65_Jan	0.063	0.001	68.808	0.00%
WeatherTrans_ND.SmCommCust_HDD65_Feb	0.063	0.001	60.904	0.00%
WeatherTrans_ND.SmCommCust_HDD65_Mar	0.061	0.001	58.764	0.00%
WeatherTrans_ND.SmCommCust_HDD65_Apr	0.055	0.002	35.438	0.00%
WeatherTrans_ND.SmCommCust_HDD65_May	0.051	0.003	17.536	0.00%
WeatherTrans_ND.SmCommCust_HDD65_Jun	0.045	0.009	4.879	0.00%
WeatherTrans_ND.SmCommCust_HDD65_Oct	0.030	0.003	8.684	0.00%
WeatherTrans_ND.SmCommCust_HDD65_Nov	0.046	0.002	23.700	0.00%
WeatherTrans_ND.SmCommCust_HDD65_Dec	0.056	0.001	49.462	0.00%
SALES_ND_SmCom_2025v2_Customers.Outlier_2012_Dec	124637.433	25664.434	4.856	0.00%
SALES_ND_SmCom_2025v2_Customers.Outlier_2013_Jan	-163753.573	25850.288	-6.335	0.00%
AR(1)	0.486	0.069	7.014	0.00%
SAR(1)	0.273	0.079	3.436	0.08%

Xcel Energy North Dakota Commercial and Industrial 2026 Test-Year Sales Forecast

Model Statistics

Iterations	13
Adjusted Observations	167
Deg. of Freedom for Error	152
R-Squared	0.994
Adjusted R-Squared	0.993
AIC	20.569
BIC	20.849
F-Statistic	1769.147138
Prob (F-Statistic)	0
Log-Likelihood	-1,939.50
Model Sum of Squares	19,492,915,328,903.50
Sum of Squared Errors	119,626,774,923.88
Mean Squared Error	787,018,256.08
Std. Error of Regression	28,053.85
Mean Abs. Dev. (MAD)	20,058.12
Mean Abs. % Err. (MAPE)	5.94%
Durbin-Watson Statistic	2.076
Durbin-H Statistic	#NA
Ljung-Box Statistic	37.27
Prob (Ljung-Box)	0.0411
Skewness	0.214
Kurtosis	3.906
Jarque-Bera	6.991
Prob (Jarque-Bera)	0.0303

Xcel Energy North Dakota Small Interruptible 2026 Test-Year Sales Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value
WeatherTrans_ND.SVICust_HDD65_Jan	0.425	0.021	20.344	0.00%
WeatherTrans_ND.SVICust_HDD65_Feb	0.387	0.025	15.710	0.00%
WeatherTrans_ND.SVICust_HDD65_Mar	0.558	0.025	22.142	0.00%
WeatherTrans_ND.SVICust_HDD65_Apr	0.472	0.039	12.093	0.00%
WeatherTrans_ND.SVICust_HDD65_May	0.604	0.076	7.950	0.00%
WeatherTrans_ND.SVICust_HDD65_Jun	0.802	0.269	2.975	0.34%
WeatherTrans_ND.SVICust_HDD65_Oct	0.347	0.102	3.391	0.09%
WeatherTrans_ND.SVICust_HDD65_Nov	0.330	0.051	6.478	0.00%
WeatherTrans_ND.SVICust_HDD65_Dec	0.419	0.028	15.119	0.00%
WeatherTrans_ND.SVICust_Fcst	277.123	18.028	15.372	0.00%
SALES_ND_SVI_2025v2_Customers.Customers_Shift_2017	8314.927	1166.613	7.127	0.00%

Xcel Energy North Dakota Small Interruptible 2026 Test-Year Sales Forecast

Model Statistics

Iterations	1
Adjusted Observations	180
Deg. of Freedom for Error	169
R-Squared	0.860
Adjusted R-Squared	0.852
AIC	18.345
BIC	18.540
F-Statistic	#NA
Prob (F-Statistic)	#NA
Log-Likelihood	-1,895.45
Model Sum of Squares	90,635,498,682.27
Sum of Squared Errors	14,766,663,598.37
Mean Squared Error	87,376,707.68
Std. Error of Regression	9,347.55
Mean Abs. Dev. (MAD)	6,089.76
Mean Abs. % Err. (MAPE)	13.14%
Durbin-Watson Statistic	1.955
Durbin-H Statistic	#NA
Ljung-Box Statistic	23.11
Prob (Ljung-Box)	0.5130
Skewness	0.477
Kurtosis	7.054
Jarque-Bera	130.111
Prob (Jarque-Bera)	0.0000

Xcel Energy North Dakota Large Interruptible 2026 Test-Year Sales Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	-88086.489	31213.605	-2.822	0.54%
WeatherTrans_ND.MVICust_Fcst	8247.300	1404.888	5.870	0.00%
WeatherTrans_ND.MVICust_HDD65_Jan_LessUND	2.403	0.179	13.461	0.00%
WeatherTrans_ND.MVICust_HDD65_Feb_LessUND	1.451	0.206	7.046	0.00%
WeatherTrans_ND.MVICust_HDD65_Mar_LessUND	1.902	0.205	9.268	0.00%
WeatherTrans_ND.MVICust_HDD65_Apr_LessUND	1.433	0.313	4.576	0.00%
WeatherTrans_ND.MVICust_HDD65_May_LessUND	1.419	0.613	2.313	2.19%
WeatherTrans_ND.MVICust_HDD65_Nov_LessUND	2.508	0.404	6.206	0.00%
WeatherTrans_ND.MVICust_HDD65_Dec_LessUND	2.130	0.232	9.171	0.00%
SALES_ND_LessUND_MVI_2025v2_2022Shift.Outlier_2020_2022_HDD	-13.683	5.581	-2.452	1.52%
SALES_ND_LessUND_MVI_2025v2_2022Shift.Outlier_2017_Dec	-127290.714	23662.797	-5.379	0.00%
SALES_ND_LessUND_MVI_2025v2_2022Shift.Outlier_2020_Jan	-61814.218	24723.504	-2.500	1.34%
SALES_ND_LessUND_MVI_2025v2_2022Shift.Outlier_2024_Feb	94373.554	23485.888	4.018	0.01%

Xcel Energy North Dakota Medium Interruptible 2026 Test-Year Sales Forecast

Model Statistics	
Iterations	1
Adjusted Observations	180
Deg. of Freedom for Error	167
R-Squared	0.695
Adjusted R-Squared	0.673
AIC	20.150
BIC	20.380
F-Statistic	31.71679389
Prob (F-Statistic)	0
Log-Likelihood	-2,055.88
Model Sum of Squares	200,069,855,391.09
Sum of Squared Errors	87,786,473,530.01
Mean Squared Error	525,667,506.17
Std. Error of Regression	22,927.44
Mean Abs. Dev. (MAD)	17,663.26
Mean Abs. % Err. (MAPE)	16.41%
Durbin-Watson Statistic	1.610
Durbin-H Statistic	#NA
Ljung-Box Statistic	35.54
Prob (Ljung-Box)	0.0608
Skewness	0.024
Kurtosis	3.199
Jarque-Bera	0.314
Prob (Jarque-Bera)	0.8547

Xcel Energy North Dakota Residential 2026 Test-Year Customer Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value
FGO.HH_FGO	489.783	7.994	61.266	0.00%
BinaryTrans.Jan	245.151	48.045	5.103	0.00%
BinaryTrans.Feb	205.127	48.109	4.264	0.00%
BinaryTrans.Mar	152.602	43.338	3.521	0.06%
BinaryTrans.Apr	103.682	33.825	3.065	0.26%
BinaryTrans.May	51.135	20.127	2.541	1.21%
BinaryTrans.Oct	74.082	19.515	3.796	0.02%
BinaryTrans.Nov	156.532	33.490	4.674	0.00%
BinaryTrans.Dec	239.912	43.145	5.561	0.00%
AR(1)	1.572	0.068	23.018	0.00%
AR(2)	-0.580	0.068	-8.551	0.00%

Xcel Energy North Dakota Residential 2026 Test-Year Customer Forecast

Model Statistics

Iterations	19
Adjusted Observations	154
Deg. of Freedom for Error	143
R-Squared	1.000
Adjusted R-Squared	1.000
AIC	8.742
BIC	8.959
F-Statistic	#NA
Prob (F-Statistic)	#NA
Log-Likelihood	-880.67
Model Sum of Squares	2,607,048,969.49
Sum of Squared Errors	835,926.05
Mean Squared Error	5,845.64
Std. Error of Regression	76.46
Mean Abs. Dev. (MAD)	56.37
Mean Abs. % Err. (MAPE)	0.12%
Durbin-Watson Statistic	2.158
Durbin-H Statistic	#NA
Ljung-Box Statistic	35.31
Prob (Ljung-Box)	0.0639
Skewness	0.739
Kurtosis	4.537
Jarque-Bera	29.184
Prob (Jarque-Bera)	0.000

Xcel Energy North Dakota Residential 2026 Test-Year Customer Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value
FGO.NR_FGO	40.340	7.245	5.568	0.00%
BinaryTrans.Jan	69.722	6.523	10.688	0.00%
BinaryTrans.Feb	66.797	6.750	9.896	0.00%
BinaryTrans.Mar	61.672	6.556	9.407	0.00%
BinaryTrans.Apr	40.494	5.901	6.862	0.00%
BinaryTrans.May	20.100	4.590	4.379	0.00%
BinaryTrans.Nov	30.555	4.446	6.872	0.00%
BinaryTrans.Dec	55.647	5.831	9.543	0.00%
BinaryTrans.SummerBin	-27.737	3.367	-8.237	0.00%
AR(1)	0.997	0.005	200.981	0.00%
SAR(1)	0.197	0.078	2.535	1.22%

Xcel Energy North Dakota Residential 2026 Test-Year Customer Forecast

Model Statistics

Iterations	25
Adjusted Observations	167
Deg. of Freedom for Error	156
R-Squared	1.000
Adjusted R-Squared	1.000
AIC	5.458
BIC	5.663
F-Statistic	#NA
Prob (F-Statistic)	#NA
Log-Likelihood	-681.67
Model Sum of Squares	127,841,422.99
Sum of Squared Errors	34,332.48
Mean Squared Error	220.08
Std. Error of Regression	14.84
Mean Abs. Dev. (MAD)	11.54
Mean Abs. % Err. (MAPE)	0.14%
Durbin-Watson Statistic	1.792
Durbin-H Statistic	#NA
Ljung-Box Statistic	19.46
Prob (Ljung-Box)	0.7272
Skewness	0.354
Kurtosis	3.003
Jarque-Bera	3.494
Prob (Jarque-Bera)	0.174

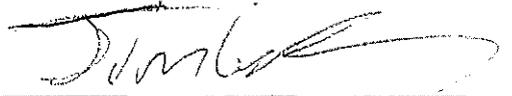
STATE OF NORTH DAKOTA
BEFORE THE
PUBLIC SERVICE COMMISSION

NORTHERN STATES POWER COMPANY)
2026 NATURAL GAS RATE INCREASE)
APPLICATION)

Case No. PU-26-____

**AFFIDAVIT OF
John M. Goodenough**

I, the undersigned, being first duly sworn, depose and say that the foregoing is the Direct Testimony of the undersigned, and that such Direct Testimony and the exhibits or schedules sponsored by me to the best of my knowledge, information and belief, are true, correct, accurate and complete, and I hereby adopt said testimony as if given by me in formal hearing, under oath.



John M. Goodenough

Subscribed and sworn to before me, this 22nd day of January, 2026.



Notary Public

My Commission Expires: 7-30-2028

