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Direct Testimony and Schedules
Jannell E. Marks

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 Gas Service in North Dakota

Case No. PU-21-____
Exhibit___(JEM-1)

Sales Forecast

September 1, 2021

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Schedules

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND OCCUPATION.

A. My name is Jannell E. Marks. I am the Director of the Sales, Energy and Demand Forecasting department for Xcel Energy Services Inc. (XES), which provides services to Northern States Power Company (Xcel Energy, NSP or the Company).

Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS AND EXPERIENCE.

A. I graduated from Colorado State University with a Bachelor of Science degree in statistics. I began my employment with Public Service Company of Colorado in 1982 in the Economics and Forecasting department, and in August 2000, following the merger of New Centuries Energy Inc. and NSP, I assumed the position of Manager, Economics and Energy Forecasting with XES. I was promoted to my current position with XES in February 2007. My resume is included as Exhibit___(JEM-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 2022 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 revenue requirement and final rates in this proceeding. In support of my recommended forecasts, I first compare our customer and sales forecast to historical customer and decatherm (Dkt) sales trends for Xcel Energy's North Dakota service territory. Then I present details of the methods I used to develop the gas Dkt sales and customer forecasts and the results.

Q. ARE THERE DEFINED TERMS YOU PLAN TO USE IN YOUR TESTIMONY?

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

II. CUSTOMER AND SALES FORECAST

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

A. My testimony and exhibits reflect gas usage and customers in Xcel Energy's North Dakota service territory. Xcel Energy's North Dakota service territory includes approximately 60,000 customers in and around Fargo and Grand Forks, North Dakota.

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

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

- *Residential* – service to any residential customer for domestic use of natural gas.
- *Commercial and Industrial* – service to any commercial and industrial customer for general use of natural gas.
- *Small Interruptible* – interruptible service to a commercial or industrial customer whose maximum hourly requirements are in excess of 10 Therms and whose maximum daily requirements are less than 2,000 Therms.
- *Large Interruptible* – interruptible service to a commercial or industrial customer whose maximum hourly requirements are in excess of 10

Therms and whose maximum daily requirements are 2,000 Therms or more.

- *Large Commercial Interruptible Transportation Service* – interruptible service to a customer who has made arrangements to have gas other than Company system supply delivered to a Company town border station, whose maximum daily requirements are more than 2,000 Therms.
- *Large Commercial Firm Transportation Service* – firm service to a customer who has made arrangements to have gas other than Company system supply delivered to a Company town border station and whose maximum daily requirements are more than 2,000 Therms.

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

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

A. The customer and sales forecasts are used to calculate the following:

1) Test year revenue under present rates; and
2) Test year revenue under proposed rates.

Q. PLEASE PROVIDE AN OVERVIEW OF THE ECONOMIC LANDSCAPE OF XCEL ENERGY'S NORTH DAKOTA GAS SERVICE TERRITORY.

A. Xcel Energy's North Dakota customers are primarily located in Fargo, West Fargo, and Grand Forks, with 94 percent of the customer base in these three locations. Just over two-thirds of the customers are located in Fargo and West Fargo and 25 percent are in Grand Forks.

Q. WHAT IMPACT HAS THE COVID-19 PANDEMIC HAD ON THE NORTH DAKOTA ECONOMY?

A. Like most areas of the country, the COVID-19 pandemic negatively impacted the North Dakota economy in 2020. Total nonfarm employment for the state, as reported by the U.S. Bureau of Labor Statistics, declined 12.3 percent from 440,300 in February 2020 to 386,000 in April 2020. By the end of 2020, employment had improved to 407,900, which was 7.4 percent below February 2020 levels.[1] Combined, Fargo and Grand Forks non-farm employment declined 12.2 percent from 199,300 in February 2020 to 175,000 in April 2020, and recovered to 191,600 in December 2020, which was 3.9 percent below February 2020 levels.[2]

Q. WHAT ECONOMIC EFFECTS ARE EXPECTED FROM COVID-19 DURING 2021 AND THE 2022 TEST YEAR?

A. While 2020 experienced the greatest economic impact from the pandemic, the effects will linger throughout 2021 and into the 2022 test year. As of June 2021, preliminary North Dakota employment counts totaled 415,500 and

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[1] https://www.bls.gov/eag/eag.nd.htm, accessed July 26, 2021.
[2] https://www.bls.gov/eag/eag.nd_fargo_msa.htm and https://www.bls.gov/eag/eag.nd_grandforks_msa.htm, accessed July 26, 2021.

remained 5.6 percent below the pre-pandemic levels, and preliminary Fargo and Grand Forks employment counts total 195,200 and remained 2.1 percent below pre-pandemic levels. It may take several more years for the state-level employment to return to pre-pandemic levels. However, given the level of recovery to-date in Fargo and Grand Forks, employment in these areas likely will return to pre-pandemic levels by early 2022.

Q. AT A HIGH LEVEL, HOW DID THE PANDEMIC AFFECT GAS SALES AND CUSTOMER GROWTH IN 2020?

A. Customer counts increased by 1.9 percent in 2020, which is the first time annual growth has been below 2 percent since 2011. Total sales increased by 0.6 percent, with Residential sales increasing 3.0 percent and combined Commercial and Industrial and Interruptible sales decreasing 0.3 percent. The Residential sales growth was stronger than average historical growth (which I discuss later in my testimony) and driven by an increase in use per customer as people spent more time at home and in some cases working from home due to the pandemic. The 0.3 percent decline in the combined non-Residential classes reflects the slowdown in business activity with some businesses operating at reduced capacity due pandemic-related restrictions. I note that customer movement between the Commercial and Industrial and Interruptible classes in 2020 result in some large positive and negative class-level growth rates which mask underlying trends that are identifiable when all the classes are combined.

Q. HOW DO YOU EXPECT THE PANDEMIC TO AFFECT GAS SALES AND CUSTOMER GROWTH IN 2021 AND 2022?

A. In summary, we expect a reduction in Residential sales in 2021 relative to the pandemic-inflated levels seen in 2020, and then modest growth in sales in 2022. We expect sales in the combined Commercial and Industrial and Interruptible sectors to increase in both 2021 and 2022 as the economy continues to recover.

Q. WHAT IS XCEL ENERGY'S FORECAST OF GAS SALES AND CUSTOMERS FOR THE TEST YEAR ENDING DECEMBER 31, 2022?

A. Exhibit___(JEM-1), Schedule 3 summarizes monthly test year Dkt sales and number of customers for each customer class. Total sales are projected to be 14,027,908 Dkt for the test year, with an average of 60,991 total customers. For context, total sales in 2020 were 13,444,197 Dkt with an average of 59,270 total customers.

Q. WHAT HAS BEEN THE HISTORICAL CUSTOMER GROWTH IN NORTH DAKOTA?

A. Since 2007, Xcel Energy's test year in its last North Dakota gas rate case, the total number of gas customers has increased by 34 percent or 15,018 customers, growing from 44,252 in 2007 to 59,270 in 2020. This equals a 2.3 percent average annual growth rate over this period of time. The largest class of customers is the Residential class, which represented 85 percent of total customers in 2020 and has averaged growth of 2.3 percent per year on average during the period from 2007 through 2020. The Commercial and Industrial class accounted for 14.9 percent of total customers in 2020, and averaged growth of 2.5 percent 2007 through 2020. The remaining 0.1 percent of customers are in the Interruptible classes and in aggregate has been decreasing, driven by a 3.9 percent average annual decline between 2007 and 2020 in the Small Interruptible class.[3]

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

A. Test year total customer growth is expected to slow from the 2007-2020 average historical growth, but be in line with the trend of slower growth seen in more recent years. As shown in Figure 1 below, customer growth in the entire Xcel Energy North Dakota service territory has slowed over the past four years from the high rates of growth experienced in 2015 and 2016. After adding over 1,700 customers in 2015, customer additions dropped below 1,100 additions in 2020. This slowing in customer growth since 2015 is consistent with a slowdown in population growth, as demonstrated in Figure 2. Total customer additions throughout the system in 2021 are forecasted to be slightly lower than 2020 and the 2022 test year North Dakota customer counts are expected to increase by 767 or 1.3 percent. However, while overall system growth has slowed from the fast pace seen a few years ago, we are still seeing customer growth in North Dakota. The total average number of customers in 2022 is expected to be 38 percent or nearly 17,000 customers higher than 2007 customer counts, with average growth of 2.2 percent from 2007 through 2022.

[3] The Transport class consists of three customers as of January 2021.

Figure 1

2008-2022 Annual Change in Customers

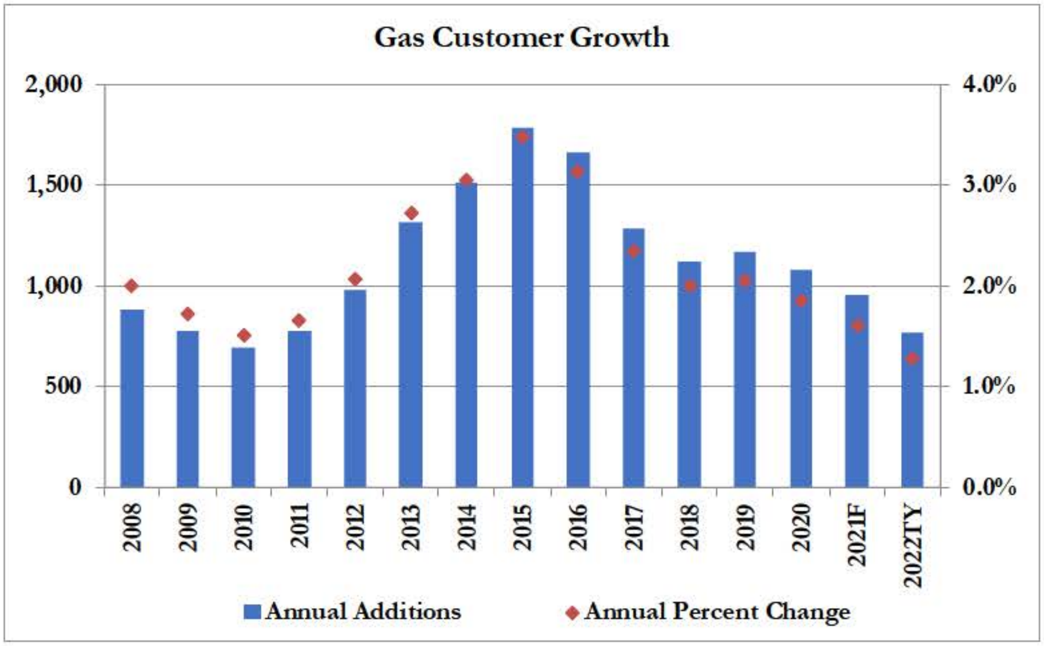


Figure 2

2015-2020 Annual Percent Change in Customers and Population

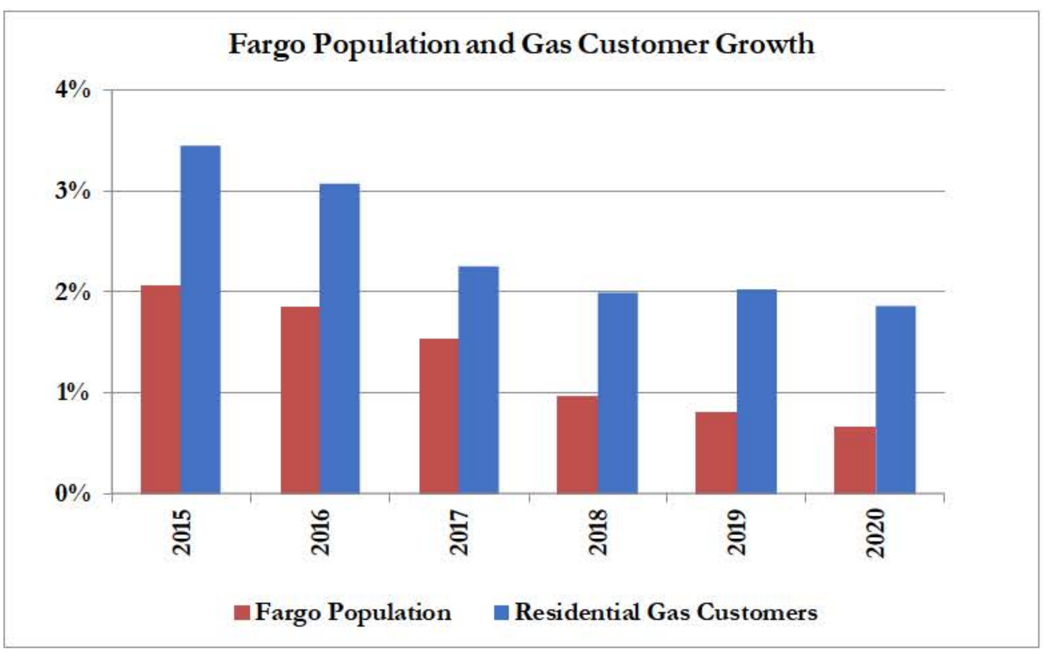


Table 1 below provides the historical and forecast annual customer growth rate by class for the time period 2007-2022. I will explain the methodologies used to develop this forecast in the following section of my testimony.

Table 1

2007-2022 Average Annual Percent Change in Customers

Customer Class	2007-2012 Average	2013-2017 Average	2018-2020 Average	2021 Forecast	2022 Test Year
Residential	1.8%	2.9%	2.0%	1.6%	1.3%
Commercial & Industrial	2.0%	3.1%	2.1%	1.6%	1.4%
Interruptible	-2.5%	-4.4%	-5.6%	0.0%	-1.6%
Total	**1.8%**	**2.9%**	**2.0%**	**1.6%**	**1.3%**

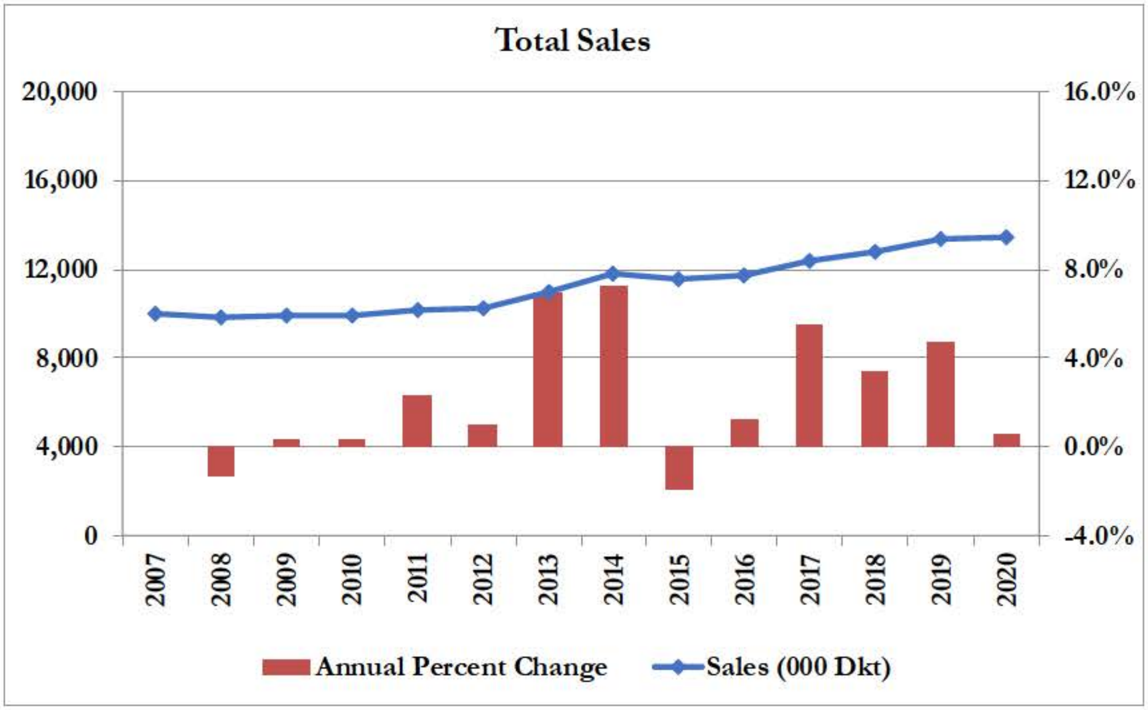
Q. WHAT HAS BEEN THE HISTORICAL WEATHER NORMALIZED GAS SALES GROWTH IN NORTH DAKOTA?

A. After normalizing for weather,[4] Xcel Energy's North Dakota service territory total gas sales have increased an average of 2.3 percent per year during the period of 2007 through 2020. Sales increases have been recorded in nearly every year since 2007, with declines seen in only two years, as shown in Figure 3 below. From 2007 to 2020, Residential sales have increased 1.9 percent, Commercial and Industrial sales have increased 3.6 percent, Small Interruptible sales have decreased 1.9 percent, and Large Interruptible sales have increased 1.3 percent per year on average.

[4] 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.

Figure 3

2007-2022 W/N Gas Sales



Q. HOW DO 2022 TEST YEAR SALES COMPARE TO HISTORICAL SALES?

A. Total Dkt sales reflected in the 2022 test year are expected to improve 4.3 percent from 2020 weather normalized levels or 2.1 percent per year on average. Table 2 below provides the historical and forecast annual weather normalized sales growth rate by class for the time period 2007-2022. I will explain the methodologies used to develop this forecast in the following section of my testimony.

Table 2

2007-2022 Average Annual Percent Change in W/N Sales

Customer Class	2007-2020 Average	2021 Forecast	2022 Test Year
Residential	1.9%	-0.7%	0.8%
Commercial & Industrial	3.6%	5.5%	-1.1%
Small Interruptible	-1.9%	0.0%	-0.2%
Large Interruptible	1.3%	6.8%	4.4%
Total	2.3%	3.7%	0.6%

Q. PLEASE DISCUSS HISTORICAL AND PROJECTED RESIDENTIAL SALES.

A. Residential sales accounted for 29.5 percent of total sales in 2020 and have increased at an average annual rate of 1.9 percent over the 2007 to 2020 time period. This growth has been driven by a 2.3 percent average annual increase in the number of residential customers as I previously discussed, partially offset by a 0.3 percent average annual decline in use per customer. Use per customer is expected to decrease in 2021 and then decrease slightly again in 2022 as people return to pre-pandemic activities.

Q. PLEASE DISCUSS HISTORICAL AND PROJECTED FIRM COMMERCIAL AND INDUSTRIAL SALES.

A. Firm sales to the Commercial and Industrial sector accounted for the largest share of total sales in 2020 (46.3 percent) and have increased at an average annual rate of 3.6 percent over the 2007 to 2020 time period. Firm Commercial and Industrial sales are expected to increase in 2021 as businesses recover from the pandemic and then decline slightly in 2022, with 2022 sales projected to be 4.4 percent higher than 2020 sales.

Q. PLEASE DISCUSS HISTORICAL AND PROJECTED INTERRUPTIBLE SALES.

A. Sales to the Small Interruptible and Large Interruptible classes account for about 24 percent of total sales. Small Interruptible sales have been declining 1.9 percent per year on average since 2007 as customers migrate from the Interruptible class to the Commercial and Industrial class. The Small Interruptible class is expected to continue declining in 2021 and 2022, with 2022 sales projected to be 0.2 percent lower than 2020. Sales in the Large Interruptible class are very volatile due to customers moving into or out of this class. Sales in the sector declined significantly in 2020 with customer movement to the Commercial and Industrial class and are expected to increase in both 2021 and 2022.

Q. PLEASE DISCUSS THE FIRM AND INTERRUPTIBLE TRANSPORT CLASSES.

A. Prior to 2021, the Interruptible Transport class had a single customer, and there were no customers in the Firm Transport class. **[TRADE SECRET BEGINS…**

…TRADE SECRET ENDS]

III. OVERVIEW OF SALES AND CUSTOMER FORECASTING METHODOLOGY

Q. PLEASE DESCRIBE IN GENERAL TERMS THE METHODS USED TO FORECAST SALES AND CUSTOMERS.

A. The sales forecast was prepared in February 2021 using a combination of econometric and statistical forecasting techniques and analyses. The forecast was based on actual customers and sales through December 2020.

Q. HOW WERE THE TEST YEAR SALES FORECASTS DEVELOPED FOR THE RESIDENTIAL, COMMERCIAL AND INDUSTRIAL, SMALL INTERRUPTIBLE, AND MEDIUM INTERRUPTIBLE CUSTOMER CLASSES?

A. Regression models were developed as the foundation for the sales forecasts of the Residential, Commercial and Industrial, Small Interruptible, and Large Interruptible customer classes. Regression techniques are very well-known, proven methods of forecasting and are commonly accepted by forecasters throughout the utility industry. This method provides reliable, accurate projections, accommodates the use of predictor variables, such as economic or demographic indicators and weather, and allows clear interpretation of the model. Xcel Energy has been using these types of regression models since 1991.

Monthly sales forecasts for these customer classes were developed based on regression models designed to define a statistical relationship between the historical sales and the independent predictor variables, including historical economic indicators, historical weather (expressed in heating-degree days

(HDD),[5] number of billing days, and historical number of customers. In all of the models, monthly historical data from January 2008 through December 2020 was used to determine these relationships. The modeled relationships were then simulated over the forecast period by assuming normal weather (expressed in terms of 20-year-averaged HDD) and the projected levels of the independent predictor variables.

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

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

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

A. The number of customers by customer class for the Residential and Commercial and Industrial classes is forecasted using demographic data in regression models. The historical number of customers by class is derived from the Company's billing system. The customer forecasts for all other classes were developed either by holding constant the average number of customers at the December 2020 level or applying a trend based on historical actual data.

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[5] I describe the calculation of HDD in Section VI.

IV. STATISTICALLY MODELED FORECASTS

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

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

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

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

First, the coefficient of determination (R-squared) test statistic is a measure of the quality of the model's fit to the historical data (expressed as a decimal number between 0.0 and 1.0). It represents the proportion of the variation of the historical sales around their mean value that can be attributed to the functional relationship between the historical sales and the explanatory variables included in the model. If the R-squared statistic is high, the model is explaining a high degree of the historical sales variability. The regression models used to develop the Residential, Commercial and Industrial, and Small Interruptible sales forecast demonstrate very high R-squared statistics, ranging between 0.924 and 0.996. The regression model used to develop the Medium

Interruptible sales forecast demonstrated an R-squared statistic of 0.703, which is acceptable given the amount of volatility seen in the historical sales in this class.

Next, the t-statistics of the variables indicate the degree of correlation between that variable's data series and the sales data series being modeled. The t-statistic is a measure of the statistical significance of each variable's individual contribution to the prediction model. Generally, the absolute value of each t-statistic should be greater than 1.98 to be considered statistically significant at the 95 percent confidence level and greater than 1.66 to be considered statistically significant at the 90 percent confidence level. This criterion was applied in the development of the regression models used to develop the sales forecast. The final regression models used to develop the Company's test year sales forecast tested satisfactorily under this standard. All variables except for one were statistically significant at greater than the 92 percent confidence level, and most variables were statistically significant at the 95 percent confidence level or higher. The one variable with a lower confidence interval was the Billing Days variable in the Large Interruptible sales model, which was statistically significant at the 73 percent confidence level.

In addition, each model was inspected for the presence of first-order autocorrelation, as measured by the Durbin-Watson (DW) test statistic. Autocorrelation refers to the correlation of the model's error terms for different time periods. For example, an overestimate in one period is likely to lead to an overestimate in the succeeding period, and vice versa, under the presence of first-order autocorrelation. Thus, when forecasting with a regression model, absence of autocorrelation between the error terms is very important. The DW test statistic ranges between 0 and 4 and provides a measure to test for autocorrelation. In the absence of first-order autocorrelation, the DW test statistic equals 2.0. Autocorrelation was present in each of the Company's initial regression models. Therefore, the Company applied an autocorrelation correction process so that the final regression models used to develop the sales forecast tested satisfactorily for the absence of first-order autocorrelation, as measured by the DW test statistic.

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

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

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

V. WEATHER NORMALIZATION OF TEST YEAR SALES

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

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

Q. HOW WAS NORMAL WEATHER DETERMINED?

A. Normal daily weather was calculated based on the average of historical HDD for the 20-year time period 2001 to 2020. These normal HDD were related to the forecasted billing month in the same manner as were the actual HDD.

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

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

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

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

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

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

VI. DATA PREPARATION

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

A. Historical billing-month sales and number of customers were obtained from Xcel Energy's billing system reports. Monthly historical data from January 2008 through December 2020 was obtained and used.

Q. WHAT IS THE SOURCE OF WEATHER DATA?

A. As I explained previously in my testimony, NOAA weather data measured at the Fargo weather station was my data source, and the measure of weather used was HDD. Eight temperature readings per day were obtained, and the average daily temperature was determined by averaging the eight temperature readings. The Company used HDD as a measure of cold weather. HDD were calculated for each day by subtracting the average daily temperature from 65 degrees Fahrenheit. For example, if the average daily temperature was 45 degrees Fahrenheit, then 65 minus 45 or 20 HDD were calculated for that day. If the average daily temperature was greater than 65 degrees Fahrenheit, then that day recorded zero HDD. Normal daily HDD were calculated by averaging 20 years of daily HDD using data from 2001 to 2020.

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

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

VII. UNBILLED SALES AND CALENDAR-MONTH SALES DERIVATION

Q. PLEASE EXPLAIN THE TERM "UNBILLED SALES".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

VIII. CONCLUSION

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

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

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Resume

Jannell E. Marks
Director, Sales, Energy and Demand Forecasting
1800 Larimer Street, Denver, Colorado 80202

February 2007 – Present

Director, Sales, Energy and Demand Forecasting

Responsible for the development of forecasted sales data and economic conditions for Xcel Energy's operating companies, and the presentation of this information to Xcel Energy's senior management, other Xcel Energy departments, and externally to various regulatory and reporting agencies. Also responsible for Xcel Energy's Load Research function, which designs, maintains, monitors, and analyzes electric load research samples in the Xcel Energy operating companies' service territories. Additionally, responsible for developing and implementing forecasting, planning, and load analysis studies for regulatory proceedings. Testified on forecasting issues before the Colorado Public Utilities Commission, the Minnesota Public Utilities Commission, the North Dakota Public Service Commission, the Public Utility Commission of Texas, the South Dakota Public Utilities Commission, the New Mexico Public Regulation Commission, and the Public Service Commission of Wisconsin.

August 2000 – February 2007

Manager, Energy Forecasting, Xcel Energy

Responsible for the development and presentation of forecasted data for Xcel Energy's operating companies. Also responsible for reporting historical and statistical information to various regulatory agencies and others. Testified on forecasting issues before the Public Utility Commission of Texas, the Colorado Public Utilities Commission, and the Minnesota Public Utilities Commission.

May 1997 – August 2000

Manager, Demand, Energy and Customer Forecasts, New Century Energies, Inc.

Responsible for developing demand, energy, and customer forecasts for New Century Energies, Inc.'s operating companies. Also directed the preparation of statistical reporting for regulatory agencies and others regarding historical and forecasted reports. Testified on forecasting issues before the Public Utility Commission of Texas and the Colorado Public Utilities Commission.

1991 – 1997

Senior Research Analyst, Public Service Company of Colorado

Responsible for developing the customer and sales forecasts for Public Service Company of Colorado and the economic, customer, sales and demand forecasts for Cheyenne Light, Fuel and Power Company.

1982 – 1991

Research Analyst, Public Service Company of Colorado

Education

Colorado State University – Bachelor of Science: Statistics 1982

Memberships

Edison Electric Institute Load Forecasting Group
Itron Energy Forecasting Group

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, 2022-December 31, 2022.

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.

Xcel Energy - North Dakota State
Test Year Sales and Customers by Customer Class

Weather Normalized Calendar Month Sales (Dkt)

A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Year 2022
Residential	809,937	657,232	508,332	268,066	115,625	65,974	40,634	46,461	76,703	230,885	452,737	696,491	3,969,079
Commercial & Industrial (1)	1,095,403	901,593	817,960	458,161	302,599	211,869	172,669	190,478	233,560	416,344	691,096	1,003,200	6,494,932
Small Interruptible	75,133	67,318	68,523	44,142	32,884	26,130	23,993	28,070	29,725	45,440	60,146	68,408	569,913
Large Interruptible (2)	356,567	295,193	303,408	164,409	190,548	191,410	143,589	164,599	216,042	349,240	291,310	327,669	2,993,984
Total Sales	2,337,040	1,921,337	1,698,222	934,777	641,656	495,384	380,886	429,608	556,031	1,041,909	1,495,291	2,095,768	14,027,908

Number of Customers

A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Year 2022
Residential	51,682	51,689	51,684	51,672	51,679	51,666	51,679	51,741	51,827	51,994	52,139	52,275	51,811
Commercial & Industrial (1)	9,079	9,086	9,092	9,083	9,075	9,068	9,056	9,064	9,074	9,106	9,139	9,179	9,092
Small Interruptible	64	64	63	63	63	63	63	63	63	63	63	63	63
Large Interruptible (2)	25	25	25	25	25	25	25	25	25	25	25	25	25
Total Customers	60,850	60,864	60,864	60,843	60,842	60,822	60,823	60,893	60,989	61,188	61,366	61,542	60,991

(1) Includes Large Commercial Firm Transportation
(2) Includes Large Interruptible Transportation

Xcel Energy North Dakota Residential
2022 Test-Year Sales Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value	Definition
ResCust_HDD65_Jan	0.009	0.000	59.863	0.00%	January HDD65 * January customers
ResCust_HDD65_Feb	0.009	0.000	52.299	0.00%	February HDD65 * February customers
ResCust_HDD65_Mar	0.009	0.000	47.624	0.00%	March HDD65 * March customers
ResCust_HDD65_Apr	0.008	0.000	21.279	0.00%	April HDD65 * April customers
ResCust_HDD65_May	0.007	0.000	24.218	0.00%	May HDD65 * April customers
ResCust_HDD65_Jun	0.003	0.002	2.251	2.59%	June HDD65 * April customers
ResCust_HDD65_Oct	0.006	0.001	10.087	0.00%	October HDD65 * April customers
ResCust_HDD65_Nov	0.007	0.000	20.731	0.00%	November HDD65 * November customers
ResCust_HDD65_Dec	0.008	0.000	39.647	0.00%	December HDD65 * December customers
EconBoom	16355.486	4118.875	3.971	0.01%	Binary variable beginning January 2014
Billing_Days	1145.715	127.897	8.958	0.00%	Billing Days
WinterTrend	-127.389	49.960	-2.550	1.19%	Trend variable October through April
Dec16	-44002.722	13385.222	-3.287	0.13%	Binary variable December 2016
Apr	29922.720	16559.936	1.807	7.30%	Binary variable April
Jun	19806.015	10867.280	1.823	7.05%	Binary variable June
AR(1)	0.286	0.080	3.581	0.05%	First order autoregressive term
SMA(1)	0.315	0.086	3.675	0.03%	First order seasonal moving average term

Xcel Energy North Dakota Residential
2022 Test-Year Sales Forecast

Model Statistics	
Iterations	10
Adjusted Observations	155
Deg. of Freedom for Error	138
R-Squared	0.997
Adjusted R-Squared	0.996
AIC	19.231
BIC	19.565
F-Statistic	NA
Prob (F-Statistic)	NA
Log-Likelihood	-1,693.36
Model Sum of Squares	8,803,281,235,178.21
Sum of Squared Errors	27,994,993,851.02
Mean Squared Error	202,862,274.28
Std. Error of Regression	14,242.97
Mean Abs. Dev. (MAD)	9,983.82
Mean Abs. % Err. (MAPE)	6.07%
Durbin-Watson Statistic	2.084
Durbin-H Statistic	NA
Ljung-Box Statistic	26.42
Prob (Ljung-Box)	0.332
Skewness	0.119
Kurtosis	4.217
Jarque-Bera	9.937
Prob (Jarque-Bera)	0.007

October HDD65 * April customers

Xcel Energy North Dakota Commercial and Industrial
2022 Test-Year Sales Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value	Definition
SmCommCust_HDD65_Jan	0.059	0.001	56.131	0.00%	January HDD65 * January customers
SmCommCust_HDD65_Feb	0.059	0.001	48.681	0.00%	February HDD65 * February customers
SmCommCust_HDD65_Mar	0.058	0.001	48.600	0.00%	March HDD65 * March customers
SmCommCust_HDD65_Apr	0.051	0.002	30.363	0.00%	April HDD65 * April customers
SmCommCust_HDD65_May	0.045	0.003	14.457	0.00%	May HDD65 * May customers
SmCommCust_HDD65_Jun	0.032	0.008	3.924	0.01%	June HDD65 * June customers
SmCommCust_HDD65_Oct	0.030	0.003	9.380	0.00%	October HDD65 * April customers
SmCommCust_HDD65_Nov	0.044	0.002	21.415	0.00%	November HDD65 * November customers
SmCommCust_HDD65_Dec	0.055	0.001	42.624	0.00%	December HDD65 * December customers
Rate_Shift_Oct	44107.509	11357.990	3.883	0.02%	Binary variable beginning January 2017
EE_ND	245.971	23.222	10.592	0.00%	ND Total Employment (thousands)
Dec12	113772.923	19310.756	5.892	0.00%	Binary variable December 2012
Jan13	-149569.498	19511.135	-7.666	0.00%	Binary variable January 2013
Jan2015	38857.400	17653.841	2.201	2.95%	Binary variable January 2015
Mar2015	50213.422	17753.981	2.828	0.54%	Binary variable March 2015
AR(1)	0.591	0.071	8.356	0.00%	First order autoregressive term
SAR(1)	0.379	0.094	4.046	0.01%	First order seasonal autoregressive term

Xcel Energy North Dakota Commercial and Industrial
2022 Test-Year Sales Forecast

Model Statistics		
Iterations	16	
Adjusted Observations	143	
Deg. of Freedom for Error	126	
R-Squared	0.995	
Adjusted R-Squared	0.994	
AIC	20.150	
BIC	20.502	October HDD65 * April customers
F-Statistic	NA	
Prob (F-Statistic)	NA	
Log-Likelihood	-1,626.62	
Model Sum of Squares	12,240,256,946,104.90	
Sum of Squared Errors	63,541,090,531.89	
Mean Squared Error	504,294,369.30	
Std. Error of Regression	22,456.50	
Mean Abs. Dev. (MAD)	15,174.82	
Mean Abs. % Err. (MAPE)	5.18%	
Durbin-Watson Statistic	2.243	
Durbin-H Statistic	NA	
Ljung-Box Statistic	37.68	
Prob (Ljung-Box)	0.0374	
Skewness	1.038	
Kurtosis	6.718	
Jarque-Bera	108.046	
Prob (Jarque-Bera)	0.0000	

Xcel Energy North Dakota Small Interruptible
2022 Test-Year Sales Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value	Definition
CONST	26989.829	1151.082	23.447	0.00%	Constant term
SVICust_HDD65_Jan	0.447	0.023	19.121	0.00%	January HDD65 * January customers
SVICust_HDD65_Feb	0.466	0.028	16.378	0.00%	February HDD65 * February customers
SVICust_HDD65_Mar	0.563	0.028	20.443	0.00%	March HDD65 * March customers
SVICust_HDD65_Apr	0.416	0.040	10.494	0.00%	April HDD65 * April customers
SVICust_HDD65_May	0.612	0.076	8.103	0.00%	May HDD65 * May customers
SVICust_HDD65_Jun	0.550	0.256	2.151	3.34%	October HDD65 * April customers
SVICust_HDD65_Oct	0.321	0.096	3.345	0.11%	October HDD65 * October customers
SVICust_HDD65_Nov	0.341	0.050	6.795	0.00%	November HDD65 * November customers
SVICust_HDD65_Dec	0.420	0.029	14.651	0.00%	December HDD65 * December customers
Feb18	-19957.110	7213.500	-2.767	0.65%	Binary variable February 2018
Feb14	-35096.702	7424.375	-4.727	0.00%	Binary variable February 2014
Mar18	26465.917	7064.684	3.746	0.03%	Binary variable March 2018
AR(1)	-0.238	0.087	-2.747	0.69%	First order autoregressive term
SAR(1)	0.611	0.093	6.541	0.00%	First order seasonal autoregressive term
SMA(1)	-0.532	0.123	-4.314	0.00%	First order seasonal moving average term

Xcel Energy North Dakota Small Interruptible
2022 Test-Year Sales Forecast

Model Statistics	
Iterations	42
Adjusted Observations	143
Deg. of Freedom for Error	127
R-Squared	0.932
Adjusted R-Squared	0.924
AIC	17.869
BIC	18.200
F-Statistic	116.7676299
Prob (F-Statistic)	0
Log-Likelihood	-1,464.52
Model Sum of Squares	90,787,777,758.72
Sum of Squared Errors	6,582,901,890.15
Mean Squared Error	51,833,873.15
Std. Error of Regression	7,199.57
Mean Abs. Dev. (MAD)	5,075.60
Mean Abs. % Err. (MAPE)	10.55%
Durbin-Watson Statistic	1.968
Durbin-H Statistic	NA
Ljung-Box Statistic	23.35
Prob (Ljung-Box)	0.499
Skewness	-0.433
Kurtosis	4.256
Jarque-Bera	13.859
Prob (Jarque-Bera)	0.001

October HDD65 * April customers

Xcel Energy North Dakota Large Interruptible
2022 Test-Year Sales Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value	Definition
MVICust_HDD65_Jan	5.663	1.438	3.939	0.01%	January HDD65 * January customers
MVICust_HDD65_Feb	1.678	0.248	6.768	0.00%	February HDD65 * February customers
MVICust_HDD65_Mar	2.252	0.240	9.377	0.00%	March HDD65 * March customers
MVICust_HDD65_Apr	1.219	0.349	3.493	0.06%	April HDD65 * April customers
MVICust_HDD65_Dec	1.800	0.257	7.009	0.00%	December HDD65 * December customers
MVICust_HDD65_Nov	2.210	0.483	4.574	0.00%	December HDD65 * November customers
EE_FGO	882.404	209.060	4.221	0.00%	October HDD65 * April customers
Mar11	-84788.676	24957.040	-3.397	0.09%	Binary variable March 2011
Feb14	-59521.875	25229.617	-2.359	1.97%	Binary variable February 2014
Rate_Shift_Jan2018	22560.115	5688.362	3.966	0.01%	Binary variable beginning January 2018
Billing_Days	-1000.885	892.348	-1.122	26.39%	Billing Days
Jan	-123975.859	56138.631	-2.208	2.88%	Binary variable January
AR(1)	0.161	0.086	1.875	6.28%	First order autoregressive term

Xcel Energy North Dakota Large Interruptible
2022 Test-Year Sales Forecast

Model Statistics	
Iterations	10
Adjusted Observations	155
Deg. of Freedom for Error	142
R-Squared	0.726
Adjusted R-Squared	0.703
AIC	20.257
BIC	20.512
F-Statistic	NA
Prob (F-Statistic)	NA
Log-Likelihood	-1,776.84
Model Sum of Squares	217,940,155,477.72
Sum of Squared Errors	82,209,647,170.98
Mean Squared Error	578,941,177.26
Std. Error of Regression	24,061.20
Mean Abs. Dev. (MAD)	16,545.68
Mean Abs. % Err. (MAPE)	17.28%
Durbin-Watson Statistic	2.034
Durbin-H Statistic	NA
Ljung-Box Statistic	20.80
Prob (Ljung-Box)	0.651
Skewness	-0.902
Kurtosis	7.913
Jarque-Bera	176.890
Prob (Jarque-Bera)	0.000

October HDD65 * April customers

Xcel Energy North Dakota Residential
2022 Test-Year Customer Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value	Definition
NR_FGO	323.909	49.226	6.580	0.00%	Fargo Population (thousands)
Jan	-30661.590	12584.458	-2.436	1.61%	Binary variable January
Feb	-30709.597	12584.458	-2.440	1.59%	Binary variable February
Mar	-30763.574	12584.381	-2.445	1.57%	Binary variable March
Apr	-30824.441	12584.367	-2.449	1.55%	Binary variable April
May	-30866.878	12584.420	-2.453	1.54%	Binary variable May
Jun	-30930.803	12584.228	-2.458	1.52%	Binary variable June
Jul	-30970.202	12584.110	-2.461	1.51%	Binary variable July
Aug	-30959.298	12584.071	-2.460	1.51%	Binary variable August
Sep	-30925.507	12584.118	-2.458	1.52%	Binary variable September
Oct	-30811.086	12584.250	-2.448	1.56%	Binary variable October
Nov	-30719.257	12584.469	-2.441	1.59%	Binary variable November
Dec	-30641.277	12584.690	-2.435	1.61%	Binary variable December
AR(1)	0.980	0.011	87.914	0.00%	First order autoregressive term
MA(1)	0.217	0.085	2.539	1.22%	First order moving average term

Xcel Energy North Dakota Residential
2022 Test-Year Customer Forecast

Model Statistics	
Iterations	28
Adjusted Observations	155
Deg. of Freedom for Error	140
R-Squared	1.000
Adjusted R-Squared	1.000
AIC	7.949
BIC	8.243
F-Statistic	NA
Prob (F-Statistic)	NA
Log-Likelihood	-820.98
Model Sum of Squares	2,475,303,071.42
Sum of Squared Errors	361,785.06
Mean Squared Error	2,584.18
Std. Error of Regression	50.83
Mean Abs. Dev. (MAD)	35.68
Mean Abs. % Err. (MAPE)	0.08%
Durbin-Watson Statistic	1.900
Durbin-H Statistic	NA
Ljung-Box Statistic	28.258
Prob (Ljung-Box)	0.249
Skewness	0.862
Kurtosis	6.828
Jarque-Bera	113.824
Prob (Jarque-Bera)	0.000

Xcel Energy North Dakota Residential
2022 Test-Year Customer Forecast

Variable	Coefficient	StdErr	T-Stat	P-Value	Definition
NR_FGO	40.248	13.676	2.943	0.38%	Fargo Population (thousands)
Jan	60.418	6.577	9.186	0.00%	Binary variable January
Feb	56.222	6.767	8.308	0.00%	Binary variable February
Mar	51.650	6.539	7.898	0.00%	Binary variable March
Apr	33.195	5.835	5.689	0.00%	Binary variable April
May	16.215	4.454	3.641	0.04%	Binary variable May
Nov	24.948	4.455	5.600	0.00%	Binary variable November
Dec	52.309	5.836	8.962	0.00%	Binary variable December
SummerBin	-22.750	3.365	-6.762	0.00%	Binary variable July, August, September
AR(1)	0.998	0.007	142.314	0.00%	First order autoregressive term
SAR(1)	0.296	0.082	3.620	0.04%	First order seasonal autoregressive term

Xcel Energy North Dakota Residential
2022 Test-Year Customer Forecast

Model Statistics	
Iterations	23
Adjusted Observations	143
Deg. of Freedom for Error	132
R-Squared	1.000
Adjusted R-Squared	1.000
AIC	5.067
BIC	5.295
F-Statistic	NA
Prob (F-Statistic)	NA
Log-Likelihood	-554.19
Model Sum of Squares	74,135,844.98
Sum of Squared Errors	19,456.40
Mean Squared Error	147.40
Std. Error of Regression	12.14
Mean Abs. Dev. (MAD)	9.10
Mean Abs. % Err. (MAPE)	0.12%
Durbin-Watson Statistic	2.069
Durbin-H Statistic	NA
Ljung-Box Statistic	21.91
Prob (Ljung-Box)	0.5844
Skewness	0.372
Kurtosis	3.406
Jarque-Bera	4.278
Prob (Jarque-Bera)	0.118

STATE OF NORTH DAKOTA
BEFORE THE
PUBLIC SERVICE COMMISSION

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-21-___

AFFIDAVIT OF
Jannell E. Marks

I, the undersigned, being 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.

Jannell E Marks
Jannell E. Marks

Subscribed and sworn to before me, this 18th day of August, 2021.

Danene Garcia
Notary Public
My Commission Expires: 3/19/2025

DANENE GARCIA
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20214011137
MY COMMISSION EXPIRES 03/19/2025