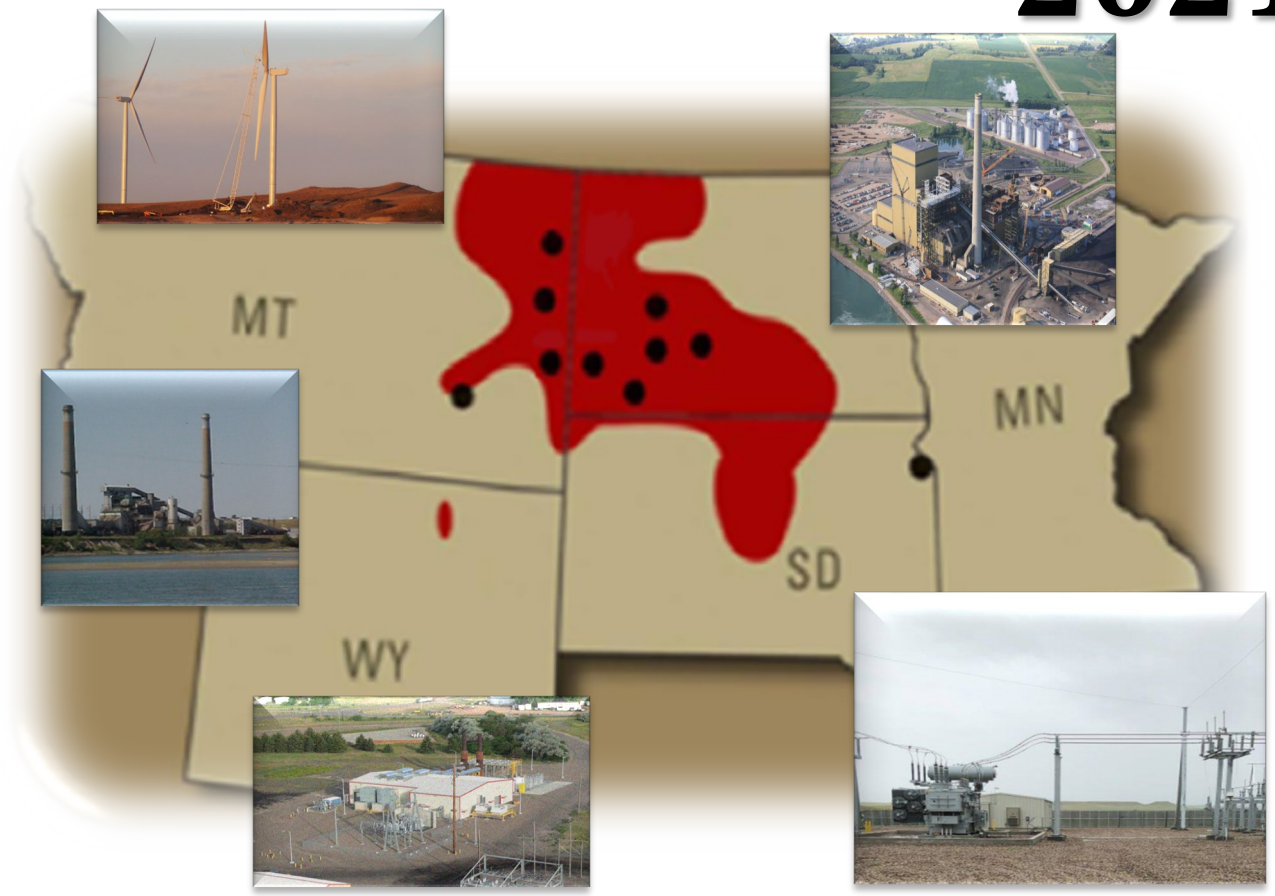
# Integrated Resource Plan 2021




**Submitted to the**
**North Dakota Public Service Commission**
**July 1, 2021**

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**Volume II: Attachment A**

**Montana-Dakota Utilities Co.**

**2021 Integrated Resource Plan**

Submitted to the North Dakota Public Service Commission

July 1, 2021

# Volume II

# Attachment A

MONTANA-DAKOTA UTILITIES CO.

A Subsidiary of MDU Resources Group, Inc.

# MONTANA-DAKOTA UTILITIES CO.
# ELECTRIC LOAD FORECAST
# 2021–2040

Prepared by
Montana-Dakota Utilities Co.
Electric System Operations & Planning Department

December 31, 2020

# TABLE OF CONTENTS

# Executive Summary

This report presents the 2021-2040 forecast of Montana-Dakota Utilities Co.'s (Montana-Dakota) electric energy requirements and peak demands for the Integrated System of Montana, North Dakota, and South. The forecast is prepared by the Electric System Operations & Planning Department. An econometric methodology of forecasting is generally used as the starting point for Montana-Dakota's load forecast.

## INTEGRATED SYSTEM

Total annual energy for the Integrated System is projected to grow at an average rate of 1.49% per year for the next five years and at an average rate of 0.84% per year through 2040. Integrated System summer peak demand is projected to grow at an average rate of 1.28% per year for the next five years and an average rate of 0.93% per year through 2040 prior to any reductions due to demand response programs. Integrated System winter peak demand is projected to grow at an average rate of 1.47% per year for the next five years and an average rate of 0.83% per year through 2040.

As described in Montana-Dakota's 2019 Integrated Resource Plans (IRPs) filed with the North Dakota and Montana Public Service Commissions, Montana-Dakota has established a Demand-Side Management (DSM) goal of achieving an overall reduction of 0.35 percent of annual energy sales over the 20-year planning horizon of the IRPs using new and existing energy efficiency programs. Additionally, Montana-Dakota will pursue a demand response portfolio that includes the Commercial Demand Response program, which was launched in June 2012, as well as the continued promotion of the Company's current Interruptible Demand Response program. The effects of the demand-side management (DSM) programs that will be implemented in the Integrated System to achieve these goals are reflected in the sales and demand forecasts.

# Econometric Overview

Montana-Dakota uses econometric modeling as the starting point for its forecast. The econometric models are developed using the statistical software package SAS®. In order to capture the unusual activity recently experienced as a result of the Bakken oil field, other forecasting methods and analyses also enter into the forecasting process for the Integrated System resulting in a combined analysis approach to the forecast.

An econometric model is a set of equations that expresses electricity use as a function of underlying factors such as income, price of electricity and alternate fuels, and weather.

The strengths of econometric forecasting models include:

- Econometric models explicitly measure the effects of underlying causes of trends and patterns.
- Econometric models provide statistical evaluation of forecast uncertainty.
- Econometric models utilize economic and demographic information that is easily understood.
- Econometric models can be readily re-estimated.

The econometric method combines economics theory and statistical techniques to produce a system of simultaneous equations. The method starts with estimating causal relationships between electric energy consumption (the dependent variable) and factors influencing electricity use (the independent variables). The relationship is estimated by applying regression analysis or other more sophisticated methods to time-series data. Once the relationships are established, inserting forecasts of the independent variables into the equation yields projections of the dependent variable.

A number of demographic and econometric variables were tested for fit in the process of developing the Integrated System forecast. Various combinations of variables were tested for statistical significance when evaluating the data to be used in each equation. The following is a list of variables that were available for both the historical time period being analyzed and the forecasted time period:

Residential price of electricity
Small Commercial & Industrial price of electricity
Large Commercial & Industrial price of electricity
Residential price of alternate fuel (natural gas)
Commercial price of alternate fuel (natural gas)
Total Personal Income
Heating Degree Days (HDD) for Bismarck, ND; and Aberdeen, SD
Cooling Degree Days (CDD) for Bismarck, ND; and Aberdeen, SD
Number of Households
Employment by Sector
Total Retail Sales
Temperature at the time of peak for Bismarck, ND; Williston, ND; and Miles City, MT; for the Integrated System

The variables used in each resulting equation are noted in the narrative that follows for each sales sector forecast. The forecast process begins by estimating the full models and then removing variables for which the estimated coefficient either has the wrong sign or is not statistically significantly different from zero (using a p-value of 0.10).

Prior to the forecast developed in 2012, forecasts for the Integrated System had always been developed on a total Integrated System basis followed by allocations to the states of Montana, North Dakota, and South Dakota. The forecast published in this report is now the eighth consecutive year in which the forecasts were developed for each sales sector on a state by state basis rather than an Integrated System basis.

## Data Sources

At the time this analysis was begun for the Integrated System (June 2020), the most recent year for which a complete set of weather and actual monthly sales by sector was available was 2019.

The data used in the development of the forecast that are available in-house include Montana-Dakota's rate projections, historical sales, energy, demand, losses, natural gas and electricity prices, and number of customers or bills.

In addition to the data available in-house, most of the economic and demographic data are obtained from Woods & Poole Economics, Inc. (W&P) of Washington, D.C. by county. The W&P data are apportioned and adjusted to represent the data for the Montana-Dakota service territory. Other data sources include the National Oceanic and Atmospheric Administration (NOAA), U.S. Census Bureau, and others.

The forecast for the Integrated System is developed annually. Likewise, the W&P data by county are available annually from the regional model developed by W&P. W&P revises the regional model from one year to the next to reflect new computational techniques and new sources of regional economic and demographic information. Each year, W&P produces new projections based on an updated historical database and revised assumptions. Therefore, the data provided by W&P captures the economic conditions in place at the time that the W&P forecasts are produced.

While national economic conditions can change quite quickly, data from W&P is provided once per year and therefore may not reflect the most current economic climate. For Montana-Dakota's service territory, this is not always a concern since this area is somewhat isolated from factors affecting the rest of the country; economic trends felt nationally usually take a year or two or more before their impact reaches this area. While the recent economic downturn was felt by the majority of the country in 2008, Montana-Dakota's service territory was enjoying a robust agricultural sector, intense oil field drilling activity, and increased energy usage resulting from high oil prices.

However, no one could anticipate the national changes that would occur in 2020 related to COVID-19 and the worldwide crash in crude oil prices. Here is an excerpt from the U.S. Bureau of Labor Statists in their March 3, 2021 press release titled Regional and State Unemployment, 2020 Annual Average Summary: “Annual average unemployment rates rose in 2020 in all regions, divisions, and states, the U.S. Bureau of Labor Statistics reported today. Employment-population ratios decreased across all of these geographic areas as well. The U.S. jobless rate increased by 4.4 percentage points from the prior year to 8.1 percent, while the national employment-population ratio fell by 4.0 points to 56.8 percent. The deterioration in the labor market in 2020 reflected the impact of the coronavirus (COVID-19) pandemic and efforts to contain it.” According to the U.S. Bureau of Labor Statistics (BLS) as of December 2020, Montana’s unemployment rate is at 5.9 percent, North Dakota’s unemployment is at 5.1 percent, South Dakota’s unemployment rate is at 4.6; all below the national rate of 8.1 percent.

The forecast for the Integrated System in this publication reflects growth seen up through 2019. The effects of 2020 will impact next year’s updated forecast directly and may require adjustments to 2020 sales volumes to develop an accurate forecast.

Degree days are used to estimate how hot or cold the climate is and how much energy may be needed to keep buildings cool or warm. Heating degree days, HDDs, are calculated by subtracting the mean daily temperature from 65°F, and summing only positive values over a given period of time, while cooling degree days, CDDs, are calculated by subtracting 65°F from the mean daily temperature, and summing only positive values over a given period of time.

The HDD and CDD numbers used are annual values and the change in magnitude from one year to another is more relevant for representing warmer or cooler than normal weather in the analysis than the actual values. Since the forecasts are developed for each sales sector on a state by state basis rather than an Integrated System basis, HDDs and CDDs for sites in North Dakota, South Dakota, and Montana were considered for representation of degree days in Montana-Dakota’s electric service territory in each state.

Bismarck and Mandan, ND account for approximately one-third of Montana-Dakota’s Integrated System electric sales annually. Therefore, Bismarck HDDs and CDDs were used to represent Montana-Dakota’s service territory in North Dakota. There are no NOAA National Climatic Data Center (NCDC) stations with complete local climatological data available in Montana that are in Montana-Dakota’s electric service territory. It was decided that Bismarck HDDs and CDDs values would best represent the Montana-Dakota service territory in Montana as well.

There are also no NOAA NCDC stations in South Dakota that are in Montana-Dakota's electric service territory. After reviewing available data, it was decided that Aberdeen, SD HDDs and CDDs would be used to represent Montana-Dakota's service territory in South Dakota.

Historical personal income per household is calculated to be total personal income divided by the number of households for those counties in which Montana-Dakota provides electric utility service. Historical personal income is available from the W&P data which come from the U.S. Department of Commerce. Historical households are also from the U.S. Department of Commerce. Forecasted personal income and number of households are projections provided by W&P.

Historical company data used in the development of the forecasts are included in Appendix A for the Integrated System. Appendices A-1 through A-4 list annual sales by customer class for Montana, North Dakota, South Dakota, and the Integrated System for the years 1966-2020, respectively. Appendix A-5 lists the seasonal peaks and load factors of the Integrated System for the years 1960-2020. Appendix A-6 lists demand by state at the time of the system peak for the summer and winter seasons.

Appendix B contains historical and forecasted values for the exogenous variables for the Integrated System.

# Integrated System

## Overview

From 2006-2011, econometric equations were used to develop long-range (20-year) electric load forecasts for Montana-Dakota's Integrated System, which is comprised of Montana-Dakota's service territories in Montana, North Dakota, and South Dakota. The total Integrated System sales by sector were then allocated to the individual states.

Beginning in 2012, the forecast was developed for each state individually – Montana, North Dakota, and South Dakota – and the forecasts by state were combined to arrive at the Integrated System forecast in total. The previously used methodology of allocating Integrated System sales to the states was becoming more difficult to accomplish while capturing the shifting percentage of sales in each state. This was a result of the higher growth recently experienced in North Dakota due to the Bakken oil field activity which is also beginning to impact Montana-Dakota's electric sales in Montana.

At the time this analysis was begun (June 2020), the most recent year for which a complete set of weather, prices, monthly sales by sector, and other historical information was available was for year-ending 2019. The equations developed used historical data available through 2019 and were designed to forecast the time period 2021-2040.

Montana-Dakota's Integrated System consists of the counties listed in the table below. These counties are located in eastern Montana, north-central South Dakota, and western and central North Dakota.

**Counties by State in Montana-Dakota's Integrated System**

| Montana | South Dakota | North Dakota | |
|---|---|---|---|
| Custer | Campbell | Adams | Logan |
| Daniels | Corson | Bowman | McIntosh |
| Dawson | Edmunds | Burke | McKenzie |
| Fallon | Faulk | Burleigh | Mercer |
| Prairie | Harding | Dickey | Morton |
| Richland | McPherson | Divide | Mountrail |
| Roosevelt | Perkins | Dunn | Oliver |
| Rosebud | Potter | Emmons | Renville |
| Sheridan | Walworth | Golden Valley | Slope |
| Wibaux | | Grant | Stark |
| | | Hettinger | Williams |
| | | Kidder | |

Montana-Dakota also provides electric service to a small part of Brown County of South Dakota. However, Brown County is excluded from the database because it includes the town of Aberdeen which is not served by Montana-Dakota but which comprises the majority of the population for the county. Including Brown County would reflect too much of the economic activity that occurs in Aberdeen.

The same is true for Ward County in North Dakota. Montana-Dakota provides electric service to a small part of Ward County. However, Ward County is excluded from the database because it includes the town of Minot which does not receive electric service from Montana-Dakota but which comprises the majority of the population for the county. Including Ward County would reflect too much of the economic activity that occurs in Minot.

# 1. Forecast Methodology - Sales

The Montana, North Dakota, and South Dakota sales forecasts are disaggregated into five sales sectors:

- Residential sector.
- Small Commercial & Industrial (SC&I) sector. This sector consists of those commercial and industrial customers whose monthly peak demand averages less than 50 kilowatts over a year's time.
- Large Commercial & Industrial (LC&I) sector. This sector consists of those commercial and industrial customers whose monthly peak demand averages more than 50 kilowatts over a year's time.
- Street Lighting. This sector consists of energy for public street and highway lighting.
- Miscellaneous. This sector includes energy for sales to other public authorities, interdepartmental sales, and company use.

The LC&I sector was further broken down into five end-use categories which were forecasted individually. The remainder of the LC&I sales fall into a sixth category: General LC&I sales. The end-uses forecasted individually were as follows:

- North Dakota
    - Marathon (Tesoro) Corporation's Refinery sales
    - Dakota Westmoreland Corporation's Beulah Mine and North American Coal Corporation's Coyote Creek Mine sales
    - Sabin Metal Corporation's sales in Williston
- Montana
    - Westmoreland Coal Company – Savage Mine sales
    - Montana Oil Field sales

Econometric equations were tried initially in the development of the forecasted sales for the three primary customer categories by state – residential, SC&I, and General LC&I – while sales forecasts for the street lighting and miscellaneous sectors were developed primarily using linear regression. The final models used for each of the primary customer categories were a combination of econometrics and judgment. The sales forecasts for the five LC&I end-uses were developed using a combination of regressions and information available from Montana-Dakota's field personnel regarding these large customers.

The development of the sales forecasts for each of the five sales sectors is explained below.

## 1.1. Residential

The residential sales forecast is derived by developing a forecast of residential use per customer and a forecast of number of residential customers. The complete details of the projected residential use per customer and number of customers as well as the projected residential sales by state are given in Section 3 – Forecast Results.

**RESIDENTIAL USE PER CUSTOMER**

Higher electricity prices and lower income may result in less electricity use, while higher alternate fuel prices as well as colder than normal winters (more heating degree days) and hotter than normal summers (more cooling degree days) may result in more electricity consumption. Historical and forecasted values for these variables are available and were tested for statistical significance when developing the residential econometric equations for each state in previous years. The historical values for these variables are given in Appendix B.

**North Dakota and Montana** – The econometric process used in previous years allowed residential use per customer to depend on variables such as the residential price of electricity, alternate fuel prices for residential customers (natural gas), personal income per household, heating degree days, cooling degree days, number of households, and year. In recent years, use per Montana-Dakota residential customer has been directly affected by oil industry in their service territories. Therefore, modifications were made in the forecast for the last several years to Montana and North Dakota use per residential customers to reflect the use experienced from the surging Bakken activity. This year the final residential use per customer models for Montana and North Dakota will hold use per customer flat for the entire forecast period making average customer counts the primary driver for residential sales growth. As the U.S. Energy Information Administration's Annual Energy Outlook 2020 states, " Historically, although the economy has continued to grow, growth rates for electricity demand have slowed as new, efficient devices and production processes that require less electricity have replaced older, less-efficient appliances, heating, ventilation, cooling units, and capital equipment.", residential demand growth is predicted at a modest rate. The starting points for residential use per customer reflect uncertainties and the slowdown in the Bakken oil field that has been experienced recently.

**South Dakota** – The econometric process used in previous years allowed residential use per customer to depend on variables such as the residential price of electricity, alternate fuel prices for residential customers (natural gas), personal income per household, heating degree days, cooling degree days, number of households, and year. The forecast for South Dakota residential use per customer is now held flat at 10,444 kWh per year for the next 20 years.

## NUMBER OF RESIDENTIAL CUSTOMERS

The model initially developed for the number of customers (bills) for each state is as follows:

$$\ln(res\_bills_t) = a + b^{hhld} \times \ln(hholds_t) + e_t$$

In this equation, *a* and *b* are estimated parameters; $e_t$ is the error term, the dependent variable is the natural log of the number of bills and the only explanatory variable is the natural log of the number of households.

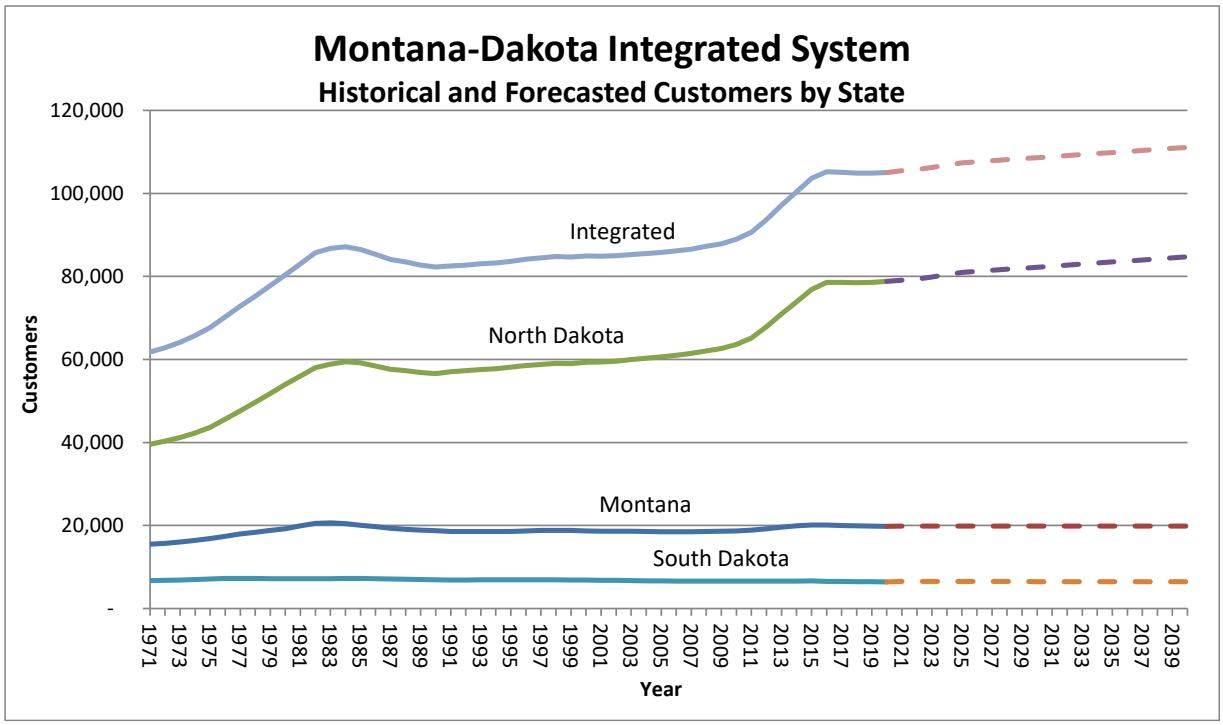
The forecast for number of customers by state was initially developed as described above. However, adjustments were made to the residential customer forecasts for North Dakota and Montana to reflect the higher rate of growth being experienced in parts of North Dakota and Montana due to the Bakken oil field activity.

In North Dakota, growth in residential customers for 2020 through 2026 was set based on information provided by the company's division personnel as well as on recently experienced residential customer growth trends. Montana-Dakota's division personnel have information available to them regarding the expected construction of new apartments and the addition of residential housing subdivisions. In the following years, residential customer growth was allowed to continue at the rate set in 2026.

For Montana where the Bakken development lags the development in North Dakota, customer growth for 2020 and beyond was set to the approximate residential customer growth currently experienced.

In South Dakota, the residential customer forecast continues to be based on the household forecast from W&P.

Historical and forecasted customers (bills) by state and in total are plotted on the following chart while the values are given in Appendix B-6.




## 1.2. Small Commercial & Industrial

Small commercial & industrial (SC&I) sales could potentially depend on variables such as the SC&I price of electricity, alternate fuel prices for SC&I customers (natural gas), employment, heating degree days, cooling degree days, and year. Higher electricity prices may result in less electricity use, while higher alternate fuel prices and higher employment as well as colder than normal winters (more heating degree days) and hotter than normal summers (more cooling degree days) may result in more electricity consumption. Historical and forecasted values for these variables are available and were tested for statistical significance in developing the SC&I econometric equations by state. The historical and forecasted values for these variables are given in Appendix B.

In contrast to the residential sales forecast which uses two models for each state to project residential sales (a use per residential customer model and a residential customer numbers model), a single model for each state is used to forecast small commercial & industrial (SC&I) sales. The final models by state are as follows:

**North Dakota:**

$$\ln(sci\_kwh_t) = a + b^{Emp} \times \ln(emp\_no\_farm\_mining_t) + e_t$$

where:

| | |
|---|---|
| ln | = natural logarithm; |
| $sci\_kwh_t$ | = small comm & industrial sales; and |
| $emp\_no\_farm\_mining_t$ | = total employment, excluding farm and mining. |

In this equation, *a* and *b* are estimated parameters; $e_t$ is the error term.

**Montana:**

$$\ln(sci\_kwh_t) = a + b^{Emp} \times \ln(emp\_no\_farm\_mining_t) + b^{Yr} \times year_t + e_t$$

where:

| | |
|---|---|
| ln | = natural logarithm; |
| $sci\_kwh_t$ | = small commercial & industrial sales; |
| $emp\_no\_farm\_mining_t$ | = total employment, excluding farm and mining; and |
| $year_t$ | = year (1995-2019), which serves as a time trend variable. |

In this equation, *a* and the *b*'s are estimated parameters; $e_t$ is the error term.

**South Dakota:**

$$\ln(sci\_kwh_t) = a + b^{HDD} \times HDD_t + b^{Yr} \times year_t + e_t$$

where:

| | |
|---|---|
| ln | = natural logarithm; |
| $sci\_kwh_t$ | = small commercial & industrial sales; |
| $HDD_t$ | = heating degree days; and |
| $year_t$ | = year (1995-2019), which serves as a time trend variable. |

In this equation, *a* and *b* are estimated parameters; $e_t$ is the error term.

The Personal Consumption Expenditure Deflator, whose values are given on Appendix B-5, was used to place small commercial and industrial electricity prices and firm natural gas prices into real dollar terms.

Employment numbers are available from W&P for the historical time period from the U.S. Department of Commerce, Bureau of Economic Analysis. Employment projections for the counties served by Montana-Dakota are made by W&P. However, due to the Bakken oil field activity in North Dakota and Montana, it is anticipated that employment will differ from what was projected by W&P.

Since residential customer number forecasts had been developed for North Dakota and Montana reflecting the rate of growth due to the Bakken activity as described in Section 1.1, it was decided that a relationship between residential customer numbers and employment should be established in order that the SC&I sales forecast would correspond to the residential customer number forecast and the growth in employment and residential customers would then be directly correlated. Regressions were run on 25-year ratios of historical employment (total employment less farming and mining) to residential customers. The forecasted ratio produced from this regression was applied to the adjusted residential customer forecasts for both North Dakota and Montana to arrive at the adjusted employment forecasts for each state. Historical employment as well as employment as forecasted by W&P and as adjusted is given on Appendix B-7.

## 1.3. Large Commercial & Industrial

The sales forecasts for five LC&I end-uses (Marathon (Tesoro) Refineries, Westmoreland and Dakota Westmoreland Coal, Sabin Metals and Montana Oil Fields) were developed using a combination of regressions and information available from Montana-Dakota's field personnel regarding these large customers.

### 1.3.1. General LC&I

General LC&I sales (sales to all other LC&I customers that are not to the Marathon refineries, Westmoreland coal mines, Sabin Metals or Montana Oil Fields) could depend on variables such as the LC&I price of electricity, alternate fuel prices for LC&I customers (natural gas), heating degree days, cooling degree days, employment, and year. Higher electricity prices can result in less electricity use, while higher alternate fuel prices and higher employment as well as colder than normal winters (more heating degree days) and hotter than normal summers (more cooling degree days) could result in more electricity consumption. Historical and forecasted values for these variables are available and were tested for statistical significance in developing the General LC&I econometric equations by state.

As with SC&I sales, General LC&I sales are forecasted using a single model. The forecast process began in each state by estimating the full models and then removing variables for which the estimated coefficient either has the wrong sign or is not statistically significant. The Personal Consumption Expenditure Deflator, whose values are given on Appendix B-5, was used to place large commercial and industrial electricity prices and firm natural gas prices into real dollar terms.

The final models for Montana, North Dakota, and South Dakota were identical with the only statistically significant variable being the time-trend variable.

The final model for all three states is as follows:

$$\ln(lci\_kwh_t) = a + b^{yr} \times year_t + e_t$$

where:

| | |
|---|---|
| ln | = natural logarithm; |
| $lci\_kwh_t$ | = large commercial & industrial sales; |
| $year_t$ | = year (1995-2019), which serves as a time trend variable. |

In this equation, *a* and *b* are estimated parameters; $e_t$ is the error term.

After the General LC&I sales are projected by state using the equation developed as outlined above, adjustments are made to the projected sales in each state to reflect additional load growth that is expected due to any additional new General LC&I customers that may have been added in 2020. Information regarding the specific LC&I customers that come on line is provided by Montana-Dakota's field personnel who have contact with and closely monitor these customers. However, there were no additions in 2020, for Montana, North Dakota, or South Dakota so no adjustments were made to the modeled forecasts.

## 1.4. Street Lighting

The sales forecast for the street lighting sector (public street and highway lighting) for each state started with the actual 2019 level with adjustments for LED changes anticipated to complete in 2020, and then are held constant for the remainder of the forecast.

## 1.5. Miscellaneous

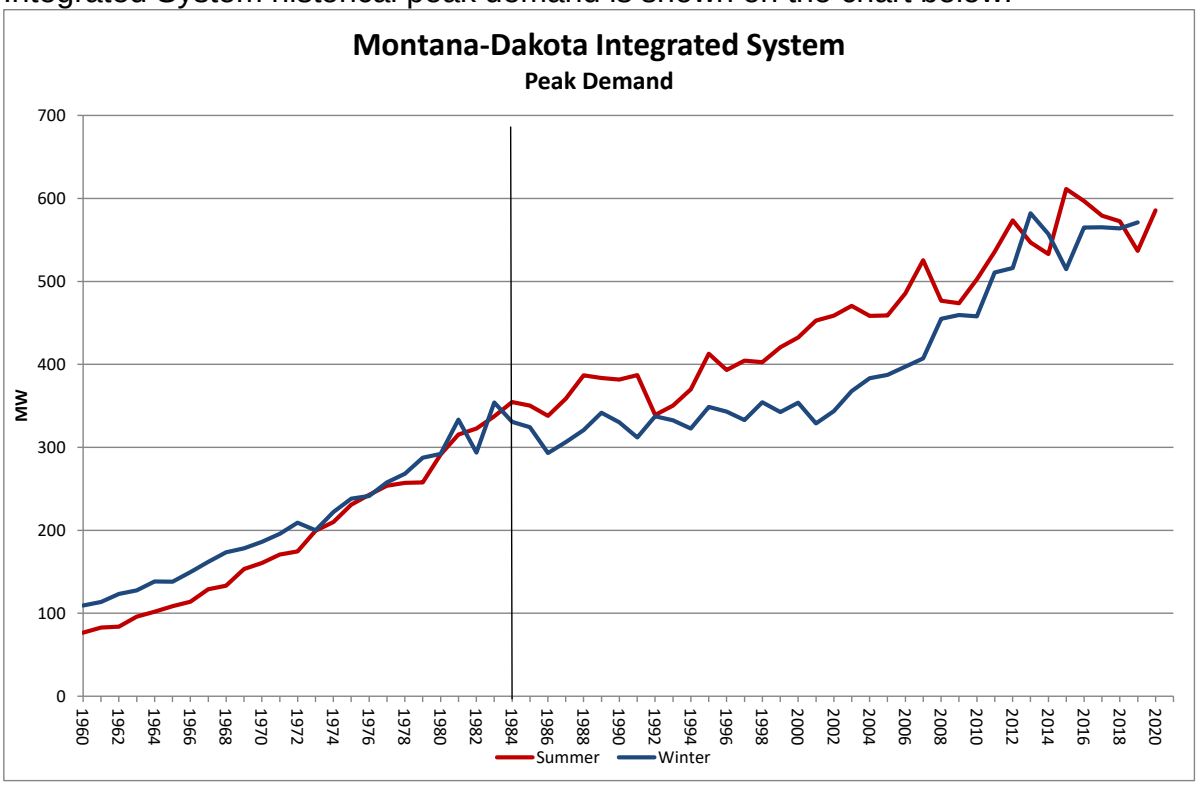
The miscellaneous sales sector is made up of sales for the following three end-uses:

1. Interdepartmental Sales – gas utility use of electricity
2. Other Public Sales – sales to government authorities which includes municipal pumping and some city sales (these sales are served under special contracts that are applicable only to public authorities)
3. Company Use - Montana-Dakota offices

The forecasts for Interdepartmental Sales and Company Use for each state were held constant at the actual 2019 levels. The forecast for Other Public Sales was also held constant at the actual 2019 level for South Dakota, while the Other Public Sales forecast for both North Dakota and Montana were based on a linear regression on actual 2000-2019 sales in each state.

# 2. Forecast Methodology – Peak Demand

Integrated System historical peak demand is shown on the chart below.




Montana-Dakota was a winter peaking utility prior to 1984. From about 1973 to 1983, the spread between the winter and summer peaks began to narrow and in 1984 Montana-Dakota became a summer peaking utility. From Montana-Dakota's Residential Energy Use Surveys and other available information, it is known that air conditioning has become more prevalent over time and air conditioning load has driven much of the increase in summer peak demand. Recently, the winter peak has been growing at a faster rate again due to the addition of more space heating load and unseasonably cooler summers. The gap between winter and summer seasonal peaks has narrowed once more with an occasional winter peak being higher than summer for years 2013, 2014 and 2019.

The Integrated System peak demand forecast is developed on a total system basis; it is not disaggregated by state or by sector. The summer peak demand forecast was developed through the use of an econometric model. Peak day/hour temperature, annual cooling degree days, total system sales for the year including losses (annual requirements), and a time-trend variable (year) were tested as the independent variables in the econometric model.

For peak day temperature, Montana-Dakota has available the historical hourly temperatures for three major load centers: Bismarck, ND; Williston, ND; and Miles City, MT. Weighted average temperatures for Bismarck (70%), Miles City (15%) and Williston (15%) at the time of the system peak were used as the peak day temperature. This weighting method has been tested and used in the past in the company's short-term demand forecast as well as in other informal in-house analyses. The inclusion of cooling degree days in the model is based on the fact that Montana-Dakota is a summer peaking utility and that hotter summers create more hot days on which high peaks may be set and may also serve as a proxy for heat buildup leading up to the peak.

Because of the nature of the econometric models, the historical summer peak demand data were adjusted to reflect customer load interruptions due to Interruptible Rate 38/39 and/or forced distribution outages that occurred at the time of the summer peak. The historical summer peak value thus represents the peak as it would have occurred had there not been any interruptions. Interruptions to the load for customers served on Large Power Demand Response Rate 38 and/or Interruptible Large Power Service Rate 39 typically occur at the time of the system peak. Also, a forced distribution outage occurred at the time of the summer peak in 2002 and voltage reductions were implemented at the time of the summer peaks in 2006 and 2007.

The summer peak demand model is as follows:

$$peak\_load_t = a + (b^{CDD} \times CDD_t) + (b^{PTemp} \times peak\_temp_t) + (b^{Sales} \times system\_kwh_t) + (b^{yr} \times year_t) + e_t$$

where:

| | |
|---|---|
| $peak\_load_t$ | = summer peak demand; |
| $CDD_t$ | = cooling degree days; |
| $peak\_temp_t$ | = weighted average temp at time of summer peak; |
| $system\_kwh_t$ | = annual energy requirements; and |
| $year_t$ | = year (1990-2019), which serves as a time trend variable. |

In this equation, *a* and the *b*'s are estimated parameters; $e_t$ is the error term.

The winter peak demand forecast is developed in a manner similar to the summer peak demand forecast except that HDDs were tested for statistical significance in the model rather than CDDs. It was found that HDDs are not statistically significant. The same historical period of time was used in developing the winter peak demand model that was used in the development of the summer peak demand model: 1990-2019.

For the winter peak demand forecast, several other variables were tested to see if they play a statistically significant role in the determination of the winter peak. The variables tested were the number of minutes of daylight on the day of the winter peak, the number of days between the winter peak and the winter solstice, and a variable for a Christmas lighting switch to indicate whether or not Christmas lighting was in use at the time of the winter peak (Christmas lighting is "on" if the peak occurs within two weeks prior to Christmas and one week after, and the Christmas lighting switch is "off" if the winter peak occurs outside of that window.) It was found that modeling whether or not Christmas lighting is on at the time of the winter peak has not been statistically significant for the last four years.

The winter peak demand model is as follows:

$$peak\_load_t = a + b^{PTemp} \times peak\_temp_t + b^{Sales} \times system\_kwh_t$$

where:

| | |
|---|---|
| $peak\_load_t$ | = winter peak demand; |
| $peak\_temp_t$ | = weighted average temp at time of winter peak; and |
| $system\_kwh_t$ | = annual energy requirements. |

In this equation, *a* and the *b*'s are estimated parameters; $e_t$ is the error term.

# 3. Forecast Results – Sales and Demand

The forecast methodology for both sales and demand as described in Sections 1 and 2 above results in the initial sales forecasts by sales class for each state and the initial demand forecast. Reductions to the sales forecasts by class and by state and to the demand forecast are made to reflect Demand-Side Management programs that are being implemented. Once these reductions are reflected in the sales forecasts, the total of the sales forecasts by class are adjusted by the loss factor to arrive at the final forecast of energy requirements.

## 3.1. Demand-Side Management (DSM) Reductions

As reflected in the 2019 Integrated Resource Plans (IRP) filed with the North Dakota and Montana Public Service Commissions, Montana-Dakota has included reductions for both energy efficiency and demand response levels over the 20-year planning period of the IRPs. The specific programs used to attain the goals may change over the planning period but will include both energy efficiency and demand response programs that are deemed cost effective.

Energy efficiency programs focus on energy reductions (kWh) and will have some reduction in peak demand (kW). Demand response programs focus on peak demand reductions and may be called upon during peaking conditions and system emergencies. The forecasted reductions based on the expected energy efficiency and demand response programs for energy and peak demand are reflected in the forecast and those amounts are summarized below:

- DSM Energy savings
    - 0.25 percent of annual sales for 2021 through 2039, achieved by growing from 0.10% of total sales in 2021 to 0.30% of total sales in 2027 through 2039, for an overall savings of 0.25% for the 20-year forecast horizon.

- Peak Demand savings
    - Demand Response programs of 48.9 MW for 2021, 53.9 MW for 2022, 59.0 MW for 2023 to 60.0 MW for 2024-2040 for the commercial sales sector.
    - Energy Efficiency programs of 0.58 MW in 2021 and 0.75 MW by 2040.

The forecasted reduction in energy and peak demand resulting from the above programs is reflected in the forecast.

## 3.2. Losses

The sales forecasts reflect the energy delivered to Montana-Dakota's customers' meters. The total amount of electricity generated at the power plants to meet Montana-Dakota's customers' energy needs is greater than what is delivered to the meters and is called the 'Total Energy Requirements.' The difference between the sales and energy requirements reflects the losses that occur within the transmission and distribution system.

The annual energy losses percentage, defined as a fraction of the total annual energy requirements, has varied from year to year. Therefore, these loss percentages are averaged over a ten-year time period. The average value for the past ten years is 8.041%. Using this value for all future years for each state, the total energy requirements are calculated for each year during the study period.

## 3.3. Final Energy Requirements Forecast

The forecasted sales and system peak demand are first adjusted to reflect the effects of the DSM programs that are being implemented as explained in Section 3.1 and then adjusted for losses as outlined in Section 3.2 to calculate the total energy requirements and peak demand forecast. This is the amount of energy and capacity that needs to be generated or purchased to meet Montana-Dakota's customers' energy needs.

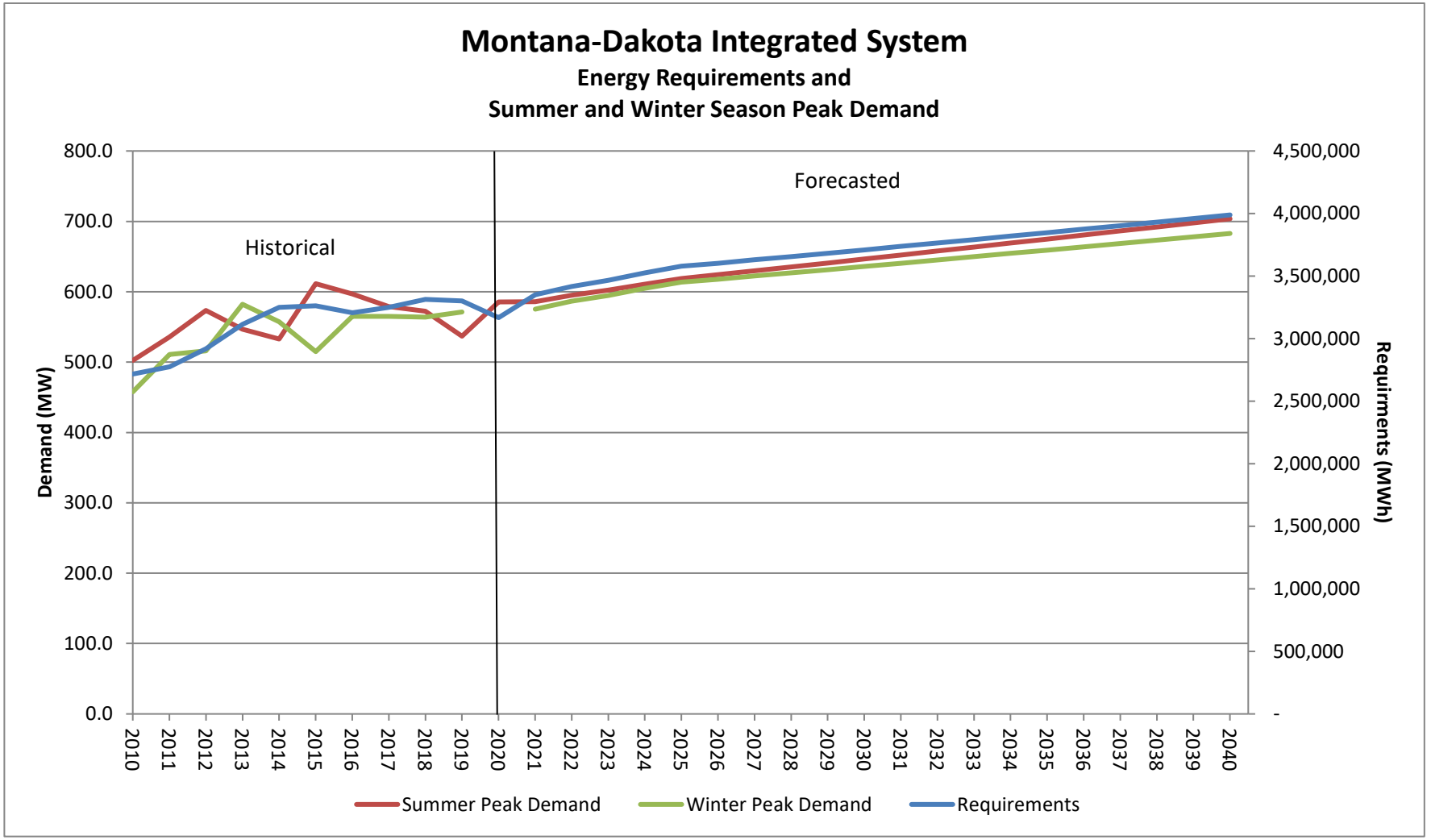
The final forecast results are presented on the following several pages. A table summarizing the Integrated System energy requirements and seasonal peak demand is given first, followed by a graph with historical and forecasted seasonal peak demand and energy requirements. A table summarizing historical and forecasted sales by sales sector for Montana, North Dakota, South Dakota, and the Integrated System in total is given next, followed by a graph of the Integrated System data. A table detailing the historical and forecasted residential sales, customers, and use per customer by state is given next. The last page of this section is a similar table for the Integrated System in total.

Refer to Appendices C-1 through C-7 for graphs of the historical and forecasted sales by sector.

**Montana-Dakota Utilities Co.**
**Historical and Forecasted Energy and Demand**
**Integrated System**
**Reflecting Demand-Side Management Programs from 2019 IRP**
**Calendar Month Basis**

| | Total Energy Requirements (net of DSM and EE) | | Summer Peak - MW | | | | Winter Peak 2/ | | | | Demand Response | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | MWh | % Change | Total Demand Before any DSM or EE | Energy Efficiency (EE) | Demand Net of EE 1/ | % Change | Total Demand Before any DSM or EE | Energy Efficiency (EE) | Demand Net of EE 1/ | % Change | Rate 38/39 Interrupt Loads | Commercial Demand Response |
| 2010 | 2,718,192 | | | | 502.5 | | | | 457.8 | | | |
| 2011 | 2,776,082 | 2.13% | | | 535.8 | 6.63% | | | 510.8 | 11.58% | | |
| 2012 | 2,919,752 | 5.18% | | | 573.6 | 7.05% | | | 516.2 | 1.06% | | |
| 2013 | 3,115,064 | 6.69% | | | 546.9 | -4.65% | | | 582.1 | 12.77% | | |
| 2014 | 3,250,683 | 4.35% | | | 533.0 | -2.54% | | | 557.2 | -4.28% | | |
| 2015 | 3,263,271 | 0.39% | | | 611.5 | 14.73% | | | 514.9 | -7.59% | | |
| 2016 | 3,206,737 | -1.73% | | | 596.8 | -2.40% | | | 564.9 | 9.71% | | |
| 2017 | 3,251,539 | 1.40% | | | 579.1 | -2.97% | | | 565.1 | 0.03% | | |
| 2018 | 3,313,387 | 1.90% | | | 572.4 | -1.16% | | | 563.8 | -0.22% | | |
| 2019 | 3,301,537 | -0.36% | | | 536.9 | -6.20% | | | 571.1 | 1.29% | | |
| 2020 | 3,169,086 | -4.01% | | | 585.6 | 9.07% | | | | not available | | |
| 2021 | 3,350,642 | 5.73% | 586.6 | 0.6 | 586.0 | 0.07% | 575.8 | 0.6 | 575.2 | | 18.9 | 30.0 |
| 2022 | 3,418,187 | 2.02% | 595.7 | 0.6 | 595.1 | 1.55% | 587.3 | 0.6 | 586.7 | 1.99% | 18.9 | 35.0 |
| 2023 | 3,466,208 | 1.40% | 603.2 | 0.6 | 602.5 | 1.25% | 595.4 | 0.6 | 594.8 | 1.38% | 20.0 | 39.0 |
| 2024 | 3,525,523 | 1.71% | 611.5 | 0.6 | 610.8 | 1.38% | 605.4 | 0.6 | 604.8 | 1.69% | 20.0 | 40.0 |
| 2025 | 3,579,075 | 1.52% | 619.4 | 0.7 | 618.8 | 1.30% | 614.4 | 0.6 | 613.8 | 1.48% | 20.0 | 40.0 |
| 2026 | 3,603,363 | 0.68% | 624.9 | 0.7 | 624.2 | 0.88% | 618.6 | 0.6 | 617.9 | 0.68% | 20.0 | 40.0 |
| 2027 | 3,630,492 | 0.75% | 630.5 | 0.7 | 629.8 | 0.90% | 623.1 | 0.7 | 622.4 | 0.73% | 20.0 | 40.0 |
| 2028 | 3,655,892 | 0.70% | 636.0 | 0.7 | 635.3 | 0.88% | 627.4 | 0.7 | 626.8 | 0.70% | 20.0 | 40.0 |
| 2029 | 3,683,062 | 0.74% | 641.6 | 0.7 | 640.9 | 0.88% | 632.1 | 0.7 | 631.4 | 0.74% | 20.0 | 40.0 |
| 2030 | 3,710,355 | 0.74% | 647.3 | 0.7 | 646.6 | 0.89% | 636.6 | 0.7 | 635.9 | 0.72% | 20.0 | 40.0 |
| 2031 | 3,737,747 | 0.74% | 652.9 | 0.7 | 652.3 | 0.87% | 641.3 | 0.7 | 640.6 | 0.73% | 20.0 | 40.0 |
| 2032 | 3,765,210 | 0.73% | 658.7 | 0.7 | 658.0 | 0.88% | 645.9 | 0.7 | 645.2 | 0.72% | 20.0 | 40.0 |
| 2033 | 3,792,755 | 0.73% | 664.4 | 0.7 | 663.7 | 0.87% | 650.6 | 0.7 | 649.9 | 0.73% | 20.0 | 40.0 |
| 2034 | 3,820,414 | 0.73% | 670.0 | 0.7 | 669.3 | 0.85% | 655.3 | 0.7 | 654.6 | 0.71% | 20.0 | 40.0 |
| 2035 | 3,848,154 | 0.73% | 675.7 | 0.7 | 675.0 | 0.85% | 660.0 | 0.7 | 659.3 | 0.72% | 20.0 | 40.0 |
| 2036 | 3,875,972 | 0.72% | 681.4 | 0.7 | 680.7 | 0.85% | 664.6 | 0.7 | 663.9 | 0.70% | 20.0 | 40.0 |
| 2037 | 3,903,936 | 0.72% | 687.1 | 0.7 | 686.4 | 0.84% | 669.4 | 0.7 | 668.6 | 0.71% | 20.0 | 40.0 |
| 2038 | 3,932,005 | 0.72% | 693.0 | 0.7 | 692.2 | 0.85% | 674.2 | 0.7 | 673.4 | 0.72% | 20.0 | 40.0 |
| 2039 | 3,960,348 | 0.72% | 698.7 | 0.8 | 697.9 | 0.82% | 678.9 | 0.7 | 678.2 | 0.70% | 20.0 | 40.0 |
| 2040 | 3,988,844 | 0.72% | 704.5 | 0.8 | 703.7 | 0.83% | 683.7 | 0.7 | 683.0 | 0.71% | 20.0 | 40.0 |

1/ Historical demand reported is system actual demand.
2/ Winter Peak is for Nov-Dec of current year and Jan-Apr of following year.


Montana-Dakota Integrated System
Energy Requirements and
Summer and Winter Season Peak Demand
Historical
Forecasted
Demand (MW)
Requirments (MWh)
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
Summer Peak Demand
Winter Peak Demand
Requirements

**Montana-Dakota Utilities Co.**
**Historical and Forecasted Annual Sales by Sector**
**Montana**
**Billing Month Basis**
**Reflecting Demand-Side Programs**

| | Residential | | Small C&I | | Large C&I | | Street Lighting | | Miscellaneous | | Total Sales | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | Sales (MWh) | % Change | Sales (MWh) | % Change | Sales (MWh) | % Change | Sales (MWh) | % Change | Sales (MWh) | % Change | Sales (MWh) | % Change |
| 2010 | 171,661 | | 109,188 | | 415,946 | | 7,203 | | 7,511 | | 711,509 | |
| 2011 | 185,153 | 7.86% | 119,643 | 9.58% | 427,887 | 2.87% | 7,089 | -1.59% | 7,789 | 3.70% | 747,561 | 5.07% |
| 2012 | 187,635 | 1.34% | 132,714 | 10.93% | 420,459 | -1.74% | 7,106 | 0.24% | 8,134 | 4.43% | 756,048 | 1.14% |
| 2013 | 194,907 | 3.88% | 128,003 | -3.55% | 438,918 | 4.39% | 7,028 | -1.09% | 7,742 | -4.82% | 776,598 | 2.72% |
| 2014 | 200,088 | 2.66% | 137,799 | 7.65% | 451,687 | 2.91% | 7,108 | 1.13% | 7,901 | 2.05% | 804,583 | 3.60% |
| 2015 | 191,420 | -4.33% | 135,202 | -1.88% | 473,740 | 4.88% | 7,103 | -0.07% | 7,991 | 1.14% | 815,456 | 1.35% |
| 2016 | 184,296 | -3.72% | 131,690 | -2.60% | 474,496 | 0.16% | 7,102 | -0.01% | 7,517 | -5.93% | 805,101 | -1.27% |
| 2017 | 188,743 | 2.41% | 133,595 | 1.45% | 469,138 | -1.13% | 7,035 | -0.94% | 7,409 | -1.44% | 805,920 | 0.10% |
| 2018 | 192,080 | 1.77% | 138,485 | 3.66% | 469,653 | 0.11% | 4,451 | -36.73% | 6,303 | -14.93% | 810,972 | 0.63% |
| 2019 | 185,319 | -3.52% | 133,950 | -3.27% | 455,960 | -2.92% | 3,049 | -31.51% | 6,171 | -2.09% | 784,449 | -3.27% |
| 2020 | 184,785 | -0.29% | 125,023 | -6.66% | 421,234 | -7.62% | 3,077 | 0.93% | 6,424 | 4.10% | 740,543 | -5.60% |
| 2021 | 182,940 | -1.00% | 135,502 | 8.38% | 473,461 | 12.40% | 3,049 | -0.92% | 6,146 | -4.33% | 801,097 | 8.18% |
| 2022 | 182,940 | 0.00% | 137,702 | 1.62% | 519,099 | 9.64% | 3,049 | 0.00% | 6,134 | -0.20% | 848,924 | 5.97% |
| 2023 | 182,940 | 0.00% | 139,950 | 1.63% | 538,543 | 3.75% | 3,049 | 0.00% | 6,121 | -0.21% | 870,603 | 2.55% |
| 2024 | 182,940 | 0.00% | 142,180 | 1.59% | 552,244 | 2.54% | 3,049 | 0.00% | 6,109 | -0.20% | 886,521 | 1.83% |
| 2025 | 182,940 | 0.00% | 144,350 | 1.53% | 559,081 | 1.24% | 3,049 | 0.00% | 6,096 | -0.21% | 895,516 | 1.01% |
| 2026 | 182,940 | 0.00% | 146,317 | 1.36% | 560,017 | 0.17% | 3,049 | 0.00% | 6,084 | -0.20% | 898,407 | 0.32% |
| 2027 | 182,940 | 0.00% | 148,492 | 1.49% | 561,652 | 0.29% | 3,049 | 0.00% | 6,071 | -0.21% | 902,203 | 0.42% |
| 2028 | 182,940 | 0.00% | 150,607 | 1.42% | 563,286 | 0.29% | 3,049 | 0.00% | 6,059 | -0.20% | 905,941 | 0.41% |
| 2029 | 182,940 | 0.00% | 152,664 | 1.37% | 564,920 | 0.29% | 3,049 | 0.00% | 6,047 | -0.20% | 909,619 | 0.41% |
| 2030 | 182,940 | 0.00% | 154,731 | 1.35% | 566,553 | 0.29% | 3,049 | 0.00% | 6,034 | -0.21% | 913,307 | 0.41% |
| 2031 | 182,940 | 0.00% | 156,791 | 1.33% | 568,187 | 0.29% | 3,049 | 0.00% | 6,022 | -0.20% | 916,988 | 0.40% |
| 2032 | 182,940 | 0.00% | 158,817 | 1.29% | 569,821 | 0.29% | 3,049 | 0.00% | 6,009 | -0.22% | 920,635 | 0.40% |
| 2033 | 182,940 | 0.00% | 160,818 | 1.26% | 571,454 | 0.29% | 3,049 | 0.00% | 5,997 | -0.20% | 924,257 | 0.39% |
| 2034 | 182,940 | 0.00% | 162,818 | 1.24% | 573,087 | 0.29% | 3,049 | 0.00% | 5,985 | -0.20% | 927,879 | 0.39% |
| 2035 | 182,940 | 0.00% | 164,796 | 1.21% | 574,720 | 0.28% | 3,049 | 0.00% | 5,972 | -0.22% | 931,477 | 0.39% |
| 2036 | 182,940 | 0.00% | 166,733 | 1.18% | 576,353 | 0.28% | 3,049 | 0.00% | 5,960 | -0.20% | 935,035 | 0.38% |
| 2037 | 182,940 | 0.00% | 168,696 | 1.18% | 577,986 | 0.28% | 3,049 | 0.00% | 5,947 | -0.22% | 938,618 | 0.38% |
| 2038 | 182,940 | 0.00% | 170,648 | 1.16% | 579,619 | 0.28% | 3,049 | 0.00% | 5,935 | -0.20% | 942,190 | 0.38% |
| 2039 | 182,940 | 0.00% | 172,560 | 1.12% | 581,261 | 0.28% | 3,049 | 0.00% | 5,922 | -0.22% | 945,732 | 0.38% |
| 2040 | 182,940 | 0.00% | 174,495 | 1.12% | 582,903 | 0.28% | 3,049 | 0.00% | 5,910 | -0.20% | 949,296 | 0.38% |
| 2010-2020Average Yearly Growth (10 Years History) | | 0.27% | | 1.19% | | 0.76% | | -7.88% | | -2.35% | | 0.62% |
| 2015-2020 Average Yearly Growth (5 Years History) | | -0.41% | | -0.87% | | -2.00% | | -18.54% | | -5.13% | | -1.57% |
| 2021-2026 Average Yearly Growth (5 Years) | | 0.00% | | 1.56% | | 3.16% | | 0.00% | | -0.20% | | 2.17% |
| 2021-2031 Average Yearly Growth (10 Years) | | 0.00% | | 1.47% | | 1.33% | | 0.00% | | -0.20% | | 1.05% |
| 2021-2040 Average Yearly Growth (19 Years) | | 0.00% | | 1.33% | | 0.63% | | 0.00% | | -0.21% | | 0.61% |

**Montana-Dakota Utilities Co.**
**Historical and Forecasted Annual Sales by Sector**
**North Dakota**
**Billing Month Basis**
**Reflecting Demand-Side Programs**

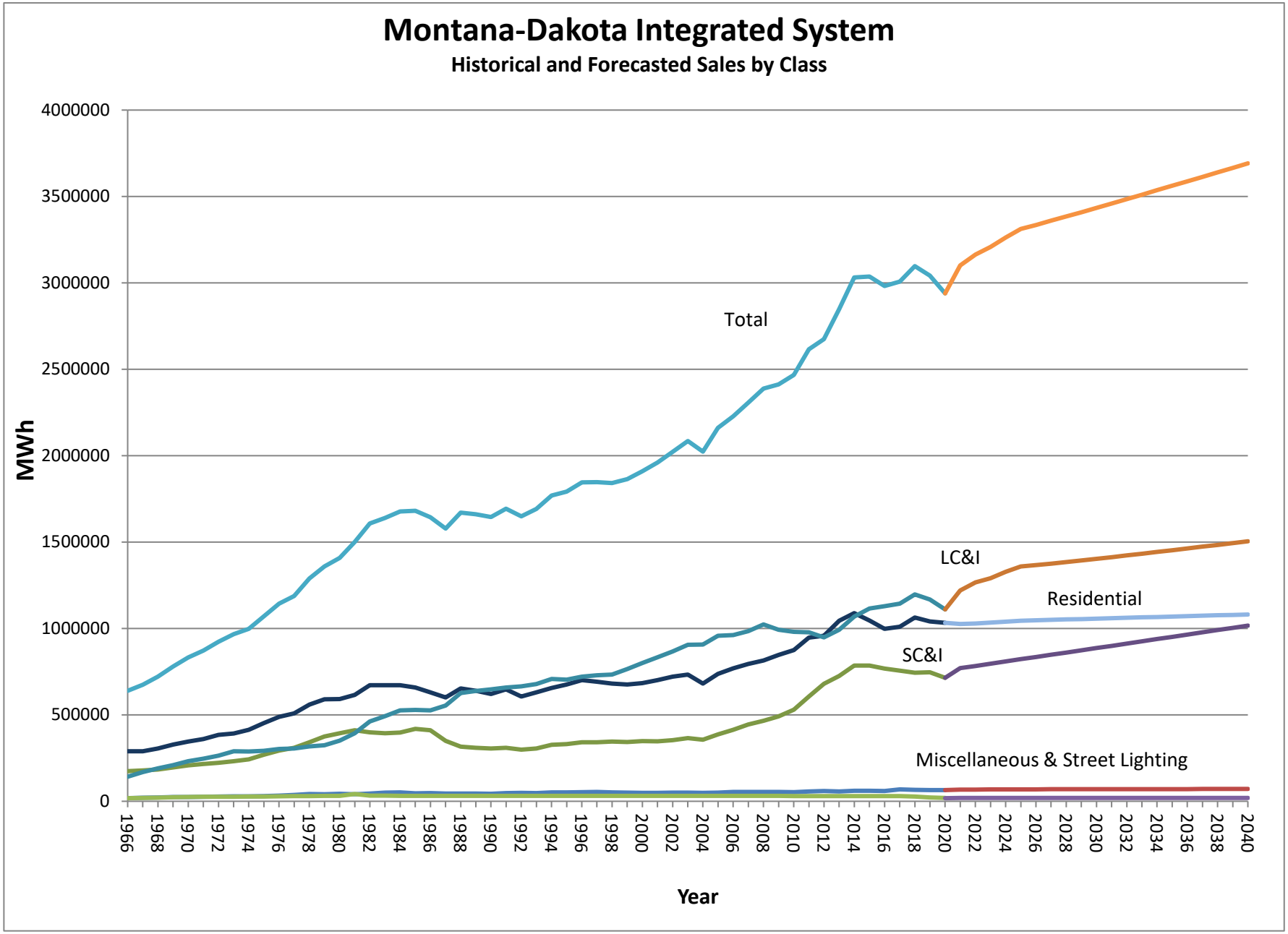
| | Residential | | Small C&I | | Large C&I | | Street Lighting | | Miscellaneous | | Total Sales | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | Sales (MWh) | % Change | Sales (MWh) | % Change | Sales (MWh) | % Change | Sales (MWh) | % Change | Sales (MWh) | % Change | Sales (MWh) | % Change |
| 2010 | 632,068 | | 382,985 | | 530,341 | | 20,373 | | 43,216 | | 1,608,983 | |
| 2011 | 687,465 | 8.76% | 450,098 | 17.52% | 514,238 | -3.04% | 20,059 | -1.54% | 46,265 | 7.06% | 1,718,125 | 6.78% |
| 2012 | 700,451 | 1.89% | 512,566 | 13.88% | 492,981 | -4.13% | 20,076 | 0.08% | 48,519 | 4.87% | 1,774,593 | 3.29% |
| 2013 | 774,916 | 10.63% | 559,839 | 9.22% | 516,813 | 4.83% | 19,895 | -0.90% | 47,406 | -2.29% | 1,918,869 | 8.13% |
| 2014 | 812,654 | 4.87% | 609,044 | 8.79% | 579,346 | 12.10% | 20,015 | 0.60% | 50,790 | 7.14% | 2,071,849 | 7.97% |
| 2015 | 784,977 | -3.41% | 614,126 | 0.83% | 603,879 | 4.23% | 20,313 | 1.49% | 50,730 | -0.12% | 2,074,025 | 0.11% |
| 2016 | 746,374 | -4.92% | 599,694 | -2.35% | 617,934 | 2.33% | 20,387 | 0.36% | 49,560 | -2.31% | 2,033,949 | -1.93% |
| 2017 | 754,400 | 1.08% | 585,174 | -2.42% | 638,719 | 3.36% | 20,042 | -1.69% | 59,021 | 19.09% | 2,057,356 | 1.15% |
| 2018 | 799,661 | 6.00% | 565,692 | -3.33% | 690,345 | 8.08% | 19,569 | -2.36% | 58,278 | -1.26% | 2,133,545 | 3.70% |
| 2019 | 784,808 | -1.86% | 573,956 | 1.46% | 675,579 | -2.14% | 16,733 | -14.49% | 56,260 | -3.46% | 2,107,336 | -1.23% |
| 2020 | 779,619 | -0.66% | 552,682 | -3.71% | 652,236 | -3.46% | 13,957 | -16.59% | 55,728 | -0.95% | 2,054,222 | -2.52% |
| 2021 | 774,857 | -0.61% | 594,489 | 7.56% | 708,604 | 8.64% | 14,499 | 3.88% | 58,463 | 4.91% | 2,150,912 | 4.71% |
| 2022 | 777,307 | 0.32% | 604,883 | 1.75% | 708,351 | -0.04% | 14,499 | 0.00% | 59,563 | 1.88% | 2,164,604 | 0.64% |
| 2023 | 782,746 | 0.70% | 615,577 | 1.77% | 712,881 | 0.64% | 14,499 | 0.00% | 60,664 | 1.85% | 2,186,367 | 1.01% |
| 2024 | 788,185 | 0.69% | 625,626 | 1.63% | 735,185 | 3.13% | 14,499 | 0.00% | 60,803 | 0.23% | 2,224,298 | 1.73% |
| 2025 | 793,624 | 0.69% | 636,312 | 1.71% | 758,430 | 3.16% | 14,499 | 0.00% | 60,943 | 0.23% | 2,263,808 | 1.78% |
| 2026 | 796,074 | 0.31% | 646,320 | 1.57% | 764,433 | 0.79% | 14,499 | 0.00% | 61,083 | 0.23% | 2,282,410 | 0.82% |
| 2027 | 798,524 | 0.31% | 656,991 | 1.65% | 771,404 | 0.91% | 14,499 | 0.00% | 61,223 | 0.23% | 2,302,641 | 0.89% |
| 2028 | 800,974 | 0.31% | 666,954 | 1.52% | 777,529 | 0.79% | 14,499 | 0.00% | 61,363 | 0.23% | 2,321,319 | 0.81% |
| 2029 | 803,424 | 0.31% | 677,603 | 1.60% | 784,653 | 0.92% | 14,499 | 0.00% | 61,504 | 0.23% | 2,341,683 | 0.88% |
| 2030 | 805,874 | 0.30% | 688,257 | 1.57% | 791,862 | 0.92% | 14,499 | 0.00% | 61,646 | 0.23% | 2,362,138 | 0.87% |
| 2031 | 808,324 | 0.30% | 698,910 | 1.55% | 799,156 | 0.92% | 14,499 | 0.00% | 61,787 | 0.23% | 2,382,677 | 0.87% |
| 2032 | 810,774 | 0.30% | 709,562 | 1.52% | 806,538 | 0.92% | 14,499 | 0.00% | 61,929 | 0.23% | 2,403,302 | 0.87% |
| 2033 | 813,224 | 0.30% | 720,213 | 1.50% | 814,008 | 0.93% | 14,499 | 0.00% | 62,072 | 0.23% | 2,424,016 | 0.86% |
| 2034 | 815,674 | 0.30% | 730,863 | 1.48% | 821,566 | 0.93% | 14,499 | 0.00% | 62,214 | 0.23% | 2,444,817 | 0.86% |
| 2035 | 818,124 | 0.30% | 741,507 | 1.46% | 829,215 | 0.93% | 14,499 | 0.00% | 62,358 | 0.23% | 2,465,703 | 0.85% |
| 2036 | 820,574 | 0.30% | 752,155 | 1.44% | 836,955 | 0.93% | 14,499 | 0.00% | 62,501 | 0.23% | 2,486,684 | 0.85% |
| 2037 | 823,024 | 0.30% | 762,802 | 1.42% | 844,786 | 0.94% | 14,499 | 0.00% | 62,645 | 0.23% | 2,507,756 | 0.85% |
| 2038 | 825,474 | 0.30% | 773,448 | 1.40% | 852,712 | 0.94% | 14,499 | 0.00% | 62,789 | 0.23% | 2,528,921 | 0.84% |
| 2039 | 827,924 | 0.30% | 784,174 | 1.39% | 860,817 | 0.95% | 14,499 | 0.00% | 62,933 | 0.23% | 2,550,347 | 0.85% |
| 2040 | 830,374 | 0.30% | 794,900 | 1.37% | 869,019 | 0.95% | 14,499 | 0.00% | 63,078 | 0.23% | 2,571,870 | 0.84% |
| 2010-2020Average Yearly Growth (10 Years History) | | 1.68% | | 2.93% | | 3.35% | | -2.39% | | 2.78% | | 2.50% |
| 2015-2020 Average Yearly Growth (5 Years History) | | 0.50% | | -1.96% | | 2.11% | | -6.87% | | 2.42% | | 0.27% |
| 2021-2026 Average Yearly Growth (5 Years) | | 0.59% | | 1.69% | | 1.77% | | 0.00% | | 0.83% | | 1.29% |
| 2021-2031 Average Yearly Growth (10 Years) | | 0.43% | | 1.63% | | 1.34% | | 0.00% | | 0.44% | | 1.07% |
| 2021-2040 Average Yearly Growth (19 Years) | | 0.35% | | 1.54% | | 1.08% | | 0.00% | | 0.30% | | 0.93% |

**Montana-Dakota Utilities Co.**
**Historical and Forecasted Annual Sales by Sector**
**South Dakota**
**Billing Month Basis**
**Reflecting Demand-Side Programs**

| YEAR | Residential Sales (MWh) | % Change | Small C&I Sales (MWh) | % Change | Large C&I Sales (MWh) | % Change | Street Lighting Sales (MWh) | % Change | Miscellaneous Sales (MWh) | % Change | Total Sales Sales (MWh) | % Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | 70,868 | | 37,313 | | 34,339 | | 2,639 | | 1,535 | | 146,694 | |
| 2011 | 73,977 | 4.39% | 36,712 | -1.61% | 34,945 | 1.76% | 2,628 | -0.42% | 1,729 | 12.64% | 149,991 | 2.25% |
| 2012 | 69,097 | -6.60% | 34,639 | -5.65% | 35,388 | 1.27% | 2,620 | -0.30% | 1,811 | 4.74% | 143,555 | -4.29% |
| 2013 | 74,265 | 7.48% | 37,118 | 7.16% | 36,338 | 2.68% | 2,661 | 1.56% | 1,866 | 3.04% | 152,248 | 6.06% |
| 2014 | 75,462 | 1.61% | 38,045 | 2.50% | 37,507 | 3.22% | 2,651 | -0.38% | 1,753 | -6.06% | 155,418 | 2.08% |
| 2015 | 69,743 | -7.58% | 35,995 | -5.39% | 37,084 | -1.13% | 2,568 | -3.13% | 1,730 | -1.31% | 147,120 | -5.34% |
| 2016 | 67,301 | -3.50% | 35,799 | -0.54% | 35,875 | -3.26% | 2,517 | -1.99% | 1,703 | -1.56% | 143,195 | -2.67% |
| 2017 | 67,065 | -0.35% | 37,186 | 3.87% | 35,546 | -0.92% | 2,487 | -1.18% | 1,752 | 2.88% | 144,037 | 0.59% |
| 2018 | 72,030 | 7.40% | 39,185 | 5.38% | 36,289 | 2.09% | 2,461 | -1.05% | 1,732 | -1.14% | 151,697 | 5.32% |
| 2019 | 70,773 | -1.75% | 38,738 | -1.14% | 35,995 | -0.81% | 2,397 | -2.59% | 1,851 | 6.88% | 149,754 | -1.28% |
| 2020 | 68,270 | -3.54% | 36,426 | -5.97% | 35,841 | -0.43% | 1,556 | -35.10% | 1,682 | -9.11% | 143,775 | -3.99% |
| 2021 | 67,970 | -0.44% | 39,999 | 9.81% | 38,183 | 6.53% | 1,257 | -19.24% | 1,851 | 10.03% | 149,260 | 3.81% |
| 2022 | 67,991 | 0.03% | 40,311 | 0.78% | 38,848 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 150,259 | 0.67% |
| 2023 | 68,004 | 0.02% | 40,667 | 0.88% | 39,485 | 1.64% | 1,257 | 0.00% | 1,851 | 0.00% | 151,264 | 0.67% |
| 2024 | 68,008 | 0.01% | 41,025 | 0.88% | 40,174 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 152,315 | 0.69% |
| 2025 | 68,008 | 0.00% | 41,387 | 0.88% | 40,875 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 153,377 | 0.70% |
| 2026 | 68,003 | -0.01% | 41,709 | 0.78% | 41,545 | 1.64% | 1,257 | 0.00% | 1,851 | 0.00% | 154,365 | 0.64% |
| 2027 | 67,994 | -0.01% | 42,077 | 0.88% | 42,269 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 155,448 | 0.70% |
| 2028 | 67,979 | -0.02% | 42,448 | 0.88% | 43,006 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 156,540 | 0.70% |
| 2029 | 67,961 | -0.03% | 42,822 | 0.88% | 43,756 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 157,646 | 0.71% |
| 2030 | 67,939 | -0.03% | 43,199 | 0.88% | 44,519 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 158,765 | 0.71% |
| 2031 | 67,916 | -0.03% | 43,580 | 0.88% | 45,295 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 159,899 | 0.71% |
| 2032 | 67,888 | -0.04% | 43,964 | 0.88% | 46,085 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 161,045 | 0.72% |
| 2033 | 67,857 | -0.05% | 44,352 | 0.88% | 46,888 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 162,205 | 0.72% |
| 2034 | 67,826 | -0.05% | 44,743 | 0.88% | 47,706 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 163,382 | 0.73% |
| 2035 | 67,791 | -0.05% | 45,137 | 0.88% | 48,537 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 164,573 | 0.73% |
| 2036 | 67,756 | -0.05% | 45,535 | 0.88% | 49,383 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 165,782 | 0.73% |
| 2037 | 67,721 | -0.05% | 45,936 | 0.88% | 50,244 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 167,009 | 0.74% |
| 2038 | 67,683 | -0.06% | 46,341 | 0.88% | 51,120 | 1.74% | 1,257 | 0.00% | 1,851 | 0.00% | 168,252 | 0.74% |
| 2039 | 67,645 | -0.06% | 46,751 | 0.88% | 52,015 | 1.75% | 1,257 | 0.00% | 1,851 | 0.00% | 169,519 | 0.75% |
| 2040 | 67,609 | -0.05% | 47,164 | 0.88% | 52,925 | 1.75% | 1,257 | 0.00% | 1,851 | 0.00% | 170,806 | 0.76% |
| 2010-2020Average Yearly Growth (10 Years History) | | -0.51% | | 0.37% | | 0.29% | | -3.03% | | 0.40% | | -0.12% |
| 2015-2020 Average Yearly Growth (5 Years History) | | 0.33% | | 1.00% | | -0.40% | | -7.32% | | 0.28% | | 0.20% |
| 2021-2026 Average Yearly Growth (5 Years) | | 0.01% | | 0.85% | | 1.71% | | 0.00% | | 0.00% | | 0.68% |
| 2021-2031 Average Yearly Growth (10 Years) | | -0.01% | | 0.86% | | 1.72% | | 0.00% | | 0.00% | | 0.69% |
| 2021-2040 Average Yearly Growth (19 Years) | | -0.03% | | 0.87% | | 1.74% | | 0.00% | | 0.00% | | 0.71% |

**Montana-Dakota Utilities Co.**
**Historical and Forecasted Annual Sales by Sector**
**Integrated System**
**Billing Month Basis**
**Reflecting Demand-Side Programs**

| YEAR | Residential Sales (MWh) | % Change | Small C&I Sales (MWh) | % Change | Large C&I Sales (MWh) | % Change | Street Lighting Sales (MWh) | % Change | Miscellaneous Sales (MWh) | % Change | Total Sales Sales (MWh) | % Change | Total Energy Requirements MWh | % Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | 874,597 | | 529,486 | | 980,626 | | 30,215 | | 52,262 | | 2,467,186 | | 2,718,192 | |
| 2011 | 946,595 | 8.23% | 606,453 | 14.54% | 977,070 | -0.36% | 29,776 | -1.45% | 55,783 | 6.74% | 2,615,677 | 6.02% | 2,776,082 | 2.13% |
| 2012 | 957,183 | 1.12% | 679,919 | 12.11% | 948,828 | -2.89% | 29,802 | 0.09% | 58,464 | 4.81% | 2,674,196 | 2.24% | 2,919,752 | 5.18% |
| 2013 | 1,044,088 | 9.08% | 724,960 | 6.62% | 992,069 | 4.56% | 29,584 | -0.73% | 57,014 | -2.48% | 2,847,715 | 6.49% | 3,115,064 | 6.69% |
| 2014 | 1,088,204 | 4.23% | 784,888 | 8.27% | 1,068,540 | 7.71% | 29,774 | 0.64% | 60,444 | 6.02% | 3,031,850 | 6.47% | 3,250,683 | 4.35% |
| 2015 | 1,046,140 | -3.87% | 785,323 | 0.06% | 1,114,703 | 4.32% | 29,984 | 0.71% | 60,451 | 0.01% | 3,036,601 | 0.16% | 3,263,271 | 0.39% |
| 2016 | 997,971 | -4.60% | 767,183 | -2.31% | 1,128,305 | 1.22% | 30,006 | 0.07% | 58,780 | -2.76% | 2,982,245 | -1.79% | 3,206,737 | -1.73% |
| 2017 | 1,010,208 | 1.23% | 755,955 | -1.46% | 1,143,403 | 1.34% | 29,564 | -1.47% | 68,182 | 15.99% | 3,007,312 | 0.84% | 3,251,539 | 1.40% |
| 2018 | 1,063,771 | 5.30% | 743,362 | -1.67% | 1,196,287 | 4.63% | 26,481 | -10.43% | 66,313 | -2.74% | 3,096,214 | 2.96% | 3,313,387 | 1.90% |
| 2019 | 1,040,900 | -2.15% | 746,645 | 0.44% | 1,167,534 | -2.40% | 22,179 | -16.25% | 64,282 | -3.06% | 3,041,540 | -1.77% | 3,301,537 | -0.36% |
| 2020 | 1,032,674 | -0.79% | 714,131 | -4.35% | 1,109,310 | -4.99% | 18,590 | -16.18% | 63,834 | -0.70% | 2,938,540 | -3.39% | 3,169,086 | -4.01% |
| 2021 | 1,025,767 | -0.67% | 769,990 | 7.82% | 1,220,248 | 10.00% | 18,804 | 1.15% | 66,460 | 4.11% | 3,101,269 | 5.54% | 3,350,642 | 5.73% |
| 2022 | 1,028,238 | 0.24% | 782,897 | 1.68% | 1,266,299 | 3.77% | 18,804 | 0.00% | 67,548 | 1.64% | 3,163,787 | 2.02% | 3,418,187 | 2.02% |
| 2023 | 1,033,690 | 0.53% | 796,194 | 1.70% | 1,290,909 | 1.94% | 18,804 | 0.00% | 68,636 | 1.61% | 3,208,234 | 1.40% | 3,466,208 | 1.40% |
| 2024 | 1,039,133 | 0.53% | 808,832 | 1.59% | 1,327,602 | 2.84% | 18,804 | 0.00% | 68,763 | 0.19% | 3,263,134 | 1.71% | 3,525,523 | 1.71% |
| 2025 | 1,044,572 | 0.52% | 822,049 | 1.63% | 1,358,386 | 2.32% | 18,804 | 0.00% | 68,890 | 0.18% | 3,312,701 | 1.52% | 3,579,075 | 1.52% |
| 2026 | 1,047,017 | 0.23% | 834,346 | 1.50% | 1,365,995 | 0.56% | 18,804 | 0.00% | 69,018 | 0.19% | 3,335,181 | 0.68% | 3,603,363 | 0.68% |
| 2027 | 1,049,458 | 0.23% | 847,559 | 1.58% | 1,375,324 | 0.68% | 18,804 | 0.00% | 69,145 | 0.18% | 3,360,291 | 0.75% | 3,630,492 | 0.75% |
| 2028 | 1,051,893 | 0.23% | 860,009 | 1.47% | 1,383,821 | 0.62% | 18,804 | 0.00% | 69,273 | 0.19% | 3,383,800 | 0.70% | 3,655,892 | 0.70% |
| 2029 | 1,054,325 | 0.23% | 873,089 | 1.52% | 1,393,328 | 0.69% | 18,804 | 0.00% | 69,402 | 0.19% | 3,408,949 | 0.74% | 3,683,062 | 0.74% |
| 2030 | 1,056,753 | 0.23% | 886,187 | 1.50% | 1,402,934 | 0.69% | 18,804 | 0.00% | 69,531 | 0.19% | 3,434,210 | 0.74% | 3,710,355 | 0.74% |
| 2031 | 1,059,180 | 0.23% | 899,281 | 1.48% | 1,412,638 | 0.69% | 18,804 | 0.00% | 69,660 | 0.19% | 3,459,564 | 0.74% | 3,737,747 | 0.74% |
| 2032 | 1,061,602 | 0.23% | 912,344 | 1.45% | 1,422,443 | 0.69% | 18,804 | 0.00% | 69,789 | 0.19% | 3,484,982 | 0.73% | 3,765,210 | 0.73% |
| 2033 | 1,064,021 | 0.23% | 925,383 | 1.43% | 1,432,350 | 0.70% | 18,804 | 0.00% | 69,920 | 0.19% | 3,510,478 | 0.73% | 3,792,755 | 0.73% |
| 2034 | 1,066,440 | 0.23% | 938,424 | 1.41% | 1,442,359 | 0.70% | 18,804 | 0.00% | 70,050 | 0.19% | 3,536,078 | 0.73% | 3,820,414 | 0.73% |
| 2035 | 1,068,855 | 0.23% | 951,440 | 1.39% | 1,452,473 | 0.70% | 18,804 | 0.00% | 70,181 | 0.19% | 3,561,753 | 0.73% | 3,848,154 | 0.73% |
| 2036 | 1,071,270 | 0.23% | 964,423 | 1.36% | 1,462,692 | 0.70% | 18,804 | 0.00% | 70,312 | 0.19% | 3,587,501 | 0.72% | 3,875,972 | 0.72% |
| 2037 | 1,073,685 | 0.23% | 977,434 | 1.35% | 1,473,017 | 0.71% | 18,804 | 0.00% | 70,443 | 0.19% | 3,613,384 | 0.72% | 3,903,936 | 0.72% |
| 2038 | 1,076,097 | 0.22% | 990,436 | 1.33% | 1,483,451 | 0.71% | 18,804 | 0.00% | 70,575 | 0.19% | 3,639,364 | 0.72% | 3,932,005 | 0.72% |
| 2039 | 1,078,509 | 0.22% | 1,003,485 | 1.32% | 1,494,092 | 0.72% | 18,804 | 0.00% | 70,706 | 0.19% | 3,665,597 | 0.72% | 3,960,348 | 0.72% |
| 2040 | 1,080,923 | 0.22% | 1,016,559 | 1.30% | 1,504,847 | 0.72% | 18,804 | 0.00% | 70,839 | 0.19% | 3,691,973 | 0.72% | 3,988,844 | 0.72% |
| 2010-2020Average Yearly Growth (10 Years History) | | 1.26% | | 2.44% | | 2.17% | | -3.53% | | 2.09% | | 1.84% | | 1.75% |
| 2015-2020 Average Yearly Growth (5 Years History) | | 0.32% | | -1.62% | | 0.35% | | -9.28% | | 1.48% | | -0.22% | | -0.11% |
| 2021-2026 Average Yearly Growth (5 Years) | | 0.44% | | 1.62% | | 2.32% | | 0.00% | | 0.72% | | 1.49% | | 1.49% |
| 2021-2031 Average Yearly Growth (10 Years) | | 0.33% | | 1.56% | | 1.34% | | 0.00% | | 0.37% | | 1.05% | | 1.05% |
| 2021-2040 Average Yearly Growth (19 Years) | | 0.26% | | 1.47% | | 0.92% | | 0.00% | | 0.24% | | 0.84% | | 0.84% |


Montana-Dakota Integrated System
Historical and Forecasted Sales by Class
MWh
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
Total
LC&I
Residential
SC&I
Miscellaneous & Street Lighting
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
Year

**Montana-Dakota Utiliities Co.**
**Historical and Forecasted**
**Residential Sales, Customers, and Use per Customer**
**Reflecting EE and DR Reductions**

**North Dakota**

| Year | Sales (MWh) /* | % Change | Avg Custs | Cust No Inc/(Dec) | Avg Use Per Cust (kWh/Yr) | % Change |
|---|---|---|---|---|---|---|
| 2010 | 632,068 | | 63,619 | | 9,935 | |
| 2011 | 687,465 | 8.76% | 65,196 | 1,577 | 10,545 | 6.13% |
| 2012 | 700,451 | 1.89% | 67,888 | 2,692 | 10,318 | -2.15% |
| 2013 | 774,916 | 10.63% | 70,949 | 3,061 | 10,922 | 5.86% |
| 2014 | 812,654 | 4.87% | 73,909 | 2,960 | 10,995 | 0.67% |
| 2015 | 784,977 | -3.41% | 76,894 | 2,985 | 10,209 | -7.16% |
| 2016 | 746,374 | -4.92% | 78,553 | 1,659 | 9,502 | -6.93% |
| 2017 | 754,400 | 1.08% | 78,564 | 11 | 9,602 | 1.06% |
| 2018 | 799,661 | 6.00% | 78,510 | (54) | 10,185 | 6.07% |
| 2019 | 784,808 | -1.86% | 78,567 | 57 | 9,989 | -1.93% |
| 2020 | 779,619 | -0.66% | 78,812 | 245 | 9,892 | -0.97% |
| 2021 | 774,857 | -0.61% | 79,067 | 255 | 9,800 | -0.93% |
| 2022 | 777,307 | 0.32% | 79,317 | 250 | 9,800 | 0.00% |
| 2023 | 782,746 | 0.70% | 79,872 | 555 | 9,800 | 0.00% |
| 2024 | 788,185 | 0.69% | 80,427 | 555 | 9,800 | 0.00% |
| 2025 | 793,624 | 0.69% | 80,982 | 555 | 9,800 | 0.00% |
| 2026 | 796,074 | 0.31% | 81,232 | 250 | 9,800 | 0.00% |
| 2027 | 798,524 | 0.31% | 81,482 | 250 | 9,800 | 0.00% |
| 2028 | 800,974 | 0.31% | 81,732 | 250 | 9,800 | 0.00% |
| 2029 | 803,424 | 0.31% | 81,982 | 250 | 9,800 | 0.00% |
| 2030 | 805,874 | 0.30% | 82,232 | 250 | 9,800 | 0.00% |
| 2031 | 808,324 | 0.30% | 82,482 | 250 | 9,800 | 0.00% |
| 2032 | 810,774 | 0.30% | 82,732 | 250 | 9,800 | 0.00% |
| 2033 | 813,224 | 0.30% | 82,982 | 250 | 9,800 | 0.00% |
| 2034 | 815,674 | 0.30% | 83,232 | 250 | 9,800 | 0.00% |
| 2035 | 818,124 | 0.30% | 83,482 | 250 | 9,800 | 0.00% |
| 2036 | 820,574 | 0.30% | 83,732 | 250 | 9,800 | 0.00% |
| 2037 | 823,024 | 0.30% | 83,982 | 250 | 9,800 | 0.00% |
| 2038 | 825,474 | 0.30% | 84,232 | 250 | 9,800 | 0.00% |
| 2039 | 827,924 | 0.30% | 84,482 | 250 | 9,800 | 0.00% |
| 2040 | 830,374 | 0.30% | 84,732 | 250 | 9,800 | 0.00% |

| | Sales | Custs | Use/Cust |
|---|---|---|---|
| 2010-2020 Average Yearly Growth (10 Years History) | 1.68% | 2.32% | -0.62% |
| 2015-2020 Average Yearly Growth (5 Years History) | 0.50% | 0.35% | 0.15% |
| 2021-2026 Average Yearly Growth (5 Years) | 0.59% | 0.59% | 0.00% |
| 2021-2031 Average Yearly Growth (10 Years) | 0.43% | 0.43% | 0.00% |
| 2021-2040 Average Yearly Growth (19 Years) | 0.35% | 0.35% | 0.00% |

**South Dakota**

| Year | Sales (MWh) | % Change | Avg Custs | Cust No Inc/(Dec) | Avg Use Per Cust (kWh/Yr) | % Change |
|---|---|---|---|---|---|---|
| 2010 | 70,868 | | 6,609 | | 10,723 | |
| 2011 | 73,977 | 4.39% | 6,602 | (7) | 11,205 | 4.50% |
| 2012 | 69,097 | -6.60% | 6,616 | 14 | 10,444 | -6.79% |
| 2013 | 74,265 | 7.48% | 6,590 | (26) | 11,269 | 7.90% |
| 2014 | 75,462 | 1.61% | 6,580 | (10) | 11,468 | 1.77% |
| 2015 | 69,743 | -7.58% | 6,662 | 82 | 10,469 | -8.72% |
| 2016 | 67,301 | -3.50% | 6,546 | (116) | 10,281 | -1.79% |
| 2017 | 67,065 | -0.35% | 6,533 | (13) | 10,266 | -0.15% |
| 2018 | 72,030 | 7.40% | 6,496 | (37) | 11,088 | 8.02% |
| 2019 | 70,773 | -1.75% | 6,442 | (54) | 10,986 | -0.92% |
| 2020 | 68,270 | -3.54% | 6,441 | (1) | 10,599 | -3.52% |
| 2021 | 67,970 | -0.44% | 6,508 | 67 | 10,444 | -1.47% |
| 2022 | 67,991 | 0.03% | 6,510 | 2 | 10,444 | 0.00% |
| 2023 | 68,004 | 0.02% | 6,511 | 1 | 10,444 | 0.00% |
| 2024 | 68,008 | 0.01% | 6,512 | 0 | 10,444 | 0.00% |
| 2025 | 68,008 | 0.00% | 6,512 | - | 10,444 | 0.00% |
| 2026 | 68,003 | -0.01% | 6,511 | (1) | 10,444 | 0.00% |
| 2027 | 67,994 | -0.01% | 6,510 | (1) | 10,444 | 0.00% |
| 2028 | 67,979 | -0.02% | 6,509 | (1) | 10,444 | 0.00% |
| 2029 | 67,961 | -0.03% | 6,507 | (2) | 10,444 | 0.00% |
| 2030 | 67,939 | -0.03% | 6,505 | (2) | 10,444 | 0.00% |
| 2031 | 67,916 | -0.03% | 6,503 | (2) | 10,444 | 0.00% |
| 2032 | 67,888 | -0.04% | 6,500 | (3) | 10,444 | 0.00% |
| 2033 | 67,857 | -0.05% | 6,497 | (3) | 10,444 | 0.00% |
| 2034 | 67,826 | -0.05% | 6,494 | (3) | 10,444 | 0.00% |
| 2035 | 67,791 | -0.05% | 6,491 | (3) | 10,444 | 0.00% |
| 2036 | 67,756 | -0.05% | 6,488 | (3) | 10,444 | 0.00% |
| 2037 | 67,721 | -0.05% | 6,484 | (3) | 10,444 | 0.00% |
| 2038 | 67,683 | -0.06% | 6,481 | (4) | 10,444 | 0.00% |
| 2039 | 67,645 | -0.06% | 6,477 | (4) | 10,444 | 0.00% |
| 2040 | 67,609 | -0.05% | 6,473 | (3) | 10,444 | 0.00% |

| | Sales | Custs | Use/Cust |
|---|---|---|---|
| 2010-2020 Average Yearly Growth (10 Years History) | -0.51% | -0.28% | -0.23% |
| 2015-2020 Average Yearly Growth (5 Years History) | 0.33% | -0.63% | 0.97% |
| 2021-2026 Average Yearly Growth (5 Years) | 0.009% | 0.009% | 0.00% |
| 2021-2031 Average Yearly Growth (10 Years) | -0.009% | -0.009% | 0.00% |
| 2021-2040 Average Yearly Growth (19 Years) | -0.03% | -0.03% | 0.00% |

**Montana**

| Year | Sales (MWh) | % Change | Avg Custs | Cust No Inc/(Dec) | Avg Use Per Cust (kWh/Yr) | % Change |
|---|---|---|---|---|---|---|
| 2010 | 171,661 | | 18,716 | | 9,172 | |
| 2011 | 185,153 | 7.86% | 18,883 | 167 | 9,805 | 6.91% |
| 2012 | 187,635 | 1.34% | 19,191 | 308 | 9,777 | -0.29% |
| 2013 | 194,907 | 3.88% | 19,616 | 425 | 9,936 | 1.63% |
| 2014 | 200,088 | 2.66% | 19,918 | 302 | 10,046 | 1.10% |
| 2015 | 191,420 | -4.33% | 20,135 | 217 | 9,507 | -5.36% |
| 2016 | 184,296 | -3.72% | 20,128 | (7) | 9,156 | -3.69% |
| 2017 | 188,743 | 2.41% | 19,981 | (147) | 9,446 | 3.17% |
| 2018 | 192,080 | 1.77% | 19,911 | (70) | 9,647 | 2.13% |
| 2019 | 185,319 | -3.52% | 19,896 | (15) | 9,314 | -3.45% |
| 2020 | 184,785 | -0.29% | 19,798 | (98) | 9,334 | 0.21% |
| 2021 | 195,573 | 5.84% | 19,896 | 98 | 9,830 | 5.32% |
| 2022 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2023 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2024 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2025 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2026 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2027 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2028 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2029 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2030 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2031 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2032 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2033 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2034 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2035 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2036 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2037 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2038 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2039 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |
| 2040 | 195,573 | 0.00% | 19,896 | - | 9,830 | 0.00% |

| | Sales | Custs | Use/Cust |
|---|---|---|---|
| 2010-2020 Average Yearly Growth (10 Years History) | 0.27% | 0.59% | -0.32% |
| 2015-2020 Average Yearly Growth (5 Years History) | -0.41% | -0.35% | -0.06% |
| 2021-2026 Average Yearly Growth (5 Years) | 0.00% | 0.00% | 0.00% |
| 2021-2031 Average Yearly Growth (10 Years) | 0.00% | 0.00% | 0.00% |
| 2021-2040 Average Yearly Growth (19 Years) | 0.00% | 0.00% | 0.00% |

/* **Forecasted Sales** = (Ave Custs x Avg Use Per Cust); AC Cycling program has been cancelled.

**Montana-Dakota Utilities Co.**
**Historical and Forecasted**
**Residential Sales, Customers, and Use per Customer**
**Integrated System**
**with DSM Reductions**

| Year | Sales (MWh) | % Change | Avg Custs | Cust No Inc/(Dec) | Avg Use Per Cust (kWh/Yr) | % Change |
|---|---|---|---|---|---|---|
| 2010 | 874,597 | | 88,944 | | 9,833 | |
| 2011 | 946,595 | 8.23% | 90,681 | 1,737 | 10,439 | 6.16% |
| 2012 | 957,183 | 1.12% | 93,695 | 3,014 | 10,216 | -2.13% |
| 2013 | 1,044,088 | 9.08% | 97,155 | 3,460 | 10,747 | 5.19% |
| 2014 | 1,088,204 | 4.23% | 100,407 | 3,252 | 10,838 | 0.85% |
| 2015 | 1,046,140 | -3.87% | 103,691 | 3,284 | 10,089 | -6.91% |
| 2016 | 997,971 | -4.60% | 105,227 | 1,536 | 9,484 | -6.00% |
| 2017 | 1,010,208 | 1.23% | 105,078 | (149) | 9,614 | 1.37% |
| 2018 | 1,063,771 | 5.30% | 104,917 | (161) | 10,139 | 5.46% |
| 2019 | 1,040,900 | -2.15% | 104,905 | (12) | 9,922 | -2.14% |
| 2020 | 1,032,674 | -0.79% | 105,051 | 146 | 9,830 | -0.93% |
| 2021 | 1,038,400 | 0.55% | 105,471 | 420 | 9,845 | 0.15% |
| 2022 | 1,040,871 | 0.24% | 105,723 | 252 | 9,845 | 0.00% |
| 2023 | 1,046,323 | 0.52% | 106,279 | 556 | 9,845 | 0.00% |
| 2024 | 1,051,766 | 0.52% | 106,835 | 555 | 9,845 | 0.00% |
| 2025 | 1,057,205 | 0.52% | 107,390 | 555 | 9,845 | 0.00% |
| 2026 | 1,059,650 | 0.23% | 107,639 | 249 | 9,844 | 0.00% |
| 2027 | 1,062,091 | 0.23% | 107,888 | 249 | 9,844 | 0.00% |
| 2028 | 1,064,526 | 0.23% | 108,137 | 249 | 9,844 | 0.00% |
| 2029 | 1,066,958 | 0.23% | 108,385 | 248 | 9,844 | 0.00% |
| 2030 | 1,069,386 | 0.23% | 108,633 | 248 | 9,844 | 0.00% |
| 2031 | 1,071,813 | 0.23% | 108,881 | 248 | 9,844 | 0.00% |
| 2032 | 1,074,235 | 0.23% | 109,128 | 247 | 9,844 | 0.00% |
| 2033 | 1,076,654 | 0.23% | 109,375 | 247 | 9,844 | 0.00% |
| 2034 | 1,079,073 | 0.22% | 109,622 | 247 | 9,844 | 0.00% |
| 2035 | 1,081,488 | 0.22% | 109,869 | 247 | 9,843 | 0.00% |
| 2036 | 1,083,903 | 0.22% | 110,116 | 247 | 9,843 | 0.00% |
| 2037 | 1,086,318 | 0.22% | 110,362 | 247 | 9,843 | 0.00% |
| 2038 | 1,088,730 | 0.22% | 110,609 | 246 | 9,843 | 0.00% |
| 2039 | 1,091,142 | 0.22% | 110,855 | 246 | 9,843 | 0.00% |
| 2040 | 1,093,556 | 0.22% | 111,101 | 247 | 9,843 | 0.00% |

| | **Sales** | **Custs** | **Use/Cust** |
|---|---|---|---|
| 2010-2020 Average Yearly Growth (10 Years History) | 1.26% | 1.80% | -0.53% |
| 2015-2020 Average Yearly Growth (5 Years History) | 0.32% | 0.16% | 0.17% |
| 2021-2026 Average Yearly Growth (5 Years) | 0.44% | 0.44% | 0.00% |
| 2021-2031 Average Yearly Growth (10 Years) | 0.32% | 0.32% | 0.00% |
| 2021-2040 Average Yearly Growth (19 Years) | 0.26% | 0.26% | 0.00% |

# 4. Forecast Uncertainty

Forecasting is a process permeated with uncertainty. The demand and energy projections produced by the econometric process described in the first three sections results in a forecast based solely on the information used as inputs to the equations. For purposes of integrated resource planning, a single forecast does not allow the analysis of risk and uncertainty associated with the input assumptions. Robust resource decisions cannot be made unless uncertainty is considered. That uncertainty can be expressed through peak demand forecasts that reflect temperatures which correspond to higher confidence levels as well as by evaluating high-growth and low-growth scenarios in energy forecasts.

## 4.1. Effect of Temperature on Peak Demand

The final forecast results given in Section 3 were developed assuming average temperatures at the time of the system peak. However, there are some shortcomings associated with this methodology. First, with an average temperature forecast, by definition actual peak demand would have a 50% probability of being lower than the forecast values and a 50% probability of exceeding forecast values (50/50 forecast). Second, there can be an appearance that peak demand is under forecasted when the actual temperature at the time of system peak exceeds average temperatures.

A study is conducted periodically by Montana-Dakota's System Operations & Planning staff to establish the relationship between summer peak demand and temperature at the time of system peak. As part of the study, the company's historical June, July and August demands and corresponding temperatures at times when the temperatures equaled or exceeded 85°F on Mondays through Thursdays are analyzed. The 2020 study results indicated that each one degree increase in temperature at the time of summer peak would result in an increase of approximately 7.0 MW in summer peak demand.

Since Montana-Dakota does not have actual hourly load available by state or by customer class, this study is conducted on an Integrated System basis and it is not possible to produce these results by jurisdiction or by customer sector.

Further statistical analysis of temperatures at the time of system peak for the years 1990 through 2019 (prior to 1984 the company was a winter peaking utility) provided the results shown in the following table:

**Temperature Probability at Peak and Effect on Peak Demand**

| Probability | Weighted Average Temperature | Approximate Increase in Summer Peak Demand (MW) |
|---|---|---|
| 50% | 96.0 | 0.0 |
| 75% | 100.0 | 28.0 |
| 80% | 101.0 | 35.0 |
| 85% | 102.1 | 42.7 |
| 90% | 103.6 | 53.2 |
| 95% | 105.7 | 67.9 |
| 97% | 107.1 | 77.7 |

*/ Using 7.0 MW/Degree F

As the table shows, there is a 90% probability that actual temperatures at the time of the system peak will not exceed 103.6°F. At this temperature, 53.2 MW of capacity in addition to that which was forecasted is needed to meet the system peak demand that may occur. This is called the 90/10 forecast and provides a peak demand forecast for extreme weather conditions. It represents a 90% probability that the actual peak demand would not exceed the forecast value and a 10% probability that the actual peak demand would be higher than the forecast value.

The following table summarizes the results of the 50/50 probability and 90/10 probability demand forecasts. The 2021 90/10 forecasted demand is calculated to be the 2021 50/50 forecasted demand plus 53.2 MW as shown in the table above. From that point, the growth rate for the 90/10 forecast scenario is assumed to be the same as that of the 50/50 forecast scenario.

**Alternate Summer Peak Demand Forecast Comparison**

| Year | Base Forecast (96.0 degrees F) 50/50 Forecast (MW) | Growth Rate | Alternate Forecast (103.6 degrees F) 90/10 Forecast (MW) */ |
|---|---|---|---|
| 2021 | 586.0 | | 639.2 |
| 2022 | 595.1 | 1.55% | 649.1 |
| 2023 | 602.5 | 1.25% | 657.2 |
| 2024 | 610.8 | 1.38% | 666.3 |
| 2025 | 618.8 | 1.30% | 675.0 |
| 2026 | 624.2 | 0.88% | 680.9 |
| 2027 | 629.8 | 0.90% | 687.0 |
| 2028 | 635.3 | 0.88% | 693.0 |
| 2029 | 640.9 | 0.88% | 699.1 |
| 2030 | 646.6 | 0.89% | 705.3 |
| 2031 | 652.3 | 0.87% | 711.4 |
| 2032 | 658.0 | 0.88% | 717.6 |
| 2033 | 663.7 | 0.87% | 723.8 |
| 2034 | 669.3 | 0.85% | 729.9 |
| 2035 | 675.0 | 0.85% | 736.1 |
| 2036 | 680.7 | 0.85% | 742.3 |
| 2037 | 686.4 | 0.84% | 748.5 |
| 2038 | 692.2 | 0.85% | 754.8 |
| 2039 | 697.9 | 0.82% | 761.0 |
| 2040 | 703.7 | 0.83% | 767.3 |

*/ The growth rate for the 90/10 Forecast scenario is assumed to be the same as that of the 50/50 Forecast scenario.

## 4.2. High-Growth and Low-Growth Scenario Forecasts

Another approach to express uncertainty in this forecast was to simulate high-growth and low-growth scenarios which represent the corresponding economic conditions that may occur. These high-growth and low-growth scenario forecasts were developed as follows.

Historical total energy was analyzed in order to find a period of time during which unusually high growth was experienced and a period of time during which unusually low growth was experienced. Based on the historical sales data given on Appendix A-10 and graphed on Appendix A-11, the average growth rate that occurred from 1977 to 1985 (4.4%) was used as the basis for the high growth rate and the average growth rate that occurred from 1985 to 1993 (0.5%) was used as the low growth rate. Both periods consist of eight years of history.

As a result, for the high-growth scenario, an average growth rate of 4.4% per year was assumed to occur during the 20-year forecast horizon. For the low-growth scenario, an average growth rate of 0.5% per year was assumed to occur during the 20-year forecast horizon.

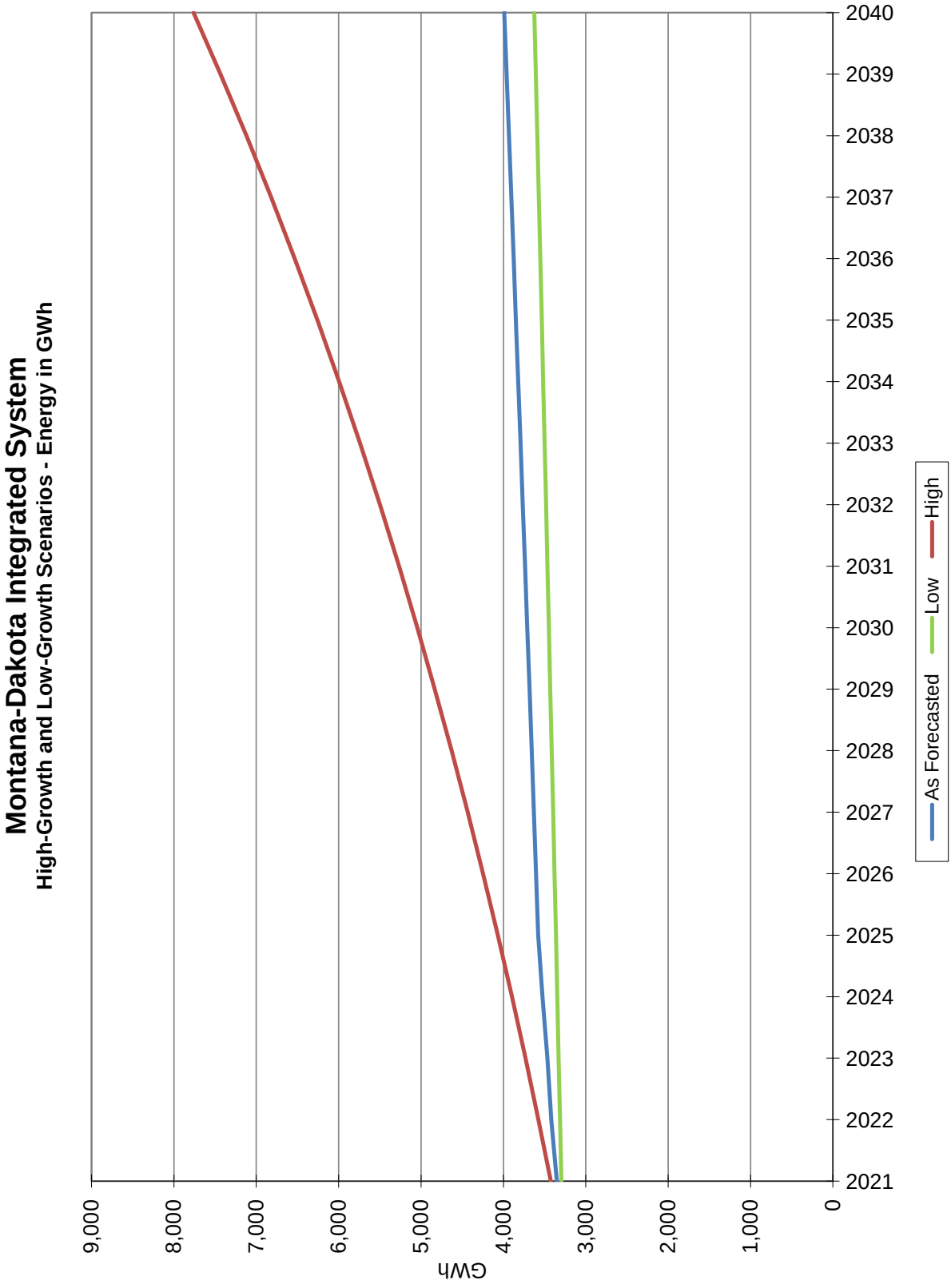
Demand for each scenario was derived by applying the load factors calculated from the base forecast to the high-growth and low-growth scenario forecasted energy.

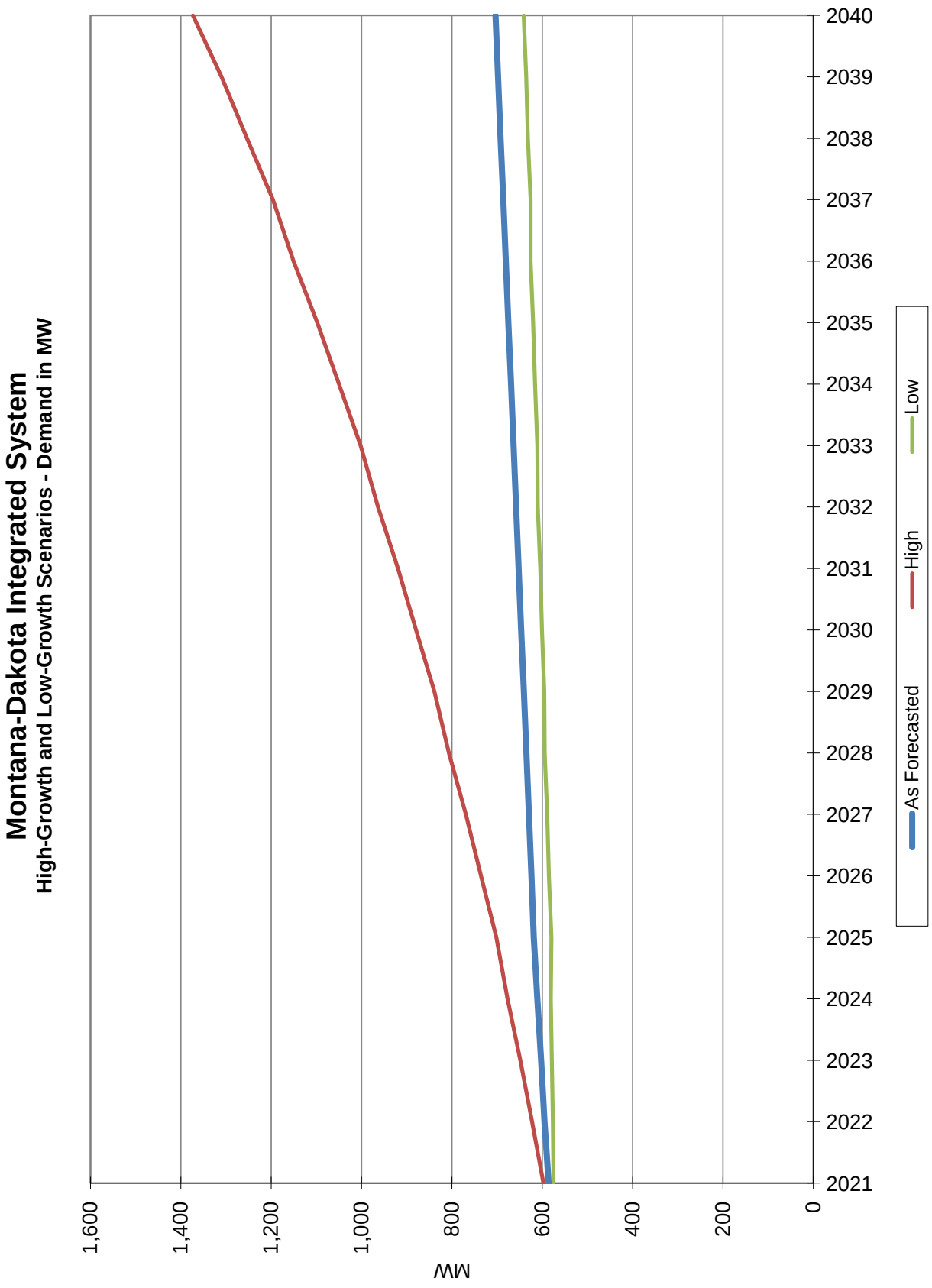
The results of the high-growth and low-growth scenarios for energy and demand are given below. The following two pages present the graphs of the numeric results.

**High-Growth and Low-Growth Scenarios**
**Total Annual Energy (GWh) and**
**Summer Peak Demand (MW)**

| | ENERGY | | | DEMAND | | |
|---|---|---|---|---|---|---|
| | Forecast | HIGH 1/ | LOW 2/ | Forecast | HIGH | LOW |
| 2021 | 3,350.6 | 3,424.6 | 3,296.7 | 586.0 | 597.3 | 575.0 |
| 2022 | 3,418.2 | 3,575.3 | 3,313.2 | 595.1 | 622.4 | 576.8 |
| 2023 | 3,466.2 | 3,732.6 | 3,329.8 | 602.5 | 648.8 | 578.8 |
| 2024 | 3,525.5 | 3,896.8 | 3,346.4 | 610.8 | 677.0 | 581.4 |
| 2025 | 3,579.1 | 4,068.3 | 3,363.1 | 618.8 | 701.4 | 579.9 |
| 2026 | 3,603.4 | 4,247.3 | 3,379.9 | 624.2 | 735.7 | 585.5 |
| 2027 | 3,630.5 | 4,434.2 | 3,396.8 | 629.8 | 769.2 | 589.3 |
| 2028 | 3,655.9 | 4,629.3 | 3,413.8 | 635.3 | 806.7 | 594.9 |
| 2029 | 3,683.1 | 4,833.0 | 3,430.9 | 640.9 | 838.8 | 595.4 |
| 2030 | 3,710.4 | 5,045.7 | 3,448.1 | 646.6 | 879.4 | 600.9 |
| 2031 | 3,737.7 | 5,267.7 | 3,465.3 | 652.3 | 919.2 | 604.7 |
| 2032 | 3,765.2 | 5,499.5 | 3,482.6 | 658.0 | 963.7 | 610.2 |
| 2033 | 3,792.8 | 5,741.5 | 3,500.0 | 663.7 | 1001.9 | 610.8 |
| 2034 | 3,820.4 | 5,994.1 | 3,517.5 | 669.3 | 1050.1 | 616.2 |
| 2035 | 3,848.2 | 6,257.8 | 3,535.1 | 675.0 | 1097.7 | 620.1 |
| 2036 | 3,876.0 | 6,533.1 | 3,552.8 | 680.7 | 1150.5 | 625.6 |
| 2037 | 3,903.9 | 6,820.6 | 3,570.6 | 686.4 | 1195.9 | 626.1 |
| 2038 | 3,932.0 | 7,120.7 | 3,588.5 | 692.2 | 1253.6 | 631.7 |
| 2039 | 3,960.3 | 7,434.0 | 3,606.4 | 697.9 | 1310.1 | 635.5 |
| 2040 | 3,988.8 | 7,761.1 | 3,624.4 | 703.7 | 1373.0 | 641.2 |

1/ High forecast assumes 4.4% growth per year (actual 77-85 growth).
2/ Low forecast assumes 0.5% growth per year (actual 85-93 growth).


Montana-Dakota Integrated System
High-Growth and Low-Growth Scenarios - Energy in GWh
GWh
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2040
2039
2038
2037
2036
2035
2034
2033
2032
2031
2030
2029
2028
2027
2026
2025
2024
2023
2022
2021
As Forecasted
Low
High


Montana-Dakota Integrated System
High-Growth and Low-Growth Scenarios - Demand in MW
MW
1,600
1,400
1,200
1,000
800
600
400
200
0
2040
2039
2038
2037
2036
2035
2034
2033
2032
2031
2030
2029
2028
2027
2026
2025
2024
2023
2022
2021
High
Low
As Forecasted

# 5. Allocations

Montana-Dakota's Integrated System consists of the service territories in Montana, North Dakota, and South Dakota. The sales forecasts were developed by sector for each state while the demand forecast was developed for the Integrated System in total. Montana-Dakota's Financial Forecasting Department requires forecasts of monthly peak demands by state, and monthly sales and energy requirements by sector for each state. Therefore, disaggregating the Integrated System forecast into peaks by state and month as well as disaggregating annual sales into monthly sales is necessary.

## 5.1. Sales and Customer Allocations by Month

The Financial Forecasting Department requires a calendar month forecast for each state. This is accomplished through a two-step process. First, monthly estimates of energy and customers by sector are determined by calculating the ratio of the monthly bill cycle value to the annual amount for the 5-year periods of time for 2015-2019 for both sales and for customers. Results were averaged for each month for each sector for each state. These ratios were then applied to the forecasts by sector and by state (annual amounts) to arrive at monthly billing-cycle sales and customers. The allocation factors for billing-cycle sales and customers for each state, month and sector are shown in Appendix A-8. Billing-month to calendar-month apportionment factors are then used to convert from billing-month to calendar-month sales. These apportionment factors are shown in Appendix A-9.

## 5.2. Peak Demand Allocation by State

The forecasted summer and winter peak demand for the Integrated System were allocated to the states based on the percentage of each state's forecasted annual requirements to the total Integrated System forecasted requirements for each year. This methodology permitted the seasonal demand forecasts by state to grow at the same rate as annual energy requirements for each state.

## 5.3. Peak Demand Allocations by Month

Allocating peak demand on a monthly basis by state consists of several steps:

1. Ratios of each monthly peak to the seasonal peak were calculated for each state for the period May 2005 through April 2020. (The summer season is May through October and the winter season is November through April of the next year.)

2. The ratios determined by state in Step 1 from each month were averaged to determine which month of the season was to be the peak month, second highest month, etc. Final results of this step indicate that July and January are the peak months for the summer and winter seasons, respectively. (See the table below which gives the monthly ranks by state for each month and season.)

**Monthly Average of the Ratios of Monthly Peak To Seasonal Peak for the Integrated System (Number in Parenthesis is Rank)**

**Summer Season**

| | ND | | SD | | MT | |
|---|---|---|---|---|---|---|
| MAY | (6) | 0.7160 | (6) | 0.6328 | (6) | 0.6878 |
| JUNE | (3) | 0.8972 | (3) | 0.8610 | (3) | 0.8870 |
| JULY | (1) | 0.9758 | (1) | 0.9599 | (1) | 0.9836 |
| AUGUST | (2) | 0.9695 | (2) | 0.9199 | (2) | 0.9464 |
| SEPTEMBER | (4) | 0.8458 | (4) | 0.7918 | (4) | 0.8362 |
| OCTOBER | (5) | 0.7207 | (5) | 0.7330 | (5) | 0.7048 |

**Winter Season**

| | ND | | SD | | MT | |
|---|---|---|---|---|---|---|
| NOV | (4) | 0.8666 | (4) | 0.8774 | (4) | 0.8904 |
| DEC | (2) | 0.9464 | (2) | 0.9444 | (2) | 0.9640 |
| JAN | (1) | 0.9868 | (1) | 0.9489 | (1) | 0.9311 |
| FEB | (3) | 0.9262 | (3) | 0.9286 | (3) | 0.9298 |
| MARCH | (5) | 0.8659 | (5) | 0.8769 | (5) | 0.8584 |
| APRIL | (6) | 0.7648 | (6) | 0.7505 | (6) | 0.7586 |

3. For each season, the monthly ratios determined in Step 1 for the May 2015 through April 2020 time period were sorted into rank sequence for each year of historical data and averaged across the years for each ranking. Applying the ranked average ratios from this step to the proper month according to the rank determined in Step 2 results in the monthly assignments given in the following table.

**ND 5-Year Average Monthly Ratios of Seasonal Peaks**

| | | | |
|---|---|---|---|
| January | 1.0000 | July | 1.0000 |
| February | 0.9235 | August | 0.9578 |
| March | 0.8237 | September | 0.8791 |
| April | 0.7629 | October | 0.7588 |
| May | 0.6992 | November | 0.8567 |
| June | 0.9129 | December | 0.9666 |

**SD 5-Year Average Monthly Ratios of Seasonal Peaks**

| | | | |
|---|---|---|---|
| January | 1.0000 | July | 1.0000 |
| February | 0.9133 | August | 0.9146 |
| March | 0.8485 | September | 0.7829 |
| April | 0.7594 | October | 0.6805 |
| May | 0.5879 | November | 0.8797 |
| June | 0.8553 | December | 0.9613 |

**MT 5-Year Average Monthly Ratios of Seasonal Peaks**

| | | | | |
|---|---|---|---|---|
| January | 1.0000 | */ | July | 1.0000 |
| February | 0.9296 | | August | 0.9485 |
| March | 0.8267 | | September | 0.8164 |
| April | 0.7752 | | October | 0.7411 |
| May | 0.6797 | | November | 0.8811 |
| June | 0.8604 | | December | 0.9667 |

*/ The December and January ratios for the state of Montana as determined in Step 2 above were very close. Since January is typically the peak month, the ratios used here were flipped between December and January, allowing the peak month to continue to be January.

## 5.4. Annual Energy and Seasonal Peak Demand by State

Historical and forecasted sales by sector and in total are shown on the graphs on Appendices C-1 through C-7.

The forecasts of summer and winter peak demands and annual energy through the year 2040 for the states of Montana, North Dakota, and South Dakota are also given in Appendix C. The peak demand and annual energy for Montana, North Dakota, South Dakota, and the Integrated System are shown on Appendix C-8, C-9, C-10, and C-11. Appendices C-12, C-13, and C-14 graphically portray the tables in Appendices C-8 through C-11.

## **5.5.** Sales Forecasts by Sector

The monthly forecasts for the ten-year period 2021-2030, which result from the allocation method described above, are shown in Appendices D, E, F, and G for Montana, North Dakota, South Dakota, and the Integrated System, respectively.

# APPENDIX A

## Integrated System
## Historical Data

**Montana-Dakota Utilities Co.**
**Annual Sales by Class for the State of Montana**
**(Kilowatt Hours)**

| Year | Residential | Small C&I | Large C&I | Street Lighting | Other Public Sales | Interdepart-mental | Company Use | Unbilled | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1966 | 68,502,477 | 49,977,929 | 72,419,095 | 3,866,284 | 3,808,210 | 1,015,211 | 377,210 | - | 199,966,416 |
| 1967 | 68,579,218 | 50,233,896 | 98,914,908 | 4,015,663 | 3,715,582 | 1,091,354 | 810,948 | - | 227,361,569 |
| 1968 | 71,874,276 | 52,477,560 | 118,039,208 | 4,249,304 | 3,535,121 | 1,375,297 | 723,627 | - | 252,274,393 |
| 1969 | 78,325,684 | 53,242,727 | 138,245,825 | 5,604,625 | 3,863,692 | 1,249,804 | 709,401 | - | 281,241,758 |
| 1970 | 82,496,690 | 55,175,717 | 153,459,061 | 6,083,320 | 3,897,568 | 1,160,863 | 737,641 | - | 303,010,860 |
| 1971 | 85,705,748 | 55,865,479 | 163,248,877 | 6,492,393 | 4,104,508 | 958,540 | 960,127 | - | 317,335,672 |
| 1972 | 90,077,273 | 58,161,951 | 172,396,207 | 6,600,222 | 3,795,853 | 992,915 | 890,585 | - | 332,915,006 |
| 1973 | 92,338,476 | 61,367,352 | 190,984,413 | 6,706,073 | 4,211,624 | 1,158,025 | 902,676 | - | 357,668,639 |
| 1974 | 96,505,351 | 66,904,551 | 186,287,388 | 6,840,674 | 4,153,930 | 1,315,961 | 945,082 | - | 362,952,937 |
| 1975 | 105,048,515 | 69,452,309 | 178,400,297 | 7,087,080 | 3,913,278 | 1,506,121 | 984,351 | - | 366,391,951 |
| 1976 | 115,110,425 | 77,612,604 | 175,313,131 | 7,268,240 | 4,495,249 | 1,583,748 | 1,004,267 | - | 382,387,664 |
| 1977 | 120,454,365 | 81,073,772 | 172,531,607 | 7,359,231 | 4,657,927 | 1,548,399 | 1,036,205 | - | 388,661,506 |
| 1978 | 129,852,166 | 87,526,266 | 175,599,086 | 7,353,808 | 4,677,788 | 4,820,487 | 1,049,471 | - | 410,879,072 |
| 1979 | 136,672,460 | 96,589,760 | 178,879,168 | 7,359,189 | 5,467,739 | 2,283,782 | 1,029,716 | - | 428,281,814 |
| 1980 | 136,149,204 | 101,715,349 | 198,015,998 | 7,459,268 | 6,123,304 | 1,797,126 | 972,817 | - | 452,233,066 |
| 1981 | 144,334,391 | 111,228,786 | 206,717,766 | 7,487,108 | 6,381,820 | 1,715,542 | 752,755 | - | 478,618,168 |
| 1982 | 153,313,720 | 125,817,634 | 213,636,154 | 7,407,897 | 5,634,466 | 2,943,589 | 1,651,780 | - | 510,405,240 |
| 1983 | 150,623,962 | 108,187,279 | 249,492,431 | 7,481,435 | 7,159,425 | 1,709,185 | 917,496 | - | 525,571,213 |
| 1984 | 149,973,668 | 101,423,250 | 272,228,601 | 7,379,668 | 6,998,461 | 3,442,266 | 900,229 | - | 542,346,143 |
| 1985 | 142,726,940 | 106,608,809 | 281,467,351 | 7,188,874 | 6,516,453 | 1,001,594 | 639,636 | - | 546,149,657 |
| 1986 | 133,656,316 | 101,534,376 | 277,264,926 | 7,266,290 | 5,968,032 | 189,694 | 590,579 | - | 526,470,213 |
| 1987 | 126,119,227 | 95,806,617 | 248,018,234 | 7,290,415 | 6,493,543 | 195,663 | 580,473 | - | 484,504,172 |
| 1988 | 139,327,515 | 87,777,108 | 259,622,149 | 7,217,742 | 7,711,112 | 211,260 | 616,658 | - | 502,483,544 |
| 1989 | 133,923,369 | 85,321,774 | 255,852,368 | 7,076,958 | 7,254,814 | 226,885 | 599,867 | - | 490,256,035 |
| 1990 | 130,093,020 | 84,487,870 | 253,081,235 | 7,009,344 | 7,148,412 | 226,321 | 714,125 | - | 482,760,327 |
| 1991 | 135,844,961 | 85,054,308 | 253,947,072 | 7,232,332 | 6,944,172 | 225,952 | 606,717 | - | 489,855,514 |
| 1992 | 126,265,220 | 82,097,610 | 246,018,931 | 7,228,554 | 6,937,275 | 215,649 | 560,531 | - | 469,323,770 |
| 1993 | 131,148,008 | 85,150,142 | 239,566,466 | 7,228,736 | 6,709,227 | 223,166 | 621,957 | - | 470,647,702 |
| 1994 | 137,293,020 | 91,734,345 | 237,573,170 | 7,257,426 | 7,110,947 | 232,838 | 679,830 | - | 481,881,576 |
| 1995 | 139,222,942 | 92,004,117 | 231,710,303 | 7,224,945 | 6,846,494 | 228,038 | 621,915 | - | 477,858,754 |
| 1996 | 147,421,480 | 96,007,848 | 231,515,420 | 7,237,827 | 7,135,267 | 233,336 | 574,831 | - | 490,126,009 |
| 1997 | 144,515,075 | 94,430,882 | 238,928,697 | 7,237,555 | 7,244,423 | 201,302 | 556,239 | - | 493,114,173 |
| 1998 | 144,374,643 | 96,561,060 | 237,770,443 | 7,271,601 | 7,162,112 | 213,369 | 549,751 | - | 493,902,979 |
| 1999 | 139,939,058 | 93,535,156 | 251,450,993 | 7,241,875 | 7,037,487 | 201,768 | 551,485 | - | 499,957,822 |
| 2000 | 143,298,426 | 94,947,102 | 276,845,617 | 7,212,210 | 6,819,914 | 218,795 | 456,819 | - | 529,798,883 |
| 2001 | 144,170,040 | 94,133,492 | 282,466,554 | 7,242,218 | 6,677,075 | 218,859 | 453,240 | - | 535,361,478 |
| 2002 | 147,916,359 | 96,252,274 | 306,159,986 | 7,240,913 | 6,893,847 | 195,977 | 448,893 | - | 565,108,249 |
| 2003 | 153,518,427 | 100,463,048 | 340,070,071 | 7,208,314 | 6,991,783 | 190,115 | 501,557 | - | 608,943,315 |
| 2004 | 141,249,319 | 98,150,615 | 348,097,119 | 7,249,849 | 6,709,211 | 178,934 | 469,139 | - | 602,104,186 |
| 2005 | 150,705,819 | 102,045,511 | 364,489,268 | 7,232,015 | 6,481,903 | 194,114 | 454,825 | - | 631,603,455 |
| 2006 | 157,205,695 | 104,213,569 | 368,666,049 | 7,202,765 | 6,996,525 | 189,666 | 435,247 | - | 644,909,516 |
| 2007 | 162,186,142 | 109,101,052 | 385,230,122 | 7,187,164 | 6,827,828 | 197,773 | 430,092 | - | 671,160,173 |
| 2008 | 162,181,766 | 108,595,072 | 408,686,454 | 7,243,765 | 7,034,312 | 190,513 | 411,809 | - | 694,343,691 |
| 2009 | 167,420,839 | 110,379,920 | 407,647,345 | 7,244,288 | 7,149,420 | 187,117 | 364,946 | - | 700,393,875 |
| 2010 | 171,661,490 | 109,187,916 | 415,946,482 | 7,203,307 | 6,973,614 | 185,423 | 351,780 | - | 711,510,012 |
| 2011 | 185,153,498 | 119,643,444 | 427,886,806 | 7,088,889 | 7,232,041 | 192,681 | 364,683 | - | 747,562,042 |
| 2012 | 187,634,686 | 132,714,357 | 420,458,666 | 7,106,072 | 7,603,435 | 171,842 | 358,713 | - | 756,047,771 |
| 2013 | 194,906,971 | 128,002,892 | 438,917,563 | 7,028,478 | 7,201,469 | 173,489 | 366,794 | - | 776,597,656 |
| 2014 | 200,088,171 | 137,799,079 | 451,686,572 | 7,107,653 | 7,341,210 | 175,228 | 384,145 | - | 804,582,058 |
| 2015 | 191,419,674 | 135,201,525 | 473,740,249 | 7,103,015 | 7,483,730 | 172,627 | 334,528 | - | 815,455,348 |
| 2016 | 184,295,936 | 131,689,711 | 474,495,852 | 7,102,363 | 7,019,988 | 170,203 | 326,917 | - | 805,100,970 |
| 2017 | 188,742,767 | 133,595,374 | 469,137,508 | 7,035,259 | 6,889,892 | 177,157 | 341,467 | - | 805,919,424 |
| 2018 | 192,079,714 | 138,485,324 | 469,653,438 | 4,451,247 | 5,752,819 | 176,856 | 372,851 | - | 810,972,249 |
| 2019 | 185,319,037 | 133,950,418 | 455,960,225 | 3,048,711 | 5,603,887 | 167,964 | 398,753 | - | 784,448,995 |
| 2020 | 184,784,621 | 125,022,927 | 421,234,462 | 3,077,171 | 5,904,576 | 147,189 | 372,449 | - | 740,543,395 |

**Montana-Dakota Utilities Co.**
**Annual Sales by Class for the State of North Dakota**
**(Kilowatt Hours)**

| Year | Residential | Small C&I | Large C&I | Street Lighting | Other Public Sales | Interdepart-mental | Company Use | Unbilled | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1966 | 177,839,445 | 101,454,865 | 62,248,779 | 12,065,801 | 9,778,523 | 242,324 | 627,634 | 35,481 | 364,292,852 |
| 1967 | 178,648,631 | 101,511,079 | 66,238,823 | 12,404,851 | 10,627,735 | 235,590 | 1,496,352 | 68,626 | 371,231,687 |
| 1968 | 189,586,695 | 108,098,127 | 68,327,053 | 13,528,733 | 11,306,057 | 1,075,808 | 1,514,551 | 68,231 | 393,505,255 |
| 1969 | 203,352,077 | 117,146,235 | 69,429,138 | 14,548,153 | 11,781,023 | 3,257,680 | 1,710,576 | 66,543 | 421,291,425 |
| 1970 | 215,129,232 | 128,966,438 | 74,006,755 | 15,405,493 | 12,432,105 | 2,976,220 | 1,632,669 | 66,670 | 450,615,582 |
| 1971 | 224,660,134 | 137,368,067 | 78,485,841 | 15,852,055 | 12,356,099 | 1,532,592 | 3,570,747 | 68,888 | 473,894,423 |
| 1972 | 241,177,868 | 141,541,263 | 85,849,701 | 16,145,159 | 12,610,906 | 230,775 | 5,480,921 | 72,184 | 503,108,777 |
| 1973 | 245,827,613 | 146,917,105 | 92,262,004 | 16,519,767 | 14,113,173 | 198,917 | 5,488,128 | 71,349 | 521,398,056 |
| 1974 | 259,763,946 | 151,905,722 | 95,263,639 | 16,812,962 | 14,147,896 | 207,547 | 5,388,873 | 64,700 | 543,555,285 |
| 1975 | 284,712,928 | 174,078,088 | 107,153,806 | 17,229,492 | 14,613,377 | 194,573 | 5,283,319 | 54,272 | 603,319,855 |
| 1976 | 307,231,757 | 188,990,076 | 119,225,930 | 17,788,799 | 17,287,746 | 233,931 | 5,201,276 | 58,861 | 656,018,376 |
| 1977 | 322,066,615 | 202,204,724 | 123,518,797 | 18,705,610 | 20,388,865 | 775,960 | 5,329,555 | 61,312 | 693,051,438 |
| 1978 | 360,829,206 | 226,814,052 | 131,861,024 | 19,233,630 | 22,666,150 | 448,114 | 5,583,243 | 55,953 | 767,491,372 |
| 1979 | 385,274,877 | 251,074,945 | 134,220,720 | 19,899,710 | 23,913,957 | 263,925 | 5,383,105 | 56,305 | 820,087,544 |
| 1980 | 390,283,221 | 265,468,707 | 140,987,413 | 20,492,222 | 26,160,460 | 382,762 | 5,040,756 | 44,390 | 848,859,931 |
| 1981 | 408,735,140 | 273,869,995 | 175,505,109 | 21,076,949 | 24,329,774 | 244,375 | 4,212,597 | 46,134 | 908,020,073 |
| 1982 | 452,363,924 | 245,889,852 | 236,334,289 | 21,499,821 | 26,288,435 | 261,436 | 4,964,613 | 47,986 | 987,650,356 |
| 1983 | 456,184,125 | 258,134,530 | 230,553,333 | 21,370,120 | 28,270,730 | 382,443 | 8,659,379 | 41,916 | 1,003,596,576 |
| 1984 | 455,285,616 | 267,515,911 | 240,737,178 | 20,966,383 | 28,884,506 | 2,020,361 | 6,602,362 | 42,325 | 1,022,054,642 |
| 1985 | 450,793,794 | 284,254,986 | 233,446,499 | 20,793,870 | 28,421,516 | 194,570 | 6,810,757 | 39,484 | 1,024,755,476 |
| 1986 | 434,367,094 | 282,091,350 | 232,968,286 | 20,399,709 | 29,251,485 | 283,486 | 8,387,924 | 37,451 | 1,007,786,785 |
| 1987 | 414,769,777 | 226,151,695 | 289,829,031 | 20,488,538 | 27,652,568 | 306,718 | 6,531,047 | 46,880 | 985,776,254 |
| 1988 | 449,769,976 | 199,876,624 | 348,910,521 | 20,488,320 | 27,128,548 | 233,035 | 6,339,307 | 34,969 | 1,052,781,300 |
| 1989 | 443,827,623 | 195,738,987 | 362,960,433 | 20,407,635 | 26,027,847 | 236,202 | 6,825,024 | 38,865 | 1,056,062,616 |
| 1990 | 430,825,093 | 192,983,257 | 373,076,254 | 20,510,585 | 25,648,820 | 243,363 | 6,283,396 | 37,303 | 1,049,608,071 |
| 1991 | 450,333,411 | 196,030,842 | 383,766,958 | 20,458,655 | 30,828,407 | 266,645 | 6,137,808 | 33,378 | 1,087,856,104 |
| 1992 | 423,260,909 | 188,693,144 | 398,197,743 | 20,663,341 | 31,720,268 | 282,076 | 6,211,805 | 48,627 | 1,069,077,913 |
| 1993 | 439,344,573 | 191,672,169 | 416,752,959 | 20,565,116 | 31,146,204 | 322,281 | 5,956,790 | 46,519 | 1,105,806,611 |
| 1994 | 456,342,312 | 203,783,580 | 445,849,305 | 20,574,807 | 32,828,420 | 316,899 | 6,987,912 | 41,960 | 1,166,725,195 |
| 1995 | 473,310,757 | 207,631,769 | 447,406,363 | 20,664,316 | 32,139,766 | 311,888 | 7,116,061 | 43,365 | 1,188,624,285 |
| 1996 | 489,581,963 | 212,394,753 | 463,633,627 | 20,598,257 | 33,617,666 | 293,678 | 7,112,634 | 42,287 | 1,227,274,865 |
| 1997 | 485,185,916 | 215,341,328 | 464,356,987 | 20,448,097 | 35,525,187 | 276,970 | 7,039,295 | 37,836 | 1,228,211,616 |
| 1998 | 476,555,259 | 216,137,378 | 470,352,073 | 20,780,506 | 33,387,706 | 268,955 | 6,460,961 | 35,675 | 1,223,978,513 |
| 1999 | 476,150,870 | 215,933,149 | 487,339,322 | 20,930,538 | 32,535,686 | 269,387 | 6,214,785 | 24,378 | 1,239,398,115 |
| 2000 | 480,611,397 | 220,082,001 | 496,752,971 | 20,765,723 | 32,298,343 | 276,507 | 5,758,461 | - | 1,256,545,403 |
| 2001 | 495,264,092 | 219,718,551 | 524,934,913 | 20,801,786 | 32,839,971 | 283,411 | 5,380,094 | - | 1,299,222,818 |
| 2002 | 510,649,026 | 223,725,158 | 534,095,959 | 20,845,828 | 33,601,388 | 245,882 | 4,924,187 | - | 1,328,087,428 |
| 2003 | 518,362,506 | 230,831,463 | 538,714,606 | 20,964,805 | 33,818,825 | 243,012 | 5,146,364 | - | 1,348,081,581 |
| 2004 | 482,828,358 | 224,924,291 | 532,079,391 | 20,632,572 | 32,251,096 | 238,077 | 5,030,082 | - | 1,297,983,867 |
| 2005 | 525,132,818 | 250,022,338 | 563,792,863 | 20,484,092 | 33,806,432 | 248,541 | 5,291,349 | - | 1,398,778,433 |
| 2006 | 550,070,624 | 274,727,542 | 564,963,429 | 20,772,430 | 35,894,619 | 238,213 | 7,203,891 | - | 1,453,870,748 |
| 2007 | 568,709,867 | 299,602,230 | 570,170,485 | 20,947,764 | 36,072,776 | 235,341 | 7,511,339 | - | 1,503,249,802 |
| 2008 | 585,608,722 | 320,093,226 | 583,501,829 | 21,200,739 | 35,709,163 | 242,421 | 7,356,084 | - | 1,553,712,184 |
| 2009 | 609,178,728 | 340,495,770 | 551,113,741 | 20,582,112 | 36,202,033 | 237,223 | 7,494,346 | - | 1,565,303,953 |
| 2010 | 632,068,296 | 382,985,447 | 530,340,771 | 20,372,584 | 35,746,426 | 237,329 | 7,232,018 | - | 1,608,982,871 |
| 2011 | 687,464,765 | 450,098,381 | 514,238,222 | 20,059,394 | 38,643,539 | 230,042 | 7,390,957 | - | 1,718,125,300 |
| 2012 | 700,451,260 | 512,566,297 | 492,981,290 | 20,075,686 | 40,771,733 | 202,097 | 7,544,693 | - | 1,774,593,056 |
| 2013 | 774,915,846 | 559,838,729 | 516,813,483 | 19,894,701 | 41,656,843 | 207,997 | 5,541,282 | - | 1,918,868,881 |
| 2014 | 812,653,819 | 609,043,689 | 579,346,413 | 20,014,582 | 44,712,842 | 189,611 | 5,887,244 | - | 2,071,848,200 |
| 2015 | 784,976,717 | 614,126,114 | 603,878,747 | 20,313,025 | 45,323,656 | 172,838 | 5,233,849 | - | 2,074,024,946 |
| 2016 | 746,374,241 | 599,694,059 | 617,933,575 | 20,386,694 | 44,431,734 | 170,182 | 4,958,056 | - | 2,033,948,541 |
| 2017 | 754,399,763 | 585,174,349 | 638,719,056 | 20,041,593 | 53,958,297 | 170,423 | 4,892,346 | - | 2,057,355,827 |
| 2018 | 799,660,935 | 565,691,780 | 690,344,780 | 19,569,074 | 53,201,967 | 179,514 | 4,896,729 | - | 2,133,544,779 |
| 2019 | 784,808,269 | 573,956,119 | 675,578,678 | 16,733,425 | 51,275,800 | 165,045 | 4,819,419 | - | 2,107,336,755 |
| 2020 | 779,618,599 | 552,682,437 | 652,235,577 | 13,956,705 | 50,838,854 | 153,386 | 4,736,174 | - | 2,054,221,732 |

**Montana-Dakota Utilities Co.**
**Annual Sales by Class for the State of South Dakota**
**(Kilowatt Hours)**

| Year | Residential | Small C&I | Large C&I | Street Lighting | Other Public Sales | Interdepart-mental | Company Use | Unbilled | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1966 | 42,230,739 | 22,427,449 | 6,732,280 | 2,095,903 | 1,697,150 | 1,424 | 126,325 | - | 75,311,270 |
| 1967 | 41,997,237 | 25,800,957 | 4,063,750 | 1,979,052 | 1,847,881 | 1,153 | 260,654 | - | 75,950,684 |
| 1968 | 43,952,926 | 23,284,225 | 3,940,603 | 2,575,843 | 1,707,100 | 1,608 | 268,857 | - | 75,731,162 |
| 1969 | 46,482,606 | 24,758,227 | 929,501 | 2,598,403 | 1,841,636 | 2,207 | 287,654 | - | 76,900,234 |
| 1970 | 47,361,709 | 22,775,007 | 3,464,385 | 2,547,642 | 1,759,567 | 2,154 | 269,189 | - | 78,179,653 |
| 1971 | 49,310,679 | 22,255,017 | 4,727,415 | 2,716,302 | 1,834,084 | 2,362 | 315,769 | 215 | 81,161,843 |
| 1972 | 52,980,235 | 22,785,758 | 5,347,104 | 2,813,232 | 1,918,580 | 2,270 | 365,122 | - | 86,212,301 |
| 1973 | 53,570,804 | 23,259,175 | 5,400,790 | 2,859,812 | 1,987,540 | 2,559 | 432,365 | - | 87,513,045 |
| 1974 | 56,666,860 | 23,203,748 | 5,840,707 | 2,994,179 | 2,138,696 | 2,487 | 428,561 | - | 91,275,238 |
| 1975 | 62,824,496 | 24,817,191 | 6,748,459 | 3,128,822 | 2,030,891 | 2,433 | 480,797 | - | 100,033,089 |
| 1976 | 66,343,302 | 25,800,602 | 7,756,873 | 3,103,016 | 2,053,227 | 2,370 | 467,531 | - | 105,526,921 |
| 1977 | 65,963,975 | 26,111,838 | 8,474,190 | 3,124,296 | 1,840,714 | 3,151 | 478,536 | - | 105,996,700 |
| 1978 | 68,589,710 | 27,328,956 | 9,693,110 | 3,113,948 | 1,774,321 | 2,966 | 607,731 | - | 111,110,742 |
| 1979 | 67,938,559 | 26,971,950 | 10,123,460 | 3,121,871 | 1,904,825 | 2,983 | 620,674 | - | 110,684,322 |
| 1980 | 64,325,468 | 26,196,596 | 10,851,108 | 3,140,131 | 2,170,017 | 3,737 | 507,507 | - | 107,194,564 |
| 1981 | 61,878,613 | 25,902,182 | 11,243,318 | 3,083,603 | 1,830,577 | 2,970 | 356,399 | - | 104,297,662 |
| 1982 | 65,558,005 | 27,156,570 | 11,426,316 | 3,030,031 | 1,871,552 | 2,943 | 607,247 | - | 109,652,664 |
| 1983 | 65,118,829 | 26,884,079 | 12,353,692 | 3,006,759 | 1,716,506 | 2,486 | 557,667 | - | 109,640,018 |
| 1984 | 65,920,772 | 27,933,476 | 12,698,954 | 2,964,197 | 1,816,219 | 1,782 | 545,965 | - | 111,881,365 |
| 1985 | 64,222,969 | 27,289,287 | 13,297,147 | 2,968,984 | 1,826,822 | 7,425 | 829,238 | - | 110,441,872 |
| 1986 | 62,444,941 | 27,005,631 | 14,820,308 | 2,987,404 | 1,637,375 | 22,258 | 571,879 | - | 109,489,796 |
| 1987 | 59,644,668 | 26,773,933 | 16,227,633 | 2,986,179 | 1,857,719 | 28,687 | 363,754 | - | 107,882,573 |
| 1988 | 63,622,038 | 28,168,260 | 18,064,220 | 2,953,900 | 1,925,245 | 14,449 | 419,470 | - | 115,167,582 |
| 1989 | 61,747,940 | 28,578,702 | 19,249,467 | 2,937,751 | 2,019,854 | 13,359 | 456,236 | - | 115,003,309 |
| 1990 | 59,041,129 | 27,674,002 | 20,540,349 | 2,938,991 | 1,879,111 | 9,908 | 369,286 | - | 112,452,776 |
| 1991 | 60,709,134 | 28,371,913 | 20,800,179 | 2,944,664 | 2,119,069 | 10,945 | 398,192 | - | 115,354,096 |
| 1992 | 56,416,333 | 27,113,531 | 21,125,368 | 2,920,263 | 2,354,085 | 10,701 | 343,584 | - | 110,283,865 |
| 1993 | 59,615,263 | 27,986,509 | 22,314,105 | 2,921,246 | 2,116,180 | 11,786 | 397,837 | - | 115,362,926 |
| 1994 | 61,124,471 | 30,267,538 | 23,784,346 | 2,922,998 | 2,427,771 | 11,901 | 422,267 | - | 120,961,292 |
| 1995 | 62,959,707 | 31,134,415 | 24,670,253 | 2,854,516 | 3,097,276 | 11,484 | 404,093 | - | 125,131,744 |
| 1996 | 63,638,266 | 32,141,951 | 25,352,355 | 2,872,136 | 3,137,175 | 12,172 | 352,311 | - | 127,506,366 |
| 1997 | 61,623,748 | 31,753,237 | 25,522,619 | 2,805,901 | 3,058,443 | 11,319 | 342,786 | - | 125,118,053 |
| 1998 | 59,360,287 | 32,313,292 | 25,113,488 | 2,796,107 | 3,003,078 | 9,777 | 286,457 | - | 122,882,486 |
| 1999 | 59,567,949 | 32,498,800 | 25,977,705 | 2,807,423 | 2,954,190 | 9,857 | 297,480 | - | 124,113,404 |
| 2000 | 59,525,312 | 32,320,913 | 25,956,274 | 2,740,106 | 2,810,931 | 9,227 | 308,855 | - | 123,671,618 |
| 2001 | 61,117,630 | 33,018,447 | 25,846,819 | 2,748,375 | 2,742,790 | 9,414 | 325,833 | - | 125,809,308 |
| 2002 | 61,780,443 | 33,800,702 | 26,645,097 | 2,691,584 | 2,737,670 | 9,884 | 329,617 | - | 127,994,997 |
| 2003 | 61,149,061 | 33,964,499 | 27,075,451 | 2,683,876 | 2,791,070 | 10,319 | 319,687 | - | 127,993,963 |
| 2004 | 56,535,958 | 32,909,312 | 27,090,632 | 2,672,475 | 2,885,412 | 9,788 | 290,260 | - | 122,393,837 |
| 2005 | 61,267,370 | 34,678,560 | 28,886,389 | 2,660,320 | 2,535,633 | 10,026 | 305,636 | - | 130,343,934 |
| 2006 | 61,675,574 | 34,206,361 | 28,556,470 | 2,626,482 | 2,204,422 | 9,086 | 299,875 | - | 129,578,270 |
| 2007 | 63,017,590 | 35,210,997 | 29,271,378 | 2,637,764 | 2,364,117 | 9,526 | 304,850 | - | 132,816,222 |
| 2008 | 67,104,019 | 36,965,622 | 30,890,745 | 2,635,828 | 2,432,011 | 9,826 | 318,928 | - | 140,356,979 |
| 2009 | 69,689,062 | 39,395,377 | 32,856,198 | 2,606,502 | 1,701,927 | 9,019 | 335,872 | - | 146,593,957 |
| 2010 | 70,867,723 | 37,312,865 | 34,338,981 | 2,638,638 | 1,210,011 | 8,876 | 316,402 | - | 146,693,496 |
| 2011 | 73,976,689 | 36,711,846 | 34,944,961 | 2,627,500 | 1,383,960 | 7,798 | 337,074 | - | 149,989,828 |
| 2012 | 69,097,067 | 34,638,566 | 35,388,342 | 2,620,423 | 1,518,467 | 2,742 | 289,333 | - | 143,554,940 |
| 2013 | 74,264,716 | 37,118,359 | 36,338,433 | 2,660,824 | 1,508,134 | 4,023 | 353,347 | - | 152,247,836 |
| 2014 | 75,462,217 | 38,045,222 | 37,507,489 | 2,650,807 | 1,431,970 | 4,128 | 316,511 | - | 155,418,344 |
| 2015 | 69,742,814 | 35,994,853 | 37,083,842 | 2,567,823 | 1,492,996 | 2,990 | 234,056 | - | 147,119,374 |
| 2016 | 67,300,830 | 35,799,151 | 35,874,593 | 2,517,019 | 1,485,537 | 2,291 | 215,472 | - | 143,194,893 |
| 2017 | 67,065,372 | 37,185,771 | 35,546,200 | 2,487,177 | 1,482,823 | 1,162 | 268,202 | - | 144,036,707 |
| 2018 | 72,030,090 | 39,185,098 | 36,289,248 | 2,461,232 | 1,434,645 | 1,919 | 295,533 | - | 151,697,765 |
| 2019 | 70,772,512 | 38,738,341 | 35,995,139 | 2,397,250 | 1,507,854 | 1,871 | 341,410 | - | 149,754,377 |
| 2020 | 68,270,425 | 36,425,549 | 35,840,638 | 1,555,865 | 1,413,561 | 1,699 | 267,237 | - | 143,774,974 |

**Montana-Dakota Utilities Co.**
**Annual Sales by Class for the Integrated System**
**(Kilowatt Hours)**

| Year | Residential | Small C&I | Large C&I | Street Lighting | Other Public Sales | Interdepart-mental | Company Use | Unbilled | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1966 | 288,572,661 | 173,860,243 | 141,400,154 | 18,027,988 | 15,283,883 | 1,258,959 | 1,131,169 | 35,481 | 639,570,538 |
| 1967 | 289,225,086 | 177,545,932 | 169,217,481 | 18,399,566 | 16,191,198 | 1,328,097 | 2,567,954 | 68,626 | 674,543,940 |
| 1968 | 305,413,897 | 183,859,912 | 190,306,864 | 20,353,880 | 16,548,278 | 2,452,713 | 2,507,035 | 68,231 | 721,510,810 |
| 1969 | 328,160,367 | 195,147,189 | 208,604,464 | 22,751,181 | 17,486,351 | 4,509,691 | 2,707,631 | 66,543 | 779,433,417 |
| 1970 | 344,987,631 | 206,917,162 | 230,930,201 | 24,036,455 | 18,089,240 | 4,139,237 | 2,639,499 | 66,670 | 831,806,095 |
| 1971 | 359,676,561 | 215,488,563 | 246,462,133 | 25,060,750 | 18,294,691 | 2,493,494 | 4,846,643 | 69,103 | 872,391,938 |
| 1972 | 384,235,376 | 222,488,972 | 263,593,012 | 25,558,613 | 18,325,339 | 1,225,960 | 6,736,628 | 72,184 | 922,236,084 |
| 1973 | 391,736,893 | 231,543,632 | 288,647,207 | 26,085,652 | 20,312,337 | 1,359,501 | 6,823,169 | 71,349 | 966,579,740 |
| 1974 | 412,936,157 | 242,014,021 | 287,391,734 | 26,647,815 | 20,440,522 | 1,525,995 | 6,762,516 | 64,700 | 997,783,460 |
| 1975 | 452,585,939 | 268,347,588 | 292,302,562 | 27,445,394 | 20,557,546 | 1,703,127 | 6,748,467 | 54,272 | 1,069,744,895 |
| 1976 | 488,685,484 | 292,403,282 | 302,295,934 | 28,160,055 | 23,836,222 | 1,820,049 | 6,673,074 | 58,861 | 1,143,932,961 |
| 1977 | 508,484,955 | 309,390,334 | 304,524,594 | 29,189,137 | 26,887,506 | 2,327,510 | 6,844,296 | 61,312 | 1,187,709,644 |
| 1978 | 559,271,082 | 341,669,274 | 317,153,220 | 29,701,386 | 29,118,259 | 5,271,567 | 7,240,445 | 55,953 | 1,289,481,186 |
| 1979 | 589,885,896 | 374,636,655 | 323,223,348 | 30,380,770 | 31,286,521 | 2,550,690 | 7,033,495 | 56,305 | 1,359,053,680 |
| 1980 | 590,757,893 | 393,380,652 | 349,854,519 | 31,091,621 | 34,453,781 | 2,183,625 | 6,521,080 | 44,390 | 1,408,287,561 |
| 1981 | 614,948,144 | 411,000,963 | 393,466,193 | 31,647,660 | 32,542,171 | 1,962,887 | 5,321,751 | 46,134 | 1,490,935,903 |
| 1982 | 671,235,649 | 398,864,056 | 461,396,759 | 31,937,749 | 33,794,453 | 3,207,968 | 7,223,640 | 47,986 | 1,607,708,260 |
| 1983 | 671,926,916 | 393,205,888 | 492,399,456 | 31,858,314 | 37,146,661 | 2,094,114 | 10,134,542 | 41,916 | 1,638,807,807 |
| 1984 | 671,180,056 | 396,872,637 | 525,664,733 | 31,310,248 | 37,699,186 | 5,464,409 | 8,048,556 | 42,325 | 1,676,282,150 |
| 1985 | 657,743,703 | 418,153,082 | 528,210,997 | 30,951,728 | 36,764,791 | 1,203,589 | 8,279,631 | 39,484 | 1,681,347,005 |
| 1986 | 630,468,351 | 410,631,357 | 525,053,520 | 30,653,403 | 36,856,892 | 495,438 | 9,550,382 | 37,451 | 1,643,746,794 |
| 1987 | 600,533,672 | 348,732,245 | 554,074,898 | 30,765,132 | 36,003,830 | 531,068 | 7,475,274 | 46,880 | 1,578,162,999 |
| 1988 | 652,719,529 | 315,821,992 | 626,596,890 | 30,659,962 | 36,764,905 | 458,744 | 7,375,435 | 34,969 | 1,670,432,426 |
| 1989 | 639,498,932 | 309,639,463 | 638,062,268 | 30,422,344 | 35,302,515 | 476,446 | 7,881,127 | 38,865 | 1,661,321,960 |
| 1990 | 619,959,242 | 305,145,129 | 646,697,838 | 30,458,920 | 34,676,343 | 479,592 | 7,366,807 | 37,303 | 1,644,821,174 |
| 1991 | 646,887,506 | 309,457,063 | 658,514,209 | 30,635,651 | 39,891,648 | 503,542 | 7,142,717 | 33,378 | 1,693,065,714 |
| 1992 | 605,942,462 | 297,904,285 | 665,342,042 | 30,812,158 | 41,011,628 | 508,426 | 7,115,920 | 48,627 | 1,648,685,548 |
| 1993 | 630,107,844 | 304,808,820 | 678,633,530 | 30,715,098 | 39,971,611 | 557,233 | 6,976,584 | 46,519 | 1,691,817,239 |
| 1994 | 654,759,803 | 325,785,463 | 707,206,821 | 30,755,231 | 42,367,138 | 561,638 | 8,090,009 | 41,960 | 1,769,568,063 |
| 1995 | 675,493,406 | 330,770,301 | 703,786,919 | 30,743,777 | 42,083,536 | 551,410 | 8,142,069 | 43,365 | 1,791,614,783 |
| 1996 | 700,641,709 | 340,544,552 | 720,501,402 | 30,708,220 | 43,890,108 | 539,186 | 8,039,776 | 42,287 | 1,844,907,240 |
| 1997 | 691,324,739 | 341,525,447 | 728,808,303 | 30,491,553 | 45,828,053 | 489,591 | 7,938,320 | 37,836 | 1,846,443,842 |
| 1998 | 680,290,189 | 345,011,730 | 733,236,004 | 30,848,214 | 43,552,896 | 492,101 | 7,297,169 | 35,675 | 1,840,763,978 |
| 1999 | 675,657,877 | 341,967,105 | 764,768,020 | 30,979,836 | 42,527,363 | 481,012 | 7,063,750 | 24,378 | 1,863,469,341 |
| 2000 | 683,435,135 | 347,350,016 | 799,554,862 | 30,718,039 | 41,929,188 | 504,529 | 6,524,135 | - | 1,910,015,904 |
| 2001 | 700,551,762 | 346,870,490 | 833,248,286 | 30,792,379 | 42,259,836 | 511,684 | 6,159,167 | - | 1,960,393,604 |
| 2002 | 720,345,828 | 353,778,134 | 866,901,042 | 30,778,325 | 43,232,905 | 451,743 | 5,702,697 | - | 2,021,190,674 |
| 2003 | 733,029,994 | 365,259,010 | 905,860,128 | 30,856,995 | 43,601,678 | 443,446 | 5,967,608 | - | 2,085,018,859 |
| 2004 | 680,613,635 | 355,984,218 | 907,267,142 | 30,554,896 | 41,845,719 | 426,799 | 5,789,481 | - | 2,022,481,890 |
| 2005 | 737,106,007 | 386,746,409 | 957,168,520 | 30,376,427 | 42,823,968 | 452,681 | 6,051,810 | - | 2,160,725,822 |
| 2006 | 768,951,893 | 413,147,472 | 962,185,948 | 30,601,677 | 45,095,566 | 436,965 | 7,939,013 | - | 2,228,358,534 |
| 2007 | 793,913,599 | 443,914,279 | 984,671,985 | 30,772,692 | 45,264,721 | 442,640 | 8,246,281 | - | 2,307,226,197 |
| 2008 | 814,894,507 | 465,653,920 | 1,023,079,028 | 31,080,332 | 45,175,486 | 442,760 | 8,086,821 | - | 2,388,412,854 |
| 2009 | 846,288,629 | 490,271,067 | 991,617,284 | 30,432,902 | 45,053,380 | 433,359 | 8,195,164 | - | 2,412,291,785 |
| 2010 | 874,597,509 | 529,486,228 | 980,626,234 | 30,214,529 | 43,930,051 | 431,628 | 7,900,200 | - | 2,467,186,379 |
| 2011 | 946,594,952 | 606,453,671 | 977,069,989 | 29,775,783 | 47,259,540 | 430,521 | 8,092,714 | - | 2,615,677,170 |
| 2012 | 957,183,013 | 679,919,220 | 948,828,298 | 29,802,181 | 49,893,635 | 376,681 | 8,192,739 | - | 2,674,195,767 |
| 2013 | 1,044,087,533 | 724,959,980 | 992,069,479 | 29,584,003 | 50,366,446 | 385,509 | 6,261,423 | - | 2,847,714,373 |
| 2014 | 1,088,204,207 | 784,887,990 | 1,068,540,474 | 29,773,042 | 53,486,022 | 368,967 | 6,587,900 | - | 3,031,848,602 |
| 2015 | 1,046,139,205 | 785,322,492 | 1,114,702,838 | 29,983,863 | 54,300,382 | 348,455 | 5,802,433 | - | 3,036,599,668 |
| 2016 | 997,971,007 | 767,182,921 | 1,128,304,020 | 30,006,076 | 52,937,259 | 342,676 | 5,500,445 | - | 2,982,244,404 |
| 2017 | 1,010,207,902 | 755,955,494 | 1,143,402,764 | 29,564,029 | 62,331,012 | 348,742 | 5,502,015 | - | 3,007,311,958 |
| 2018 | 1,063,770,739 | 743,362,202 | 1,196,287,466 | 26,481,553 | 60,389,431 | 358,289 | 5,565,113 | - | 3,096,214,793 |
| 2019 | 1,040,899,818 | 746,644,878 | 1,167,534,042 | 22,179,386 | 58,387,541 | 334,880 | 5,559,582 | - | 3,041,540,127 |
| 2020 | 1,032,673,645 | 714,130,913 | 1,109,310,677 | 18,589,741 | 58,156,991 | 302,274 | 5,375,860 | - | 2,938,540,101 |

**Montana-Dakota Utilities Co.**
**Integrated System Seasonal Peaks and Peak Month Load Factors 1/**
**1960 through 2020**

**1/** MDU only net peak on combined system as calculated by MDU (excludes REC adjusted peak).

**2/** January and February is of the following year.

| | SUMMER | | | WINTER | | | Annual |
|---|---|---|---|---|---|---|---|
| Year | MW | Month | Load Factor | MW | 2/ Month | Load Factor | load Factor |
| 1960 | 76.7 | AUG | 70.7 | 109.3 | DEC | 58.8 | 50.9 |
| 1961 | 82.8 | AUG | 73.7 | 113.7 | JAN | 62.0 | 52.5 |
| 1962 | 83.8 | AUG | 76 4 | 123.2 | JAN | 65.4 | 53.7 |
| 1963 | 95.9 | JUL | 68.9 | 127.6 | DEC | 63.3 | 52.5 |
| 1964 | 101.8 | AUG | 68.2 | 138.2 | DEC | 64.2 | 51.8 |
| 1965 | 108.4 | AUG | 68.7 | 138.0 | JAN | 68.5 | 56.5 |
| 1966 | 114.0 | JUL | 70.5 | 149.6 | JAN | 65.4 | 58.2 |
| 1967 | 129.0 | JUL | 71.3 | 161.8 | JAN | 68.1 | 60.0 |
| 1968 | 133.3 | JUL | 69.9 | 173.5 | DEC | 65.1 | 55.0 |
| 1969 | 153.4 | AUG | 70.0 | 178.2 | JAN | 70.3 | 62.0 |
| 1970 | 160.5 | JUL | 70.2 | 186.2 | DEC | 67.6 | 59.5 |
| 1971 | 170.9 | AUG | 72.2 | 195.7 | JAN | 70.5 | 58.2 |
| 1972 | 174.5 | AUG | 72.6 | 209.1 | DEC | 69.4 | 58.5 |
| 1973 | 199.6 | AUG | 69.9 | 200.1 | DEC | 67.3 | 63.2 |
| 1974 | 210.0 | JUL | 71.9 | 222.0 | JAN | 66.6 | 62.7 |
| 1975 | 230.8 | JUL | 68.3 | 238.2 | JAN | 67.8 | 59.5 |
| 1976 | 242.6 | AUG | 64.8 | 241.3 | JAN | 78.1 | 59.7 |
| 1977 | 253.7 | JUL | 61.2 | 257.8 | DEC | 71.3 | 57.9 |
| 1978 | 257.2 | SEP | 59.9 | 268.1 | JAN | 79.0 | 62.9 |
| 1979 | 257.6 | JUL | 65.0 | 287.5 | JAN | 73.7 | 63.1 |
| 1980 | 291.2 | JUL | 64.4 | 292.0 | DEC | 73.4 | 61.7 |
| 1981 | 315.4 | JUL | 61.6 | 333.4 | JAN | 75.2 | 59.0 |
| 1982 | 322.7 | AUG | 60.8 | 293.7 | DEC | 74.9 | 59.6 |
| 1983 | 337.5 | AUG | 68.5 | 354.1 | DEC | 72.7 | 57.5 |
| 1984 | 354.6 | AUG | 64.3 | 330.6 | JAN | 74 3 | 58.3 |
| 1985 | 350.4 | JUL | 62.7 | 324.2 | DEC | 74.2 | 59.8 |
| 1986 | 338.0 | JUN | 57.9 | 293.2 | DEC | 73.4 | 59.2 |
| 1987 | 358.6 | JUL | 58.7 | 306.2 | FEB | 76.2 | 54.6 |
| 1988 | 386.7 | JUN | 61.6 | 320.9 | FEB | 74.1 | 54.2 |
| 1989 | 383.6 | AUG | 57.1 | 341.6 | DEC | 69.8 | 54.4 |
| 1990 | 381.6 | JUL | 55.4 | 330.2 | DEC | 70.8 | 53.5 |
| 1991 | 387.1 | JUL | 58.0 | 311.8 | DEC | 74.3 | 54.2 |
| 1992 | 339.1 | AUG | 60.9 | 337.5 | DEC | 73.1 | 61.4 |
| 1993 | 350.3 | AUG | 62.3 | 332.7 | JAN | 77.5 | 61.0 |
| 1994 | 369.8 | AUG | 61.8 | 322.6 | DEC | 74.5 | 59.7 |
| 1995 | 412.7 | AUG | 59.8 | 348.7 | FEB | 68.6 | 54.0 |
| 1996 | 393.3 | AUG | 62.6 | 343.1 | JAN | 78.4 | 58.3 |
| 1997 | 404.6 | JUL | 61.6 | 332.8 | JAN | 74.4 | 56.6 |
| 1998 | 402.5 | AUG | 63.6 | 354.2 | DEC | 70.1 | 56.9 |
| 1999 | 420.6 | JUL | 61.3 | 342.4 | DEC | 70.7 | 54.2 |
| 2000 | 432.3 | AUG | 61.3 | 353.9 | DEC | 77.4 | 54.9 |
| 2001 | 452.9 | AUG | 62.3 | 328.9 | DEC | 78.2 | 53.0 |
| 2002 | 458.8 | JUL | 64.9 | 343.5 | JAN | 78.4 | 53.7 |
| 2003 | 470.5 | AUG | 64.3 | 367.7 | JAN | 77.2 | 54.0 |
| 2004 | 458.4 | JUL | 60.4 | 383.4 | JAN | 76.7 | 54.9 |
| 2005 | 459.1 | JUL | 65.9 | 387.2 | DEC | 76.8 | 57.9 |
| 2006 | 485.5 | JUL | 68.3 | 397.2 | NOV | 69.3 | 56.4 |
| 2007 | 525.6 | JUL | 66.3 | 407.3 | JAN | 80.5 | 54.5 |
| 2008 | 476.6 | AUG | 66.9 | 455.0 | DEC | 78.1 | 62.2 |
| 2009 | 473.8 | AUG | 61.2 | 459.6 | DEC | 78.4 | 62.5 |
| 2010 | 502.5 | AUG | 64.8 | 457.8 | JAN | 79.8 | 61.7 |
| 2011 | 535.8 | JUL | 63.2 | 510.8 | JAN | 71.6 | 59.2 |
| 2012 | 573.6 | JUL | 66.8 | 516.2 | JAN | 78.3 | 58.0 |
| 2013 | 546.9 | AUG | 65.2 | 582.1 | JAN | 74.2 | 63.5 |
| 2014 | 533.0 | AUG | 66.6 | 557.2 | JAN | 77.1 | 63.8 |
| 2015 | 611.5 | AUG | 63.2 | 514.9 | JAN | 83.4 | 60.9 |
| 2016 | 596.8 | JUL | 63.6 | 564.9 | DEC | 79.3 | 61.2 |
| 2017 | 579.1 | JUL | 70.6 | 565.1 | JAN | 78.3 | 64.1 |
| 2018 | 572.4 | JUL | 67.6 | 563.8 | FEB | 83.6 | 66.1 |
| 2019 | 536.9 | AUG | 67.8 | 571.1 | JAN | 76.3 | 66.8 |
| 2020 | 585.6 | AUG | 65.1 | | | | |

**Montana-Dakota Utilities Co.**
**Demand by State at Time of System Seasonal Peak**
**(Megawatts)**

| | SUMMER | | | | WINTER | | | |
|---|---|---|---|---|---|---|---|---|
| Year | ND | SD | MT | Int Sys | ND | SD | MT | Int Sys |
| 1975 | 139.4 | 22.1 | 69.3 | 230.8 | 145.1 | 22.8 | 70.3 | 238.2 |
| 1976 | 147.4 | 24.2 | 71.0 | 242.6 | 147.3 | 24.1 | 69.9 | 241.3 |
| 1977 | 155.9 | 23.5 | 74.6 | 254.0 | 155.1 | 24.3 | 78.4 | 257.8 |
| 1978 | 165.5 | 20.4 | 70.3 | 256.2 | 165.5 | 23.9 | 78.7 | 268.1 |
| 1979 | 166.4 | 16.4 | 74.8 | 257.6 | 177.2 | 24.1 | 86.2 | 287.5 |
| 1980 | 181.5 | 21.5 | 88.2 | 291.2 | 180.8 | 21.8 | 89.4 | 292.0 |
| 1981 | 202.3 | 21.0 | 92.1 | 315.4 | 201.5 | 24.9 | 106.9 | 333.3 |
| 1982 | 208.0 | 20.8 | 93.9 | 322.7 | 185.0 | 21.1 | 87.6 | 293.7 |
| 1983 | 221.2 | 20.9 | 95.4 | 337.5 | 225.7 | 27.5 | 100.9 | 354.1 |
| 1984 | 234.8 | 23.9 | 96.0 | 354.7 | 209.4 | 23.0 | 98.2 | 330.6 |
| 1985 | 233.3 | 24.4 | 92.7 | 350.4 | 206.9 | 22.4 | 94.9 | 324.2 |
| 1986 | 224.2 | 22.5 | 91.4 | 338.1 | 196.4 | 21.2 | 75.7 | 293.3 |
| 1987 | 242.1 | 28.5 | 88.1 | 358.7 | 204.6 | 22.8 | 78.8 | 306.2 |
| 1988 | 265.6 | 28.4 | 92.7 | 386.7 | 212.1 | 23.7 | 85.0 | 320.8 |
| 1989 | 265.1 | 27.6 | 90.9 | 383.6 | 225.6 | 26.9 | 89.1 | 341.6 |
| 1990 | 261.2 | 26.2 | 94.2 | 381.6 | 218.2 | 24.1 | 87.9 | 330.2 |
| 1991 | 271.9 | 30.0 | 85.2 | 387.1 | 217.5 | 19.9 | 74.4 | 311.8 |
| 1992 | 234.4 | 20.9 | 83.7 | 339.0 | 233.4 | 23.9 | 80.1 | 337.4 |
| 1993 | 251.1 | 23.3 | 75.9 | 350.3 | 225.6 | 25.5 | 81.6 | 332.7 |
| 1994 | 253.7 | 27.9 | 88.2 | 369.8 | 220.9 | 24.5 | 77.2 | 322.6 |
| 1995 | 290.6 | 27.1 | 95.0 | 412.7 | 236.1 | 22.5 | 90.1 | 348.7 |
| 1996 | 272.0 | 27.1 | 94.1 | 393.2 | 233.6 | 21.3 | 88.2 | 343.1 |
| 1997 | 288.0 | 22.4 | 94.3 | 404.7 | 225.0 | 20.0 | 87.8 | 332.8 |
| 1998 | 285.1 | 25.7 | 91.7 | 402.5 | 248.2 | 21.6 | 84.4 | 354.2 |
| 1999 | 295.0 | 28.7 | 96.9 | 420.6 | 237.3 | 21.6 | 83.6 | 342.5 |
| 2000 | 302.9 | 30.1 | 99.3 | 432.3 | 234.7 | 22.8 | 96.4 | 353.9 |
| 2001 | 317.8 | 29.8 | 105.4 | 453.0 | 235.0 | 14.3 | 79.6 | 328.9 |
| 2002 | 326.0 | 26.4 | 106.4 | 458.8 | 242.9 | 14.4 | 86.2 | 343.5 |
| 2003 | 328.4 | 28.4 | 113.7 | 470.5 | 251.4 | 19.4 | 96.9 | 367.7 |
| 2004 | 320.2 | 28.4 | 109.8 | 458.4 | 258.8 | 21.9 | 102.7 | 383.4 |
| 2005 | 311.6 | 27.7 | 119.8 | 459.1 | 265.0 | 21.8 | 100.4 | 387.2 |
| 2006 | 346.3 | 29.0 | 110.1 | 485.4 | 272.0 | 23.8 | 101.4 | 397.2 |
| 2007 | 365.8 | 31.6 | 128.3 | 525.7 | 293.0 | 25.3 | 89.0 | 407.3 |
| 2008 | 330.1 | 27.6 | 118.9 | 476.6 | 309.1 | 30.3 | 115.6 | 455.0 |
| 2009 | 337.0 | 27.7 | 109.0 | 473.7 | 313.3 | 28.8 | 117.5 | 459.6 |
| 2010 | 357.7 | 28.4 | 116.4 | 502.5 | 330.1 | 25.7 | 102.0 | 457.8 |
| 2011 | 385.3 | 32.6 | 117.9 | 535.8 | 366.4 | 29.9 | 114.5 | 510.8 |
| 2012 | 406.8 | 24.9 | 141.9 | 573.6 | 380.0 | 29.4 | 106.8 | 516.2 |
| 2013 | 396.4 | 27.6 | 122.9 | 546.9 | 437.7 | 29.9 | 114.5 | 582.1 |
| 2014 | 376.3 | 24.8 | 131.9 | 533.0 | 409.0 | 29.6 | 118.6 | 557.2 |
| 2015 | 438.2 | 30.2 | 143.1 | 611.5 | 382.0 | 25.5 | 107.4 | 514.9 |
| 2016 | 416.2 | 37.6 | 143.0 | 596.8 | 403.8 | 28.5 | 132.6 | 564.9 |
| 2017 | 412.3 | 31.8 | 135.0 | 579.1 | 409.9 | 29.4 | 125.7 | 565.1 |
| 2018 | 410.5 | 29.2 | 132.6 | 572.4 | 397.1 | 28.8 | 137.9 | 563.8 |
| 2019 | 383.7 | 25.7 | 127.5 | 536.9 | 408.7 | 31.6 | 130.8 | 571.1 |
| 2020 | 414.1 | 30.4 | 141.1 | 585.6 | | | | |

* Winter peak is in the following year.

**Montana-Dakota Utilities Co.**
**Billing Cycle Allocation Factors by State**

**North Dakota**

| **Sales** | **January** | **February** | **March** | **April** | **May** | **June** | **July** | **August** | **September** | **October** | **November** | **December** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Residential | 0.119670 | 0.102141 | 0.102537 | 0.077845 | 0.064486 | 0.068215 | 0.077863 | 0.090410 | 0.071726 | 0.064486 | 0.067248 | 0.093375 |
| Small C&I | 0.102908 | 0.089994 | 0.097996 | 0.079908 | 0.072851 | 0.075574 | 0.078474 | 0.085068 | 0.076581 | 0.076193 | 0.073037 | 0.091417 |
| Large C&I | 0.091581 | 0.080509 | 0.089167 | 0.078510 | 0.075696 | 0.081263 | 0.083727 | 0.092057 | 0.084052 | 0.083191 | 0.073895 | 0.086351 |
| Street Lighting | 0.104197 | 0.087717 | 0.090542 | 0.083541 | 0.075676 | 0.075857 | 0.071033 | 0.074639 | 0.075676 | 0.082750 | 0.081164 | 0.097209 |
| Other Public Sales | 0.084921 | 0.072589 | 0.082238 | 0.074417 | 0.074408 | 0.089954 | 0.093711 | 0.110692 | 0.088689 | 0.080280 | 0.068066 | 0.080036 |
| Interdepartmental | 0.111478 | 0.095818 | 0.102634 | 0.088432 | 0.081650 | 0.076601 | 0.068509 | 0.070689 | 0.067038 | 0.072947 | 0.073616 | 0.090587 |
| Company Use | 0.091882 | 0.080706 | 0.091955 | 0.079701 | 0.076888 | 0.082493 | 0.086470 | 0.091884 | 0.082187 | 0.080954 | 0.071542 | 0.083338 |
| Tesoro Refinery | 0.087308 | 0.074260 | 0.087613 | 0.083375 | 0.073850 | 0.084030 | 0.082775 | 0.092179 | 0.088436 | 0.087969 | 0.076453 | 0.081752 |
| Westmoreland Coal | 0.102597 | 0.098181 | 0.101538 | 0.085735 | 0.069902 | 0.064944 | 0.068623 | 0.075376 | 0.073190 | 0.078661 | 0.082452 | 0.098801 |
| **Customers** | | | | | | | | | | | | |
| Residential | 0.996024 | 0.998034 | 0.998719 | 0.997773 | 0.997940 | 0.999080 | 0.999343 | 1.000862 | 1.001514 | 1.002258 | 1.003631 | 1.004820 |
| Small C&I | 0.991514 | 0.992929 | 0.994124 | 0.995994 | 0.999075 | 1.000911 | 1.001753 | 1.001904 | 1.013372 | 1.011267 | 0.998722 | 0.998435 |
| Large C&I | 0.963154 | 0.965990 | 0.972724 | 0.980521 | 0.989559 | 0.996825 | 1.004091 | 1.014015 | 1.035812 | 1.036166 | 1.020749 | 1.020394 |
| Street Lighting | 0.987046 | 0.987442 | 0.988235 | 0.989822 | 0.991011 | 0.996167 | 0.997753 | 1.002512 | 1.009253 | 1.014805 | 1.015995 | 1.019960 |
| Other Public Sales | 0.996608 | 0.996931 | 0.997577 | 1.001777 | 1.003715 | 1.003715 | 1.002100 | 1.001454 | 1.016314 | 1.009207 | 0.988855 | 0.981748 |
| **Peak Demand** | 1.0000 | 0.9235 | 0.8237 | 0.7629 | 0.6992 | 0.9129 | 1.0000 | 0.9578 | 0.8791 | 0.7588 | 0.8567 | 0.9666 |

**South Dakota**

| **Sales** | **January** | **February** | **March** | **April** | **May** | **June** | **July** | **August** | **September** | **October** | **November** | **December** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Residential | 0.119470 | 0.102493 | 0.104717 | 0.080586 | 0.065918 | 0.066471 | 0.076014 | 0.089697 | 0.071133 | 0.063964 | 0.066633 | 0.092904 |
| Small C&I | 0.112621 | 0.098789 | 0.106055 | 0.082288 | 0.069721 | 0.068809 | 0.072779 | 0.085783 | 0.072913 | 0.067107 | 0.068754 | 0.094381 |
| Large C&I | 0.091677 | 0.078213 | 0.085342 | 0.076498 | 0.075824 | 0.076626 | 0.077665 | 0.089537 | 0.085412 | 0.083188 | 0.081779 | 0.098239 |
| Street Lighting | 0.095261 | 0.082165 | 0.085852 | 0.081112 | 0.080430 | 0.083718 | 0.077973 | 0.082688 | 0.079545 | 0.084185 | 0.078351 | 0.088720 |
| Other Public Sales | 0.092002 | 0.087156 | 0.093889 | 0.085655 | 0.083538 | 0.083846 | 0.077527 | 0.089744 | 0.076828 | 0.074485 | 0.069870 | 0.085459 |
| Interdepartmental | 0.177758 | 0.150884 | 0.116486 | 0.077397 | 0.053161 | 0.043194 | 0.048959 | 0.052086 | 0.047200 | 0.052673 | 0.072804 | 0.107398 |
| Company Use | 0.150904 | 0.175568 | 0.176847 | 0.107940 | 0.066402 | 0.037605 | 0.032412 | 0.040598 | 0.034848 | 0.030976 | 0.045872 | 0.100029 |
| **Customers** | | | | | | | | | | | | |
| Residential | 0.998093 | 0.998032 | 0.997971 | 0.998583 | 0.999349 | 0.998982 | 0.998920 | 0.999900 | 1.010376 | 1.008140 | 0.996531 | 0.995122 |
| Small C&I | 0.984921 | 0.985349 | 0.985349 | 0.992839 | 1.001186 | 1.006858 | 1.006858 | 1.005573 | 1.024728 | 1.018629 | 0.994016 | 0.993695 |
| Large C&I | 0.987186 | 0.989084 | 0.989084 | 0.990982 | 0.996678 | 0.996678 | 1.000475 | 1.000475 | 1.015662 | 1.019459 | 1.006170 | 1.008068 |
| Street Lighting | 0.975223 | 0.975223 | 0.975223 | 0.975223 | 0.987116 | 0.987116 | 0.987116 | 0.987116 | 0.999009 | 1.058474 | 1.046581 | 1.046581 |
| Other Public Sales | 0.993192 | 0.993192 | 0.993192 | 0.988893 | 1.006091 | 1.006091 | 1.006091 | 1.006091 | 1.023289 | 1.014690 | 0.980294 | 0.988893 |
| **Peak Demand** | 1.0000 | 0.9133 | 0.8485 | 0.7594 | 0.5879 | 0.8553 | 1.0000 | 0.9146 | 0.7829 | 0.6805 | 0.8797 | 0.9613 |

**Montana**

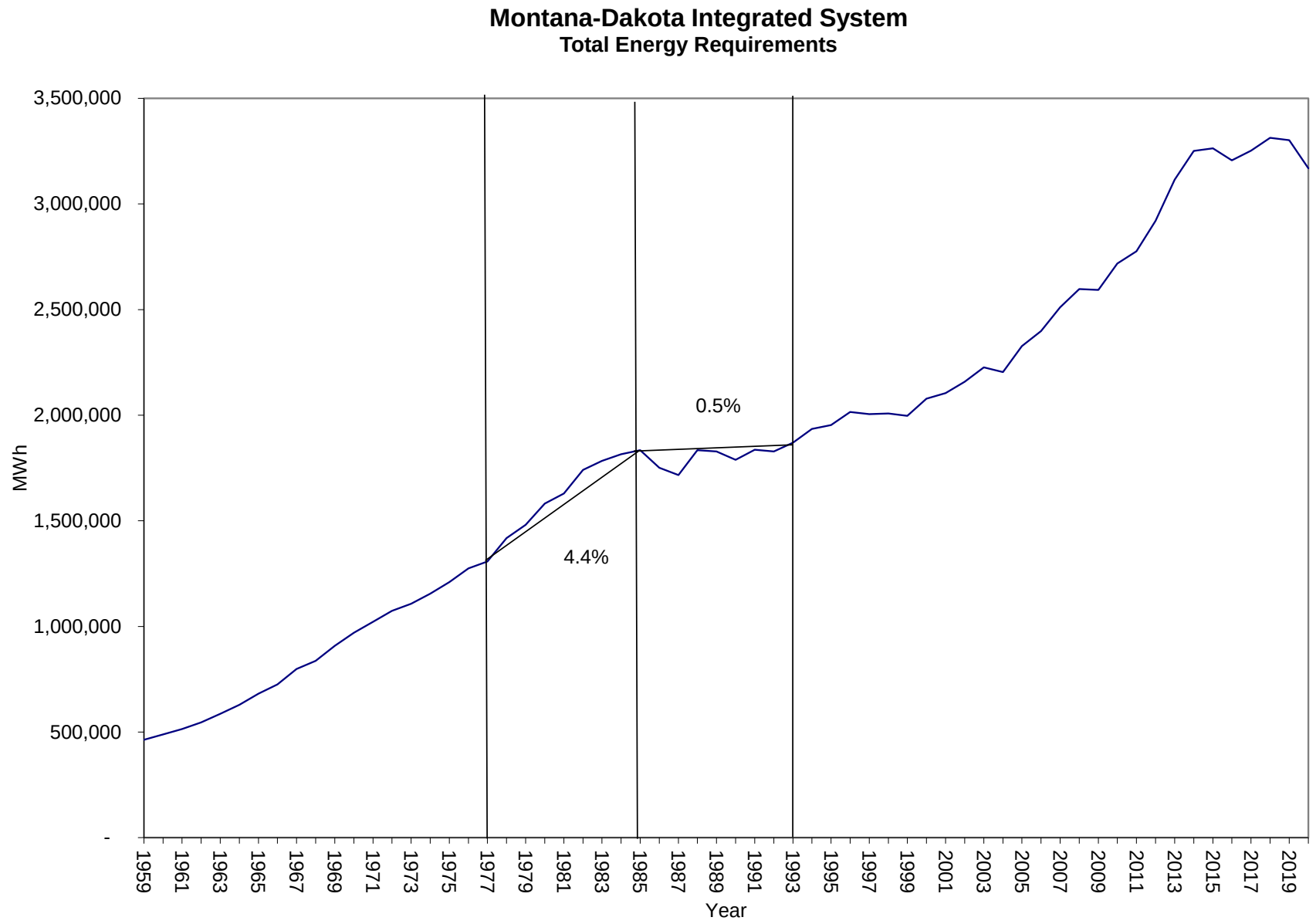
| **Sales** | **January** | **February** | **March** | **April** | **May** | **June** | **July** | **August** | **September** | **October** | **November** | **December** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Residential | 0.114012 | 0.097411 | 0.099904 | 0.075322 | 0.063639 | 0.068077 | 0.081206 | 0.101781 | 0.078659 | 0.065682 | 0.065352 | 0.088955 |
| Small C&I | 0.098105 | 0.086742 | 0.094348 | 0.076419 | 0.068768 | 0.074991 | 0.084243 | 0.100844 | 0.084633 | 0.075982 | 0.069359 | 0.085567 |
| Large C&I | 0.094943 | 0.083001 | 0.089934 | 0.079829 | 0.077841 | 0.081308 | 0.079399 | 0.083273 | 0.078861 | 0.083514 | 0.078945 | 0.089151 |
| Street Lighting | 0.102103 | 0.085363 | 0.092205 | 0.085202 | 0.080754 | 0.081945 | 0.075498 | 0.079858 | 0.076629 | 0.078757 | 0.073156 | 0.088532 |
| Other Public Sales | 0.082754 | 0.072544 | 0.082975 | 0.072013 | 0.070929 | 0.087936 | 0.105595 | 0.122095 | 0.100209 | 0.077742 | 0.056114 | 0.069095 |
| Interdepartmental | 0.109922 | 0.097352 | 0.098593 | 0.080485 | 0.071758 | 0.072331 | 0.070558 | 0.079237 | 0.073771 | 0.077001 | 0.074907 | 0.094085 |
| Company Use | 0.123919 | 0.097396 | 0.101340 | 0.091887 | 0.068881 | 0.065204 | 0.071506 | 0.086413 | 0.074645 | 0.066944 | 0.066384 | 0.085479 |
| Oil Fields | 0.092380 | 0.078502 | 0.085556 | 0.083305 | 0.080196 | 0.083296 | 0.081681 | 0.082597 | 0.081353 | 0.084973 | 0.079912 | 0.086251 |
| Westmoreland Coal | 0.127966 | 0.110426 | 0.109752 | 0.088270 | 0.068167 | 0.060754 | 0.060312 | 0.059487 | 0.053554 | 0.068750 | 0.082387 | 0.110175 |
| **Customers** | | | | | | | | | | | | |
| Residential | 1.002334 | 1.002354 | 1.002624 | 1.001924 | 1.000665 | 0.999235 | 0.998236 | 0.998226 | 0.997726 | 0.997656 | 0.999095 | 0.999925 |
| Small C&I | 0.986921 | 0.986694 | 0.986089 | 0.996193 | 1.004746 | 1.007660 | 1.008909 | 1.008909 | 1.014094 | 1.007736 | 0.997442 | 0.994604 |
| Large C&I | 0.985113 | 0.984372 | 0.987337 | 0.995491 | 1.001421 | 1.002903 | 1.002903 | 1.011057 | 1.038483 | 1.023658 | 0.985113 | 0.982148 |
| Street Lighting | 1.006524 | 1.006524 | 1.006524 | 1.000932 | 0.995340 | 1.000932 | 1.000932 | 0.989748 | 0.995340 | 0.989748 | 1.000932 | 1.006524 |
| Other Public Sales | 0.997821 | 0.993797 | 0.993797 | 0.997821 | 0.997821 | 0.997821 | 0.999832 | 0.999832 | 1.013915 | 1.007879 | 0.999832 | 0.999832 |
| **Peak Demand** | 1.0000 | 0.9296 | 0.8267 | 0.7752 | 0.6797 | 0.8604 | 1.0000 | 0.9485 | 0.8164 | 0.7411 | 0.8811 | 0.9667 |

**Montana-Dakota Utilities Co.**
**Billing-Month to Calendar-Month Allocation Factors**

| Residential | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North Dakota | 60.8% | 64.2% | 61.8% | 64.4% | 64.4% | 62.2% | 58.6% | 61.2% | 62.6% | 60.6% | 63.7% | 64.4% |
| South Dakota | 67.1% | 72.1% | 70.0% | 71.5% | 65.4% | 69.0% | 64.8% | 70.1% | 68.6% | 66.3% | 67.2% | 68.9% |
| Montana | 58.7% | 62.3% | 58.4% | 59.8% | 61.3% | 55.0% | 57.6% | 60.3% | 59.9% | 58.6% | 60.8% | 61.1% |
| **Small Commercial & Industrial** | | | | | | | | | | | | |
| North Dakota | 59.4% | 62.3% | 58.4% | 61.3% | 61.3% | 60.3% | 57.0% | 58.0% | 59.5% | 57.9% | 62.6% | 62.7% |
| South Dakota | 69.7% | 75.1% | 72.5% | 73.4% | 63.4% | 70.2% | 67.3% | 71.3% | 68.7% | 68.6% | 70.4% | 72.0% |
| Montana | 53.5% | 56.5% | 52.5% | 53.6% | 55.1% | 52.0% | 51.7% | 54.8% | 53.5% | 53.1% | 54.8% | 54.9% |
| **Large Commercial & Industrial** | | | | | | | | | | | | |
| North Dakota | 62.3% | 65.6% | 60.8% | 64.2% | 63.9% | 64.1% | 61.9% | 62.5% | 63.6% | 62.9% | 66.7% | 66.1% |
| South Dakota | 75.9% | 79.4% | 77.5% | 78.9% | 65.4% | 78.3% | 77.4% | 79.2% | 76.2% | 76.8% | 77.4% | 77.8% |
| Montana | 37.7% | 38.3% | 34.0% | 35.1% | 35.1% | 41.1% | 34.1% | 35.7% | 34.5% | 34.8% | 36.3% | 37.9% |
| **Street Lighting** | | | | | | | | | | | | |
| North Dakota | 58.0% | 60.9% | 56.6% | 58.9% | 59.3% | 59.2% | 55.1% | 55.9% | 56.5% | 55.9% | 60.7% | 60.4% |
| South Dakota | 69.4% | 71.6% | 68.1% | 69.3% | 62.3% | 70.2% | 66.9% | 68.6% | 66.8% | 67.3% | 70.8% | 71.1% |
| Montana | 59.1% | 65.2% | 60.4% | 60.9% | 62.3% | 59.5% | 58.5% | 59.1% | 60.8% | 60.1% | 63.5% | 60.7% |
| **Other Public Sales** | | | | | | | | | | | | |
| North Dakota | 58.8% | 62.4% | 57.5% | 59.1% | 58.6% | 59.0% | 56.3% | 57.2% | 57.7% | 56.1% | 61.0% | 61.5% |
| South Dakota | 88.6% | 92.1% | 89.4% | 91.4% | 58.7% | 89.2% | 85.0% | 86.9% | 85.6% | 85.8% | 88.9% | 85.8% |
| Montana | 58.8% | 61.9% | 57.6% | 58.5% | 58.4% | 53.4% | 55.8% | 59.7% | 56.7% | 58.1% | 60.7% | 60.3% |
| **Interdepartmental** | | | | | | | | | | | | |
| North Dakota | 67.3% | 73.1% | 71.3% | 73.4% | 74.5% | 73.0% | 69.9% | 71.4% | 72.8% | 70.8% | 73.8% | 72.8% |
| South Dakota | 27.2% | 26.5% | 22.5% | 24.9% | 70.3% | 27.5% | 24.3% | 23.9% | 24.2% | 24.3% | 25.2% | 27.2% |
| Montana | 59.8% | 64.1% | 60.7% | 62.5% | 64.4% | 65.6% | 61.0% | 61.0% | 61.9% | 62.6% | 64.7% | 64.2% |
| **Company Use** | | | | | | | | | | | | |
| North Dakota | 55.2% | 57.1% | 52.3% | 55.2% | 55.0% | 54.6% | 50.7% | 51.8% | 52.8% | 51.5% | 57.0% | 57.1% |
| South Dakota | 90.3% | 94.5% | 91.4% | 93.4% | 58.7% | 92.6% | 87.7% | 89.8% | 76.1% | 73.8% | 68.8% | 73.3% |
| Montana | 59.5% | 64.4% | 60.0% | 61.1% | 64.4% | 55.3% | 60.0% | 63.1% | 61.4% | 60.9% | 65.4% | 63.4% |

**Montana-Dakota Utilties Co.**
**Historical Energy Requirements Integrated System**
**(Megawatt Hours)**

| Year | Total Requirements | %Inc/Dec |
|---|---|---|
| 1959 | 463,307 | |
| 1960 | 488,316 | 5.40% |
| 1961 | 514,086 | 5.28% |
| 1962 | 545,306 | 6.07% |
| 1963 | 586,589 | 7.57% |
| 1964 | 628,616 | 7.16% |
| 1965 | 682,214 | 8.53% |
| 1966 | 725,389 | 6.33% |
| 1967 | 798,855 | 10.13% |
| 1968 | 837,504 | 4.84% |
| 1969 | 908,231 | 8.44% |
| 1970 | 970,490 | 6.85% |
| 1971 | 1,021,876 | 5.29% |
| 1972 | 1,073,560 | 5.06% |
| 1973 | 1,107,691 | 3.18% |
| 1974 | 1,155,351 | 4.30% |
| 1975 | 1,210,168 | 4.74% |
| 1976 | 1,274,391 | 5.31% |
| 1977 | 1,307,542 | 2.60% |
| 1978 | 1,418,366 | 8.48% |
| 1979 | 1,481,019 | 4.42% |
| 1980 | 1,581,612 | 6.79% |
| 1981 | 1,629,323 | 3.02% |
| 1982 | 1,740,859 | 6.85% |
| 1983 | 1,783,753 | 2.46% |
| 1984 | 1,815,453 | 1.78% |
| 1985 | 1,834,294 | 1.04% |
| 1986 | 1,751,503 | -4.51% |
| 1987 | 1,716,377 | -2.01% |
| 1988 | 1,834,232 | 6.87% |
| 1989 | 1,828,665 | -0.30% |
| 1990 | 1,788,854 | -2.18% |
| 1991 | 1,836,243 | 2.65% |
| 1992 | 1,827,866 | -0.46% |
| 1993 | 1,870,268 | 2.32% |
| 1994 | 1,934,561 | 3.44% |
| 1995 | 1,952,872 | 0.95% |
| 1996 | 2,014,830 | 3.17% |
| 1997 | 2,005,195 | -0.48% |
| 1998 | 2,007,534 | 0.12% |
| 1999 | 1,996,647 | -0.54% |
| 2000 | 2,077,579 | 4.05% |
| 2001 | 2,104,119 | 1.28% |
| 2002 | 2,158,431 | 2.58% |
| 2003 | 2,226,531 | 3.16% |
| 2004 | 2,204,012 | -1.01% |
| 2005 | 2,327,117 | 5.59% |
| 2006 | 2,397,793 | 3.04% |
| 2007 | 2,510,540 | 4.70% |
| 2008 | 2,596,990 | 3.44% |
| 2009 | 2,593,368 | -0.14% |
| 2010 | 2,718,192 | 4.81% |
| 2011 | 2,776,082 | 2.13% |
| 2012 | 2,919,752 | 5.18% |
| 2013 | 3,115,064 | 6.69% |
| 2014 | 3,250,683 | 4.35% |
| 2015 | 3,263,271 | 0.39% |
| 2016 | 3,206,737 | -1.73% |
| 2017 | 3,251,539 | 1.40% |
| 2018 | 3,313,387 | 1.90% |
| 2019 | 3,301,537 | -0.36% |
| 2020 | 3,169,086 | -4.01% |


Montana-Dakota Integrated System
Total Energy Requirements
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
MWh
0.5%
4.4%
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
Year

# APPENDIX B

## Integrated System
## Historical and Forecasted Exogenous Variables

**Montana-Dakota Utilities Co.**
**Integrated System**
**Historical Electricity Prices 1/**
**cents/kWh**

| | Residential Prices | | | Small C&I Prices | | | Large C&I Prices | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | MT | ND | SD | MT | ND | SD | MT | ND | SD |
| 1991 | 7.426 | 6.955 | 9.103 | 6.205 | 7.908 | 8.602 | 4.769 | 5.702 | 6.349 |
| 1992 | 7.469 | 6.953 | 9.197 | 6.278 | 7.890 | 8.597 | 4.766 | 5.604 | 6.294 |
| 1993 | 7.449 | 6.918 | 9.102 | 6.245 | 7.897 | 8.581 | 4.773 | 5.502 | 6.252 |
| 1994 | 7.432 | 6.930 | 8.940 | 6.186 | 7.741 | 8.439 | 4.743 | 5.472 | 6.260 |
| 1995 | 7.422 | 6.795 | 8.815 | 6.208 | 7.617 | 8.347 | 4.777 | 5.426 | 6.134 |
| 1996 | 7.400 | 6.744 | 8.768 | 6.157 | 7.559 | 8.295 | 4.802 | 5.376 | 6.041 |
| 1997 | 7.408 | 6.845 | 8.875 | 6.191 | 7.666 | 8.384 | 4.977 | 5.510 | 6.177 |
| 1998 | 7.413 | 6.878 | 8.962 | 6.193 | 7.697 | 8.375 | 5.012 | 5.549 | 6.146 |
| 1999 | 7.433 | 6.833 | 8.923 | 6.200 | 7.622 | 8.339 | 4.888 | 5.447 | 6.134 |
| 2000 | 7.445 | 6.731 | 8.783 | 6.177 | 7.512 | 8.243 | 4.850 | 5.339 | 5.989 |
| 2001 | 7.356 | 6.839 | 8.862 | 6.142 | 7.651 | 8.338 | 4.840 | 5.431 | 6.182 |
| 2002 | 7.335 | 6.753 | 8.807 | 6.109 | 7.552 | 8.294 | 4.821 | 5.509 | 6.162 |
| 2003 | 7.331 | 6.812 | 8.884 | 6.087 | 7.606 | 8.379 | 4.517 | 5.510 | 6.273 |
| 2004 | 7.375 | 7.172 | 9.098 | 6.133 | 7.861 | 8.565 | 4.524 | 5.720 | 6.440 |
| 2005 | 7.352 | 7.010 | 8.918 | 6.142 | 7.681 | 8.437 | 4.512 | 5.635 | 6.356 |
| 2006 | 7.337 | 7.342 | 9.165 | 6.106 | 8.027 | 8.689 | 4.500 | 6.009 | 6.596 |
| 2007 | 7.338 | 7.823 | 9.616 | 6.116 | 8.544 | 9.142 | 4.477 | 6.573 | 7.134 |
| 2008 | 8.370 | 7.844 | 9.606 | 7.288 | 8.683 | 9.125 | 5.183 | 6.673 | 7.167 |
| 2009 | 7.844 | 7.236 | 9.176 | 6.993 | 8.121 | 8.646 | 5.257 | 6.228 | 6.865 |
| 2010 | 7.973 | 7.664 | 9.243 | 7.171 | 8.596 | 8.779 | 4.946 | 6.709 | 7.217 |
| 2011 | 8.301 | 8.020 | 9.082 | 7.478 | 8.935 | 8.667 | 5.432 | 7.040 | 7.156 |
| 2012 | 8.453 | 8.406 | 9.349 | 7.592 | 9.216 | 8.962 | 5.624 | 7.388 | 7.334 |
| 2013 | 8.585 | 8.230 | 9.304 | 7.715 | 9.037 | 8.850 | 5.634 | 7.467 | 7.365 |
| 2014 | 8.705 | 8.614 | 9.360 | 7.809 | 9.397 | 8.877 | 5.851 | 7.719 | 7.470 |
| 2015 | 8.705 | 9.095 | 9.404 | 7.790 | 10.203 | 8.916 | 5.991 | 7.913 | 7.418 |
| 2016 | 8.718 | 9.907 | 10.934 | 7.934 | 11.044 | 10.400 | 5.743 | 8.481 | 8.570 |
| 2017 | 9.314 | 10.730 | 10.907 | 8.690 | 12.156 | 10.856 | 6.508 | 9.130 | 8.525 |
| 2018 | 9.423 | 10.729 | 10.862 | 8.948 | 12.390 | 10.905 | 6.687 | 9.005 | 8.576 |
| 2019 | 10.716 | 10.568 | 11.245 | 10.258 | 12.275 | 11.310 | 7.436 | 8.924 | 9.140 |

SOURCE:
1991-2019: Historical prices calculated from Montana-Dakota Utilities Co., *Electric Operating Revenues Reports*

1/ Price of electricity reflects the "all-inclusive" price for each kWh sold (basic service charge, demand charge, energy charge, and fuel and purchased power.)

**Montana-Dakota Utilities Co.**
**Integrated System**
**Historical Natural Gas Prices**
**$/Dk**

| Year | Residential Price | Firm Price |
|---|---|---|
| 1991 | 4.57 | 4.20 |
| 1992 | 4.84 | 4.46 |
| 1993 | 5.05 | 4.69 |
| 1994 | 4.86 | 4.43 |
| 1995 | 4.38 | 3.91 |
| 1996 | 4.13 | 3.71 |
| 1997 | 4.54 | 4.09 |
| 1998 | 4.85 | 4.30 |
| 1999 | 5.08 | 4.54 |
| 2000 | 5.92 | 5.39 |
| 2001 | 7.42 | 6.87 |
| 2002 | 4.57 | 4.03 |
| 2003 | 6.83 | 6.29 |
| 2004 | 8.56 | 7.97 |
| 2005 | 10.49 | 9.84 |
| 2006 | 9.87 | 9.15 |
| 2007 | 7.78 | 7.09 |
| 2008 | 9.42 | 8.77 |
| 2009 | 7.82 | 7.19 |
| 2010 | 7.05 | 6.37 |
| 2011 | 7.03 | 6.37 |
| 2012 | 6.52 | 5.65 |
| 2013 | 6.56 | 5.85 |
| 2014 | 7.80 | 6.91 |
| 2015 | 7.56 | 6.55 |
| 2016 | 6.40 | 5.10 |
| 2017 | 6.89 | 5.68 |
| 2018 | 6.52 | 5.44 |
| 2019 | 6.44 | 5.41 |

SOURCE:
1991-2019: CSBE Rate Reporting Class Re
Gas Year-to-Date Report for Ye

**Bismarck, ND and Aberdeen, SD**
**Heating Degree Days (HDD)**
**and**
**Cooling Degree Days (CDD)**
**(Annual)**

| | HDD | | CDD | |
|---|---|---|---|---|
| | MT & ND | SD | MT & ND | SD |
| 1991 | 8,052 | 7,650 | 709 | 826 |
| 1992 | 8,162 | 7,771 | 255 | 289 |
| 1993 | 9,144 | 8,650 | 217 | 415 |
| 1994 | 8,866 | 8,474 | 432 | 612 |
| 1995 | 9,027 | 8,926 | 522 | 622 |
| 1996 | 10,027 | 9,875 | 480 | 475 |
| 1997 | 8,450 | 8,854 | 609 | 540 |
| 1998 | 7,765 | 7,502 | 633 | 645 |
| 1999 | 7,710 | 7,401 | 457 | 507 |
| 2000 | 8,412 | 8,436 | 549 | 554 |
| 2001 | 8,039 | 8,348 | 668 | 727 |
| 2002 | 8,532 | 8,369 | 745 | 788 |
| 2003 | 8,493 | 8,319 | 737 | 601 |
| 2004 | 8,183 | 8,035 | 379 | 341 |
| 2005 | 7,792 | 7,871 | 555 | 659 |
| 2006 | 7,525 | 7,437 | 793 | 704 |
| 2007 | 8,345 | 8,465 | 666 | 698 |
| 2008 | 8,946 | 9,022 | 524 | 499 |
| 2009 | 9,108 | 8,847 | 331 | 327 |
| 2010 | 8,643 | 8,255 | 507 | 661 |
| 2011 | 8,750 | 8,668 | 425 | 729 |
| 2012 | 7,612 | 7,342 | 599 | 764 |
| 2013 | 9,133 | 9,445 | 555 | 580 |
| 2014 | 8,887 | 9,087 | 457 | 342 |
| 2015 | 7,655 | 7,364 | 622 | 677 |
| 2016 | 7,235 | 7,015 | 548 | 722 |
| 2017 | 7,894 | 7,845 | 615 | 552 |
| 2018 | 8,825 | 8,728 | 701 | 849 |
| 2019 | 9,327 | 9,261 | 530 | 601 |
| NORMAL | 8,558 | 8,534 | 520 | 525 |

**Montana-Dakota Utilities Co.**
**Service Territory Counties**
**Personal Income (2009 $s)**

| Year | Montana | North Dakota | South Dakota |
|---|---|---|---|
| 1991 | 1,523,131 | 4,809,892 | 703,231 |
| 1992 | 1,598,189 | 5,220,819 | 765,668 |
| 1993 | 1,636,426 | 5,335,176 | 776,958 |
| 1994 | 1,588,280 | 5,412,533 | 708,749 |
| 1995 | 1,565,635 | 5,355,823 | 722,810 |
| 1996 | 1,575,746 | 5,813,385 | 811,231 |
| 1997 | 1,574,043 | 5,567,230 | 780,437 |
| 1998 | 1,652,587 | 6,076,583 | 864,339 |
| 1999 | 1,665,969 | 6,107,009 | 890,294 |
| 2000 | 1,657,843 | 6,520,311 | 952,672 |
| 2001 | 1,729,208 | 6,753,255 | 960,715 |
| 2002 | 1,675,863 | 6,587,290 | 807,029 |
| 2003 | 1,809,970 | 7,148,891 | 972,063 |
| 2004 | 1,835,962 | 7,173,616 | 976,099 |
| 2005 | 1,874,441 | 7,527,785 | 987,375 |
| 2006 | 1,859,774 | 7,724,932 | 782,690 |
| 2007 | 2,043,731 | 8,374,460 | 1,004,951 |
| 2008 | 2,161,261 | 9,269,713 | 1,133,266 |
| 2009 | 2,152,947 | 9,516,434 | 1,039,761 |
| 2010 | 2,360,494 | 10,697,199 | 1,088,216 |
| 2011 | 2,488,409 | 12,386,443 | 1,324,459 |
| 2012 | 2,816,833 | 14,805,307 | 1,345,127 |
| 2013 | 2,875,420 | 15,161,971 | 1,302,253 |
| 2014 | 2,954,178 | 16,684,375 | 1,254,587 |
| 2015 | 2,843,527 | 15,700,123 | 1,131,391 |
| 2016 | 2,576,326 | 14,152,381 | 1,020,178 |
| 2017 | 2,570,283 | 13,953,887 | 1,027,006 |
| 2018 | 2,641,370 | 14,461,811 | 1,098,388 |
| 2019 | 2,717,003 | 14,909,808 | 1,126,264 |

SOURCES:
1991-2018: U.S. Dept. of Commerce
2019: Woods & Poole Economics, Inc.

**Integrated System**
**Personal Consumption Expediture Deflator**

| Year | Personal Consumption Expenditure Deflator (2012 = 100) | Inflation Rate |
|---|---|---|
| 1991 | 65.47 | |
| 1992 | 67.22 | 2.7% |
| 1993 | 68.89 | 2.5% |
| 1994 | 70.33 | 2.1% |
| 1995 | 71.81 | 2.1% |
| 1996 | 73.35 | 2.1% |
| 1997 | 74.62 | 1.7% |
| 1998 | 75.22 | 0.8% |
| 1999 | 76.34 | 1.5% |
| 2000 | 78.24 | 2.5% |
| 2001 | 79.74 | 1.9% |
| 2002 | 80.79 | 1.3% |
| 2003 | 82.36 | 1.9% |
| 2004 | 84.41 | 2.5% |
| 2005 | 86.81 | 2.8% |
| 2006 | 89.17 | 2.7% |
| 2007 | 91.44 | 2.5% |
| 2008 | 94.18 | 3.0% |
| 2009 | 94.09 | -0.1% |
| 2010 | 95.71 | 1.7% |
| 2011 | 98.13 | 2.5% |
| 2012 | 100.00 | 1.9% |
| 2013 | 101.35 | 1.3% |
| 2014 | 102.83 | 1.5% |
| 2015 | 103.05 | 0.2% |
| 2016 | 104.09 | 1.0% |
| 2017 | 105.93 | 1.8% |
| 2018 | 108.14 | 2.1% |
| 2019 | 109.65 | 1.4% |
| 2020 | 110.39 | 0.7% |
| 2021 | 112.77 | 2.2% |
| 2022 | 115.40 | 2.3% |
| 2023 | 118.28 | 2.5% |
| 2024 | 121.42 | 2.7% |
| 2025 | 124.83 | 2.8% |
| 2026 | 128.49 | 2.9% |
| 2027 | 132.40 | 3.0% |
| 2028 | 136.56 | 3.1% |
| 2029 | 140.94 | 3.2% |
| 2030 | 145.55 | 3.3% |
| 2031 | 150.36 | 3.3% |
| 2032 | 155.36 | 3.3% |
| 2033 | 160.55 | 3.3% |
| 2034 | 165.95 | 3.4% |
| 2035 | 171.54 | 3.4% |
| 2036 | 177.35 | 3.4% |
| 2037 | 183.36 | 3.4% |
| 2038 | 189.59 | 3.4% |
| 2039 | 196.04 | 3.4% |
| 2040 | 202.72 | 3.4% |

SOURCES:
1991-2018 U.S. Department of Commerce
2019-2040 Woods & Poole Economics, Inc.

**Households and Customers for Service Territory Counties**

| Year | Montana | | North Dakota | | South Dakota | |
|---|---|---|---|---|---|---|
| | Number of Households | Average Customers | Number of Households | Average Customers | Number of Households | Average Customers |
| 1991 | 24,091 | 18,594 | 77,087 | 57,076 | 11,956 | 6,885 |
| 1992 | 24,049 | 18,557 | 77,651 | 57,305 | 11,846 | 6,868 |
| 1993 | 23,940 | 18,552 | 77,781 | 57,586 | 11,661 | 6,900 |
| 1994 | 23,950 | 18,534 | 78,009 | 57,794 | 11,681 | 6,914 |
| 1995 | 24,045 | 18,597 | 78,348 | 58,130 | 11,660 | 6,912 |
| 1996 | 24,188 | 18,689 | 79,774 | 58,529 | 11,775 | 6,936 |
| 1997 | 24,100 | 18,803 | 80,321 | 58,787 | 11,538 | 6,919 |
| 1998 | 24,019 | 18,839 | 80,967 | 59,081 | 11,384 | 6,913 |
| 1999 | 23,884 | 18,799 | 81,058 | 58,988 | 11,505 | 6,883 |
| 2000 | 23,829 | 18,716 | 81,566 | 59,332 | 11,459 | 6,866 |
| 2001 | 24,092 | 18,645 | 83,396 | 59,405 | 11,545 | 6,816 |
| 2002 | 23,799 | 18,635 | 83,797 | 59,608 | 11,407 | 6,768 |
| 2003 | 23,959 | 18,602 | 85,009 | 59,953 | 11,391 | 6,724 |
| 2004 | 23,931 | 18,539 | 85,375 | 60,279 | 11,204 | 6,681 |
| 2005 | 23,976 | 18,502 | 86,433 | 60,641 | 11,133 | 6,648 |
| 2006 | 23,945 | 18,505 | 87,358 | 61,026 | 10,989 | 6,620 |
| 2007 | 24,224 | 18,531 | 89,030 | 61,451 | 10,962 | 6,593 |
| 2008 | 24,285 | 18,582 | 89,973 | 62,068 | 10,897 | 6,612 |
| 2009 | 24,574 | 18,636 | 91,208 | 62,631 | 10,767 | 6,619 |
| 2010 | 24,545 | 18,716 | 91,736 | 63,619 | 10,761 | 6,609 |
| 2011 | 25,173 | 18,883 | 95,145 | 65,196 | 10,936 | 6,602 |
| 2012 | 25,223 | 19,191 | 96,058 | 67,888 | 10,913 | 6,616 |
| 2013 | 25,317 | 19,616 | 97,131 | 70,949 | 10,906 | 6,590 |
| 2014 | 25,355 | 19,918 | 98,400 | 73,909 | 10,913 | 6,580 |
| 2015 | 25,506 | 20,135 | 100,152 | 76,894 | 10,951 | 6,662 |
| 2016 | 25,629 | 20,128 | 101,552 | 78,553 | 10,971 | 6,546 |
| 2017 | 25,579 | 19,981 | 102,407 | 78,564 | 10,922 | 6,533 |
| 2018 | 25,795 | 19,911 | 103,784 | 78,510 | 10,952 | 6,496 |
| 2019 | 26,040 | 19,896 | 105,609 | 78,567 | 11,025 | 6,442 |
| 2020 | 26,228 | 19,896 | 107,231 | 78,817 | 11,072 | 6,505 |
| 2021 | 26,412 | 19,896 | 108,847 | 79,067 | 11,117 | 6,508 |
| 2022 | 26,550 | 19,896 | 110,302 | 79,317 | 11,146 | 6,510 |
| 2023 | 26,665 | 19,896 | 111,658 | 79,872 | 11,163 | 6,511 |
| 2024 | 26,755 | 19,896 | 112,935 | 80,427 | 11,168 | 6,512 |
| 2025 | 26,828 | 19,896 | 114,150 | 80,982 | 11,168 | 6,512 |
| 2026 | 26,885 | 19,896 | 115,311 | 81,232 | 11,161 | 6,511 |
| 2027 | 26,931 | 19,896 | 116,427 | 81,482 | 11,149 | 6,510 |
| 2028 | 26,964 | 19,896 | 117,503 | 81,732 | 11,129 | 6,509 |
| 2029 | 26,980 | 19,896 | 118,525 | 81,982 | 11,106 | 6,507 |
| 2030 | 26,986 | 19,896 | 119,495 | 82,232 | 11,077 | 6,505 |
| 2031 | 26,983 | 19,896 | 120,431 | 82,482 | 11,046 | 6,503 |
| 2032 | 26,969 | 19,896 | 121,325 | 82,732 | 11,009 | 6,500 |
| 2033 | 26,945 | 19,896 | 122,183 | 82,982 | 10,969 | 6,497 |
| 2034 | 26,917 | 19,896 | 123,021 | 83,232 | 10,928 | 6,494 |
| 2035 | 26,881 | 19,896 | 123,834 | 83,482 | 10,883 | 6,491 |
| 2036 | 26,843 | 19,896 | 124,634 | 83,732 | 10,837 | 6,488 |
| 2037 | 26,803 | 19,896 | 125,423 | 83,982 | 10,792 | 6,484 |
| 2038 | 26,760 | 19,896 | 126,198 | 84,232 | 10,743 | 6,481 |
| 2039 | 26,714 | 19,896 | 126,971 | 84,482 | 10,694 | 6,477 |
| 2040 | 26,671 | 19,896 | 127,756 | 84,732 | 10,648 | 6,473 |

*/ Actual customer numbers for 1999 are unavailable due to the installation of a new CIS.
This number is an estimate.

SOURCES:
Households
2000, 2010: U.S. Department of Commerce
All other years: Estimated and projected by Woods & Poole Economics, Inc.
Customers
1991-2019: Actuals from Montana-Dakota Utilities Co. Customer Information System Active Customers Report
2020-2040: Montana-Dakota forecast

**Integrated System**
**Employment Data**
**Total Employment less Farming and Mining Employment**

| | Montana | | | | North Dakota | | | | South Dakota | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Number of Employees | Growth Rate | Adjusted Employment | Growth Rate | Number of Employees | Growth Rate | Adjusted Employment | Growth Rate | Number of Employees | Growth Rate |
| 1991 | 28,907 | | | | 99,873 | | | | 11,332 | |
| 1992 | 28,608 | -1.03% | | | 101,097 | 1.23% | | | 11,321 | -0.10% |
| 1993 | 29,119 | 1.79% | | | 103,952 | 2.82% | | | 11,396 | 0.66% |
| 1994 | 30,469 | 4.64% | | | 108,742 | 4.61% | | | 12,276 | 7.72% |
| 1995 | 30,203 | -0.87% | | | 109,356 | 0.56% | | | 12,013 | -2.14% |
| 1996 | 30,110 | -0.31% | | | 111,578 | 2.03% | | | 12,250 | 1.97% |
| 1997 | 30,456 | 1.15% | | | 113,382 | 1.62% | | | 12,141 | -0.89% |
| 1998 | 30,879 | 1.39% | | | 115,817 | 2.15% | | | 12,250 | 0.90% |
| 1999 | 30,693 | -0.60% | | | 116,968 | 0.99% | | | 12,224 | -0.21% |
| 2000 | 30,708 | 0.05% | | | 119,272 | 1.97% | | | 12,411 | 1.53% |
| 2001 | 30,199 | -1.66% | | | 119,114 | -0.13% | | | 12,163 | -2.00% |
| 2002 | 30,149 | -0.17% | | | 120,576 | 1.23% | | | 12,158 | -0.04% |
| 2003 | 30,335 | 0.62% | | | 121,968 | 1.15% | | | 11,849 | -2.54% |
| 2004 | 30,475 | 0.46% | | | 124,627 | 2.18% | | | 11,972 | 1.04% |
| 2005 | 30,631 | 0.51% | | | 127,435 | 2.25% | | | 12,010 | 0.32% |
| 2006 | 30,874 | 0.79% | | | 131,649 | 3.31% | | | 12,148 | 1.15% |
| 2007 | 31,588 | 2.31% | | | 134,585 | 2.23% | | | 12,196 | 0.40% |
| 2008 | 32,029 | 1.40% | | | 137,596 | 2.24% | | | 12,266 | 0.57% |
| 2009 | 32,267 | 0.74% | | | 139,826 | 1.62% | | | 12,368 | 0.83% |
| 2010 | 32,664 | 1.23% | | | 144,307 | 3.20% | | | 12,384 | 0.13% |
| 2011 | 33,935 | 3.89% | | | 155,925 | 8.05% | | | 12,409 | 0.20% |
| 2012 | 34,859 | 2.72% | | | 172,061 | 10.35% | | | 12,457 | 0.39% |
| 2013 | 35,768 | 2.61% | | | 182,891 | 6.29% | | | 12,760 | 2.43% |
| 2014 | 35,853 | 0.24% | | | 193,399 | 5.75% | | | 12,877 | 0.92% |
| 2015 | 35,022 | -2.32% | | | 190,737 | -1.38% | | | 12,793 | -0.65% |
| 2016 | 33,605 | -4.05% | | | 179,216 | -6.04% | | | 12,755 | -0.30% |
| 2017 | 33,315 | -0.86% | | | 177,258 | -1.09% | | | 12,713 | -0.33% |
| 2018 | 33,008 | -0.92% | | | 178,142 | 0.50% | | | 12,759 | 0.36% |
| 2019 | 33,303 | 0.89% | | | 181,655 | 1.97% | | | 12,881 | 0.96% |
| 2020 | 33,536 | 0.70% | 33,414 | 0.33% | 184,783 | 1.72% | 183,583 | 1.06% | 12,963 | 0.64% |
| 2021 | 33,818 | 0.84% | 33,524 | 0.33% | 188,288 | 1.90% | 185,511 | 1.05% | 13,081 | 0.91% |
| 2022 | 34,074 | 0.76% | 33,635 | 0.33% | 191,706 | 1.82% | 187,439 | 1.04% | 13,180 | 0.76% |
| 2023 | 34,303 | 0.67% | 33,745 | 0.33% | 195,007 | 1.72% | 189,366 | 1.03% | 13,261 | 0.61% |
| 2024 | 34,527 | 0.65% | 33,856 | 0.33% | 198,245 | 1.66% | 191,294 | 1.02% | 13,345 | 0.63% |
| 2025 | 34,735 | 0.60% | 33,966 | 0.32% | 201,488 | 1.64% | 193,222 | 1.01% | 13,417 | 0.54% |
| 2026 | 34,931 | 0.56% | 34,077 | 0.33% | 204,775 | 1.63% | 195,150 | 1.00% | 13,498 | 0.60% |
| 2027 | 35,141 | 0.60% | 34,187 | 0.32% | 208,040 | 1.59% | 197,078 | 0.99% | 13,566 | 0.50% |
| 2028 | 35,335 | 0.55% | 34,298 | 0.32% | 211,303 | 1.57% | 199,006 | 0.98% | 13,634 | 0.50% |
| 2029 | 35,513 | 0.50% | 34,408 | 0.32% | 214,579 | 1.55% | 200,933 | 0.97% | 13,703 | 0.51% |
| 2030 | 35,694 | 0.51% | 34,519 | 0.32% | 217,850 | 1.52% | 202,861 | 0.96% | 13,763 | 0.44% |
| 2031 | 35,873 | 0.50% | 34,629 | 0.32% | 221,144 | 1.51% | 204,789 | 0.95% | 13,833 | 0.51% |
| 2032 | 36,043 | 0.47% | 34,740 | 0.32% | 224,469 | 1.50% | 206,717 | 0.94% | 13,891 | 0.42% |
| 2033 | 36,206 | 0.45% | 34,850 | 0.32% | 227,778 | 1.47% | 208,645 | 0.93% | 13,951 | 0.43% |
| 2034 | 36,369 | 0.45% | 34,961 | 0.32% | 231,113 | 1.46% | 210,573 | 0.92% | 14,001 | 0.36% |
| 2035 | 36,526 | 0.43% | 35,071 | 0.31% | 234,471 | 1.45% | 212,500 | 0.92% | 14,067 | 0.47% |
| 2036 | 36,672 | 0.40% | 35,182 | 0.32% | 237,843 | 1.44% | 214,428 | 0.91% | 14,119 | 0.37% |
| 2037 | 36,825 | 0.42% | 35,292 | 0.31% | 241,229 | 1.42% | 216,356 | 0.90% | 14,174 | 0.39% |
| 2038 | 36,975 | 0.41% | 35,403 | 0.31% | 244,637 | 1.41% | 218,284 | 0.89% | 14,229 | 0.39% |
| 2039 | 37,112 | 0.37% | 35,514 | 0.31% | 248,086 | 1.41% | 220,212 | 0.88% | 14,279 | 0.35% |
| 2040 | 37,255 | 0.39% | 35,624 | 0.31% | 251,525 | 1.39% | 222,140 | 0.88% | 14,332 | 0.37% |

SOURCES:

Number of Employees:

1991-2018: U.S. Department of Commerce

2019-2040: Estimated and projected by Woods & Poole Economics, Inc.

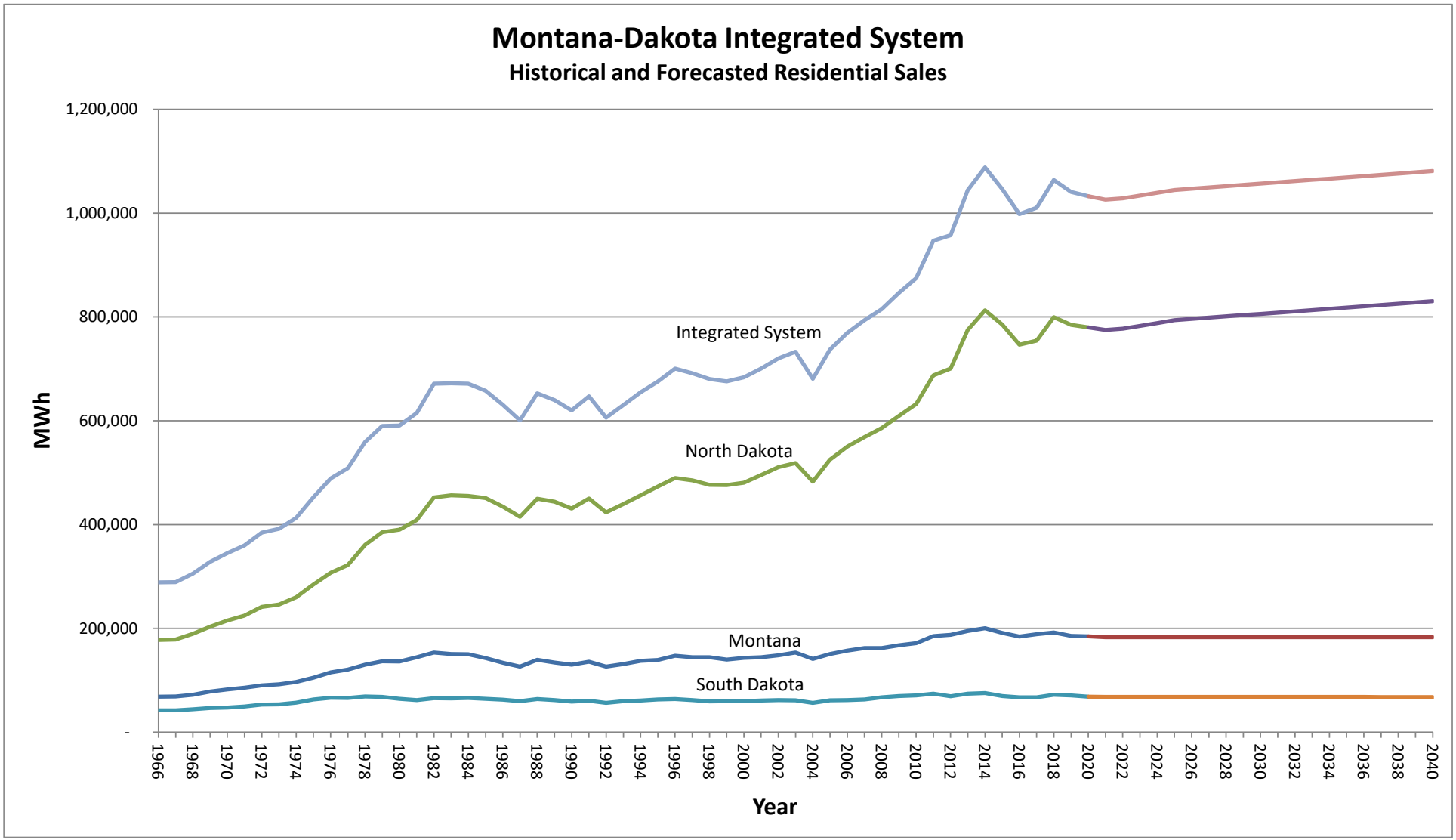
Adjusted Employment:

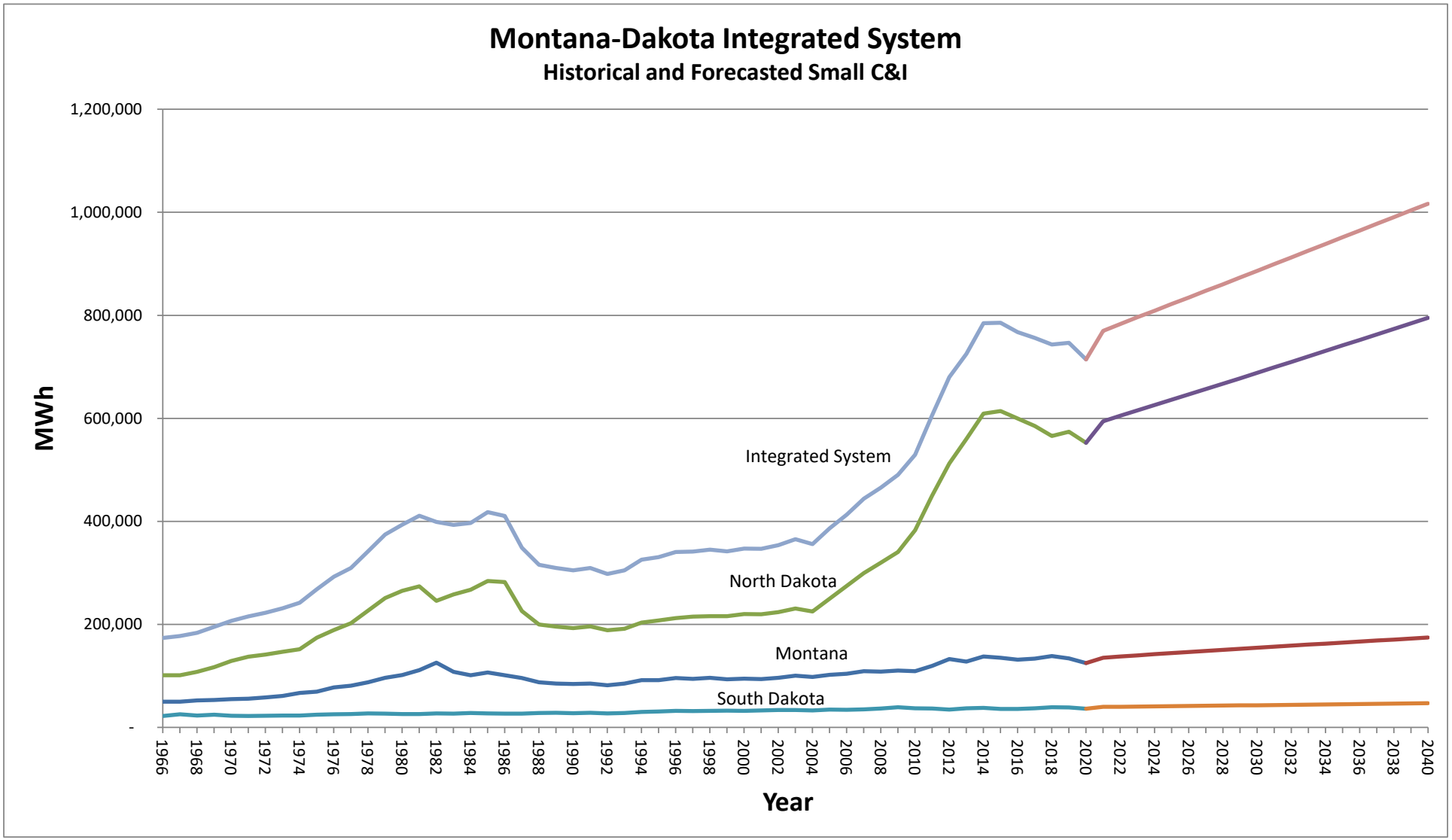
2020-2040: For Montana and North Dakota, employment was tied to the growth in residential customers by running a regression on the historical (1984-2018) ratio of actual residential customer numbers to employees. Those regression results were then applied on a forecasted basis to the adjusted forecast of residential customer numbers to arrive at an adjusted forecast of number of employees. No adjustment was made to South Dakota employment.

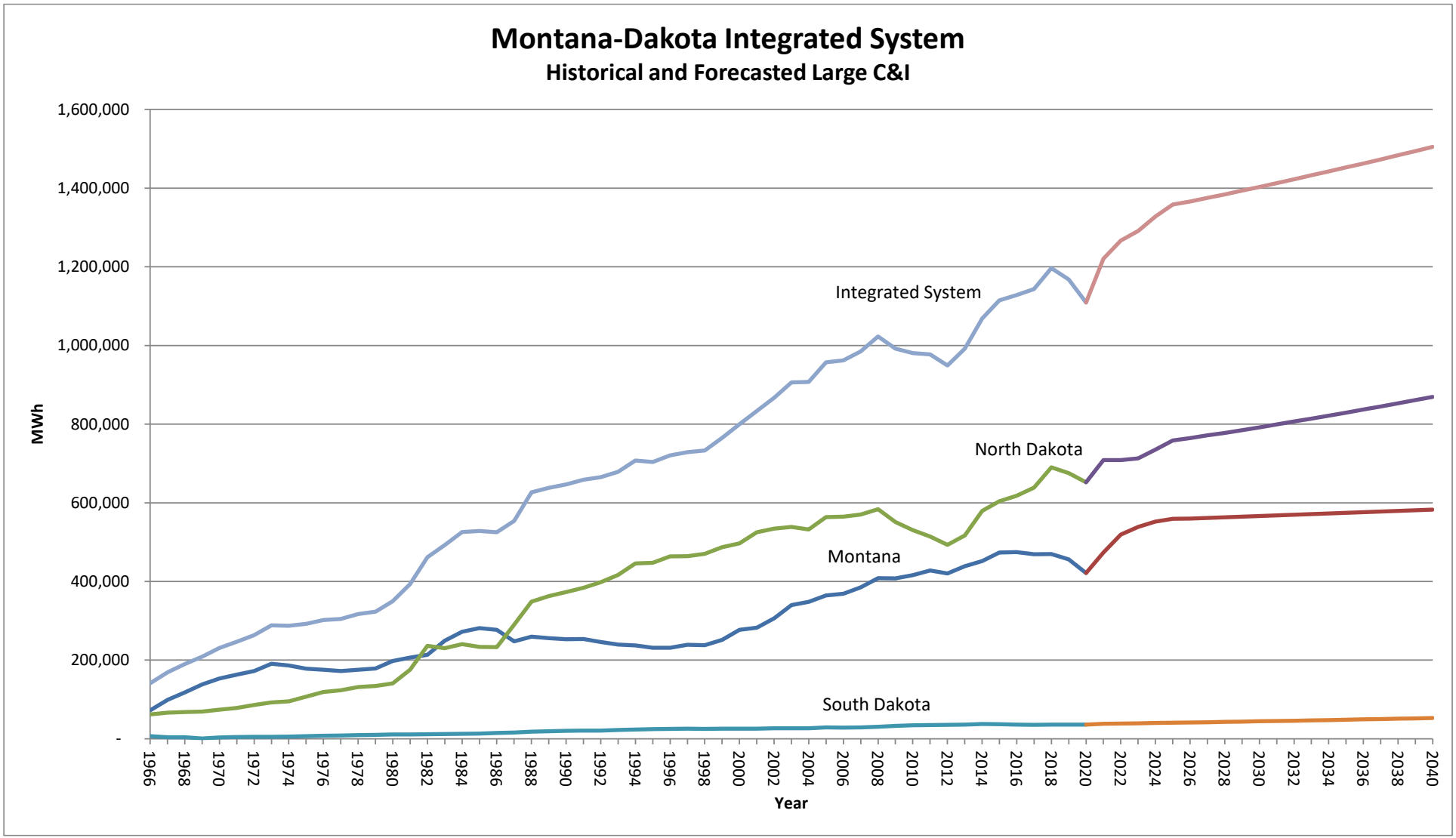
NOTE: The number of employees used for the forecast is total employment less farming and mining employment (most farms are not served by Montana-Dakota and the mining sector (oil fields and coal mining) is forecasted separately).

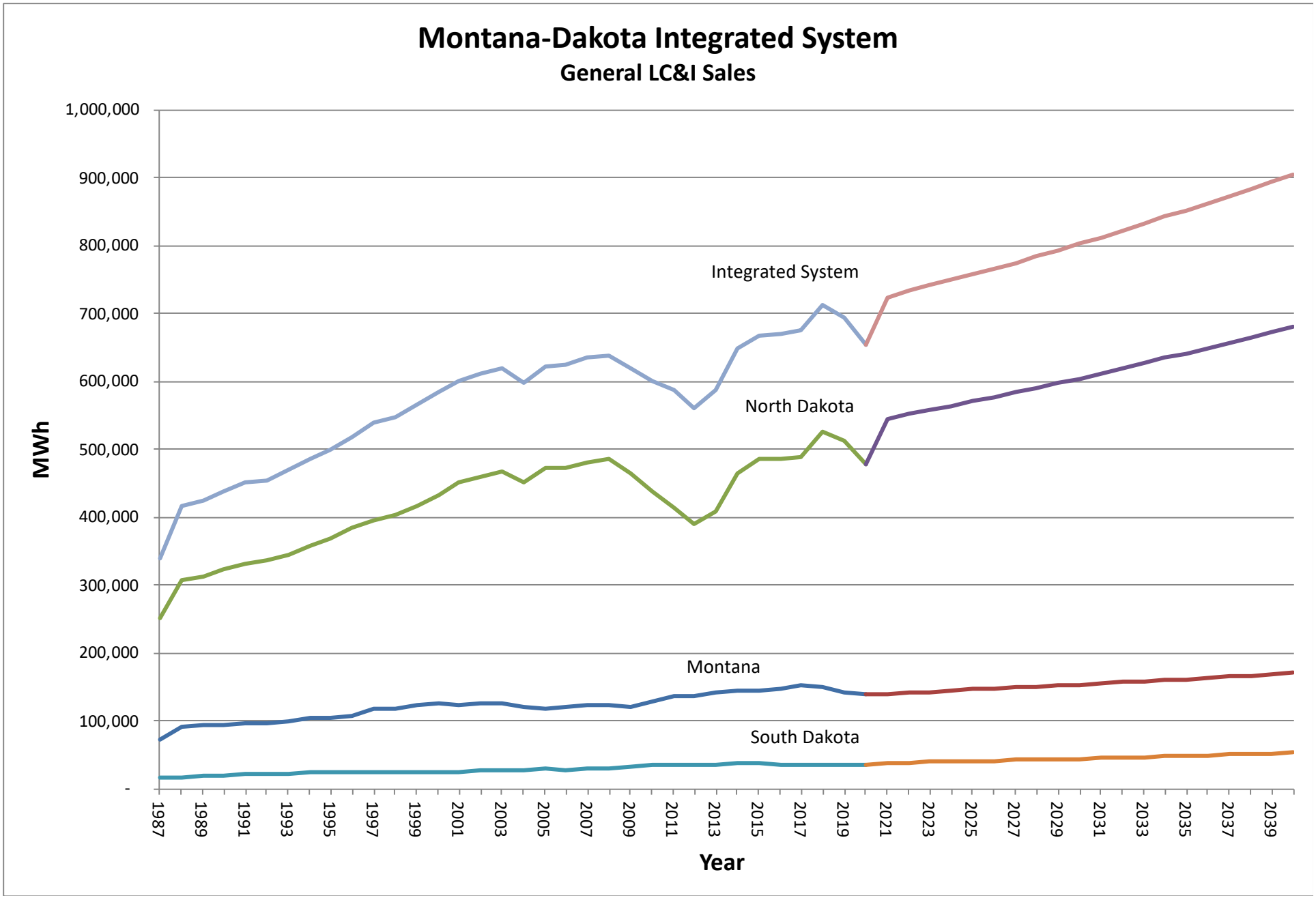
# APPENDIX C

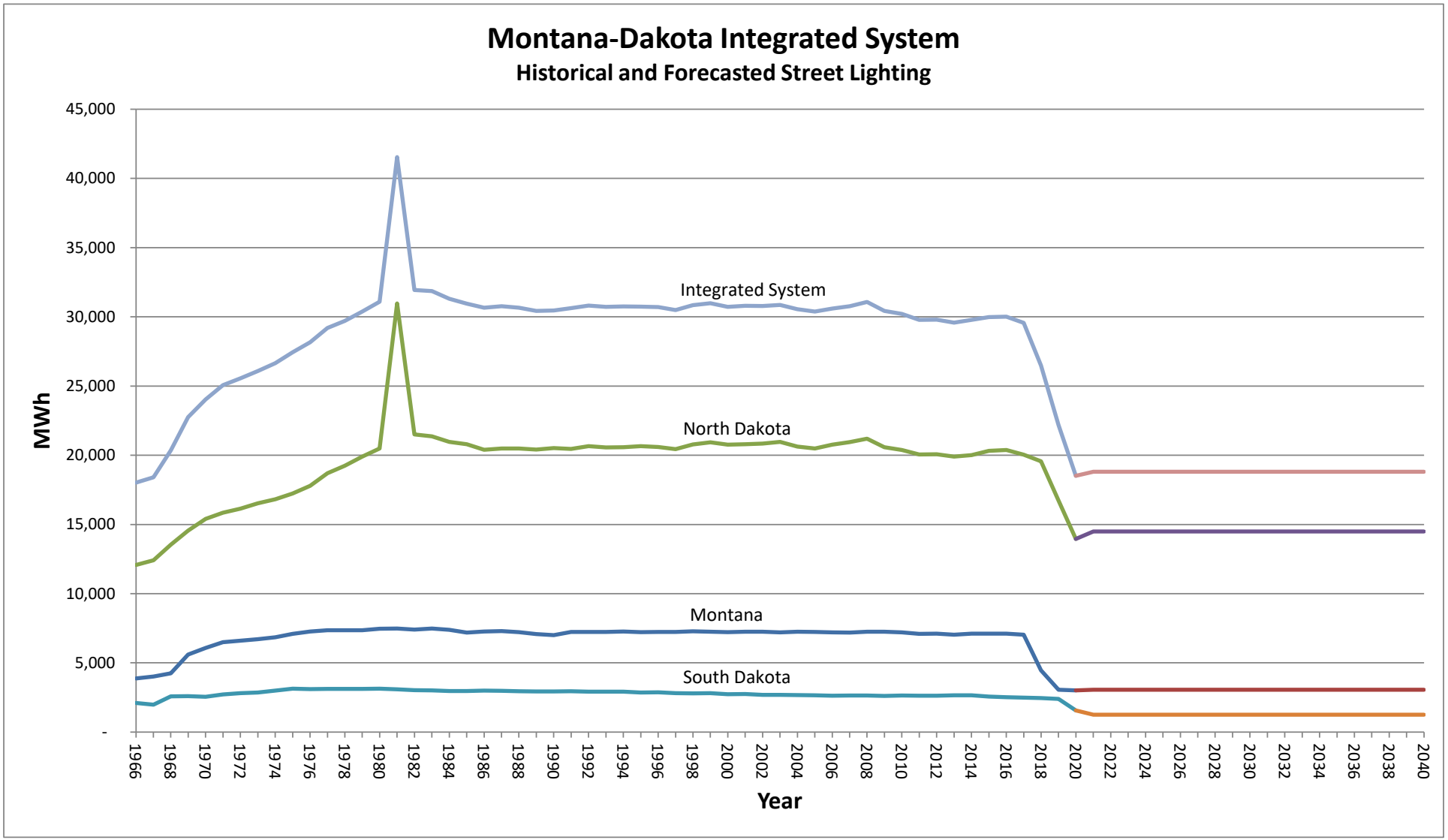
# Integrated System Forecast Results

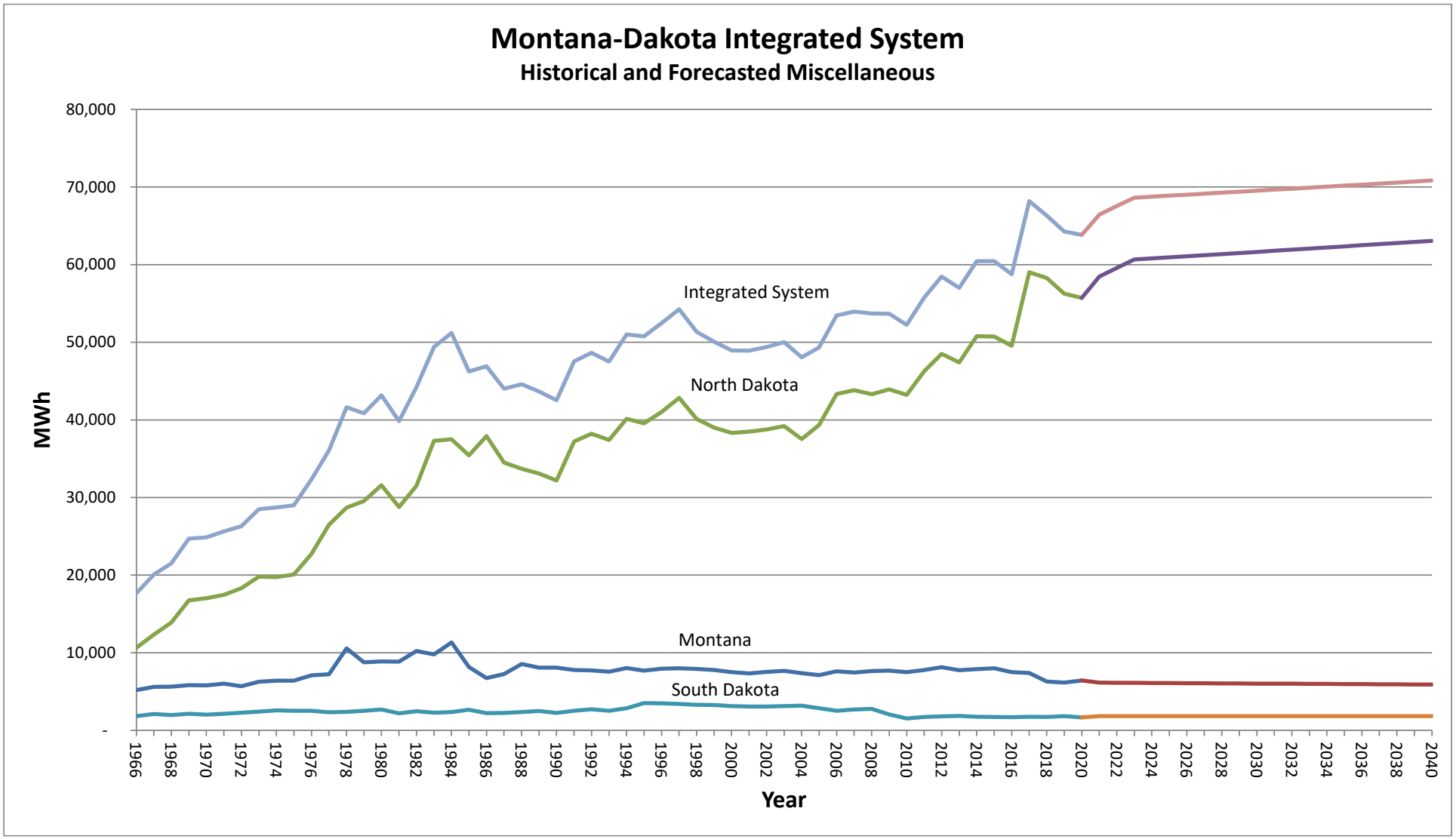

Montana-Dakota Integrated System
Historical and Forecasted Residential Sales
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
MWh
Integrated System
North Dakota
Montana
South Dakota
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
Year

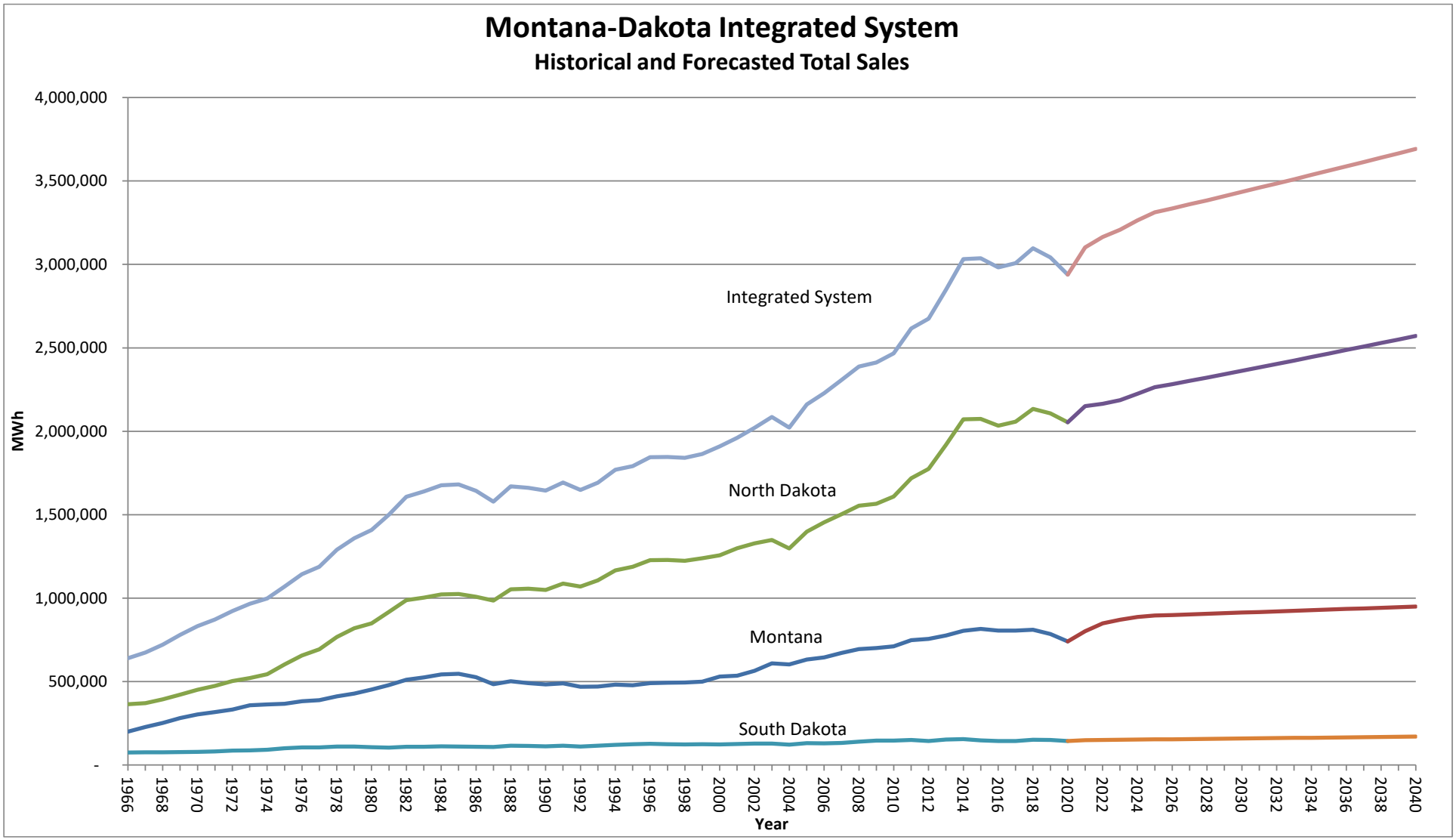

Montana-Dakota Integrated System
Historical and Forecasted Small C&I
MWh
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
Integrated System
North Dakota
Montana
South Dakota
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
Year


Montana-Dakota Integrated System
Historical and Forecasted Large C&I
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
MWh
Integrated System
North Dakota
Montana
South Dakota
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
Year


Montana-Dakota Integrated System
General LC&I Sales
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
-
MWh
Integrated System
North Dakota
Montana
South Dakota
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
2037
2039
Year


Montana-Dakota Integrated System
Historical and Forecasted Street Lighting
MWh
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
Integrated System
North Dakota
Montana
South Dakota
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
Year


Montana-Dakota Integrated System
Historical and Forecasted Miscellaneous
MWh
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
Integrated System
North Dakota
Montana
South Dakota
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
Year


Montana-Dakota Integrated System
Historical and Forecasted Total Sales
MWh
4,000,000
3,500,000
3,000,000
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-
Integrated System
North Dakota
Montana
South Dakota
1966
1968
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1996
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2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
Year

**Montana-Dakota Utilities Co.**
**Forecasted Energy (MWh) and**
**Seasonal Demands (MW) Prior to Demand Response**
**Integrated System**

| Year | Summer Peak net of Energy Efficiency Programs (MW) | % Chg | Winter Peak net of Energy Efficiency Programs (MW) | % Chg | Annual Energy Requirments (GWh) | % Chg | Load Factor (%) |
|---|---|---|---|---|---|---|---|
| 2021 | 586.0 | | 575.2 | | 3,353.4 | | 65.33% |
| 2022 | 595.1 | 1.55% | 586.7 | 1.99% | 3,420.6 | 2.00% | 65.62% |
| 2023 | 602.6 | 1.26% | 594.8 | 1.38% | 3,469.3 | 1.43% | 65.54% |
| 2024 | 610.9 | 1.38% | 604.8 | 1.68% | 3,528.5 | 1.70% | 65.93% |
| 2025 | 618.8 | 1.29% | 613.7 | 1.48% | 3,580.6 | 1.48% | 66.05% |
| 2026 | 624.2 | 0.87% | 617.9 | 0.68% | 3,605.0 | 0.68% | 65.93% |
| 2027 | 629.8 | 0.90% | 622.5 | 0.74% | 3,631.9 | 0.75% | 65.65% |
| 2028 | 635.4 | 0.89% | 626.8 | 0.69% | 3,657.5 | 0.70% | 65.71% |
| 2029 | 640.9 | 0.87% | 631.5 | 0.75% | 3,684.6 | 0.74% | 65.63% |
| 2030 | 646.6 | 0.89% | 636.0 | 0.72% | 3,711.9 | 0.74% | 65.53% |
| 2031 | 652.2 | 0.87% | 640.6 | 0.72% | 3,739.3 | 0.74% | 65.27% |
| 2032 | 658.0 | 0.89% | 645.2 | 0.73% | 3,766.8 | 0.74% | 65.35% |
| 2033 | 663.7 | 0.87% | 649.9 | 0.72% | 3,794.3 | 0.73% | 65.26% |
| 2034 | 669.3 | 0.84% | 654.5 | 0.71% | 3,822.1 | 0.73% | 65.19% |
| 2035 | 675.0 | 0.85% | 659.3 | 0.74% | 3,849.8 | 0.73% | 64.93% |
| 2036 | 680.7 | 0.84% | 663.9 | 0.70% | 3,877.6 | 0.72% | 65.03% |
| 2037 | 686.4 | 0.84% | 668.6 | 0.71% | 3,905.6 | 0.72% | 64.95% |
| 2038 | 692.1 | 0.83% | 673.4 | 0.71% | 3,933.7 | 0.72% | 64.88% |
| 2039 | 697.9 | 0.84% | 678.2 | 0.71% | 3,961.9 | 0.72% | 64.63% |
| 2040 | 703.8 | 0.85% | 683.0 | 0.71% | 3,990.5 | 0.72% | 64.73% |

**Montana-Dakota Utilities Co.**
**Forecasted Energy (MWh) and**
**Seasonal Demands (MW) Prior to Demand Response**
**Montana**

| Year | Summer Peak net of Energy Efficiency Programs (MW) | % Chg | Winter Peak net of Energy Efficiency Programs (MW) | % Chg | Annual Energy Requirments (GWh) | % Chg | Load Factor (%) |
|---|---|---|---|---|---|---|---|
| 2021 | 151.6 | | 148.8 | | 867.4 | | 65.31% |
| 2022 | 159.7 | 5.34% | 157.5 | 5.82% | 918.1 | 5.84% | 65.62% |
| 2023 | 163.5 | 2.38% | 161.4 | 2.48% | 941.2 | 2.53% | 65.54% |
| 2024 | 165.9 | 1.47% | 164.3 | 1.80% | 958.2 | 1.80% | 65.93% |
| 2025 | 167.3 | 0.84% | 165.9 | 1.00% | 967.7 | 0.99% | 66.03% |
| 2026 | 168.1 | 0.48% | 166.4 | 0.30% | 970.8 | 0.33% | 65.93% |
| 2027 | 169.0 | 0.54% | 167.1 | 0.40% | 974.9 | 0.42% | 65.67% |
| 2028 | 170.1 | 0.65% | 167.8 | 0.43% | 979.0 | 0.41% | 65.70% |
| 2029 | 171.0 | 0.53% | 168.5 | 0.40% | 982.9 | 0.41% | 65.62% |
| 2030 | 171.9 | 0.53% | 169.1 | 0.38% | 986.9 | 0.41% | 65.54% |
| 2031 | 172.8 | 0.52% | 169.8 | 0.39% | 990.9 | 0.40% | 65.28% |
| 2032 | 173.8 | 0.58% | 170.4 | 0.38% | 994.8 | 0.40% | 65.34% |
| 2033 | 174.7 | 0.52% | 171.1 | 0.39% | 998.7 | 0.39% | 65.26% |
| 2034 | 175.6 | 0.52% | 171.7 | 0.37% | 1,002.7 | 0.39% | 65.18% |
| 2035 | 176.5 | 0.51% | 172.4 | 0.41% | 1,006.5 | 0.39% | 64.92% |
| 2036 | 177.4 | 0.51% | 173.0 | 0.36% | 1,010.4 | 0.38% | 65.02% |
| 2037 | 178.3 | 0.51% | 173.6 | 0.36% | 1,014.3 | 0.38% | 64.94% |
| 2038 | 179.1 | 0.45% | 174.3 | 0.37% | 1,018.1 | 0.38% | 64.89% |
| 2039 | 180.0 | 0.50% | 174.9 | 0.35% | 1,021.9 | 0.38% | 64.63% |
| 2040 | 180.9 | 0.50% | 175.6 | 0.40% | 1,025.8 | 0.38% | 64.73% |

**Montana-Dakota Utilities Co.**
**Forecasted Energy (MWh) and**
**Seasonal Demands (MW) Prior to Demand Response**
**North Dakota**

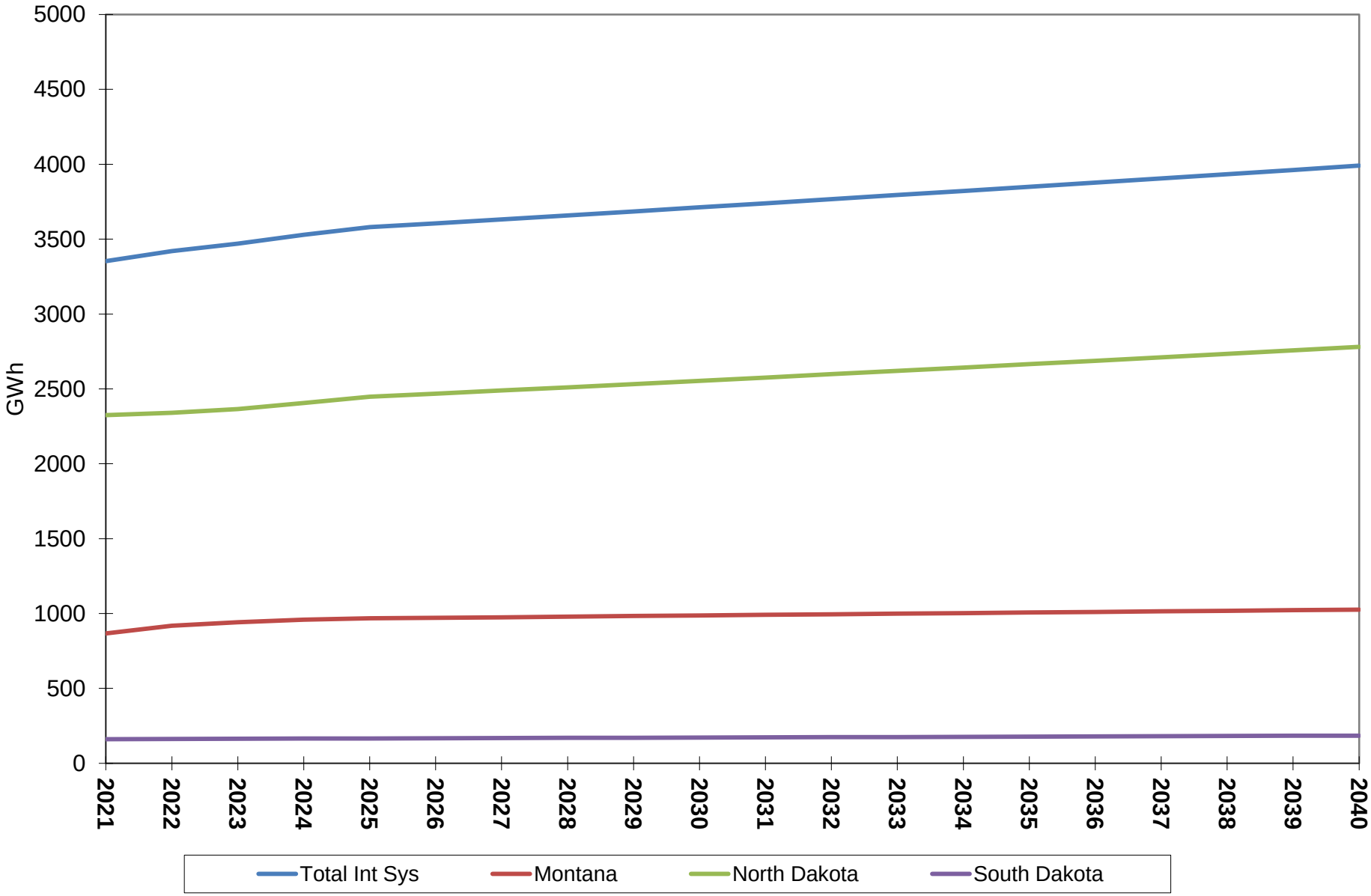
| Year | Summer Peak net of Energy Efficiency Programs (MW) | % Chg | Winter Peak net of Energy Efficiency Programs (MW) | % Chg | Annual Energy Requirments (GWh) | % Chg | Load Factor (%) |
|---|---|---|---|---|---|---|---|
| 2021 | 406.2 | | 398.7 | | 2,324.7 | | 65.33% |
| 2022 | 407.1 | 0.22% | 401.3 | 0.65% | 2,340.1 | 0.66% | 65.62% |
| 2023 | 410.7 | 0.88% | 405.4 | 1.02% | 2,364.6 | 1.05% | 65.55% |
| 2024 | 416.5 | 1.41% | 412.3 | 1.70% | 2,405.7 | 1.74% | 65.94% |
| 2025 | 422.9 | 1.54% | 419.4 | 1.72% | 2,447.1 | 1.72% | 66.06% |
| 2026 | 427.2 | 1.02% | 422.9 | 0.83% | 2,467.3 | 0.83% | 65.93% |
| 2027 | 431.6 | 1.03% | 426.6 | 0.87% | 2,489.0 | 0.88% | 65.65% |
| 2028 | 435.9 | 1.00% | 430.0 | 0.80% | 2,509.3 | 0.82% | 65.71% |
| 2029 | 440.3 | 1.01% | 433.8 | 0.88% | 2,531.3 | 0.88% | 65.63% |
| 2030 | 444.8 | 1.02% | 437.5 | 0.85% | 2,553.4 | 0.87% | 65.53% |
| 2031 | 449.3 | 1.01% | 441.2 | 0.85% | 2,575.6 | 0.87% | 65.26% |
| 2032 | 453.8 | 1.00% | 445.0 | 0.86% | 2,597.9 | 0.87% | 65.35% |
| 2033 | 458.3 | 0.99% | 448.8 | 0.85% | 2,620.3 | 0.86% | 65.27% |
| 2034 | 462.8 | 0.98% | 452.6 | 0.85% | 2,642.8 | 0.86% | 65.19% |
| 2035 | 467.3 | 0.97% | 456.4 | 0.84% | 2,665.4 | 0.86% | 64.93% |
| 2036 | 471.9 | 0.98% | 460.2 | 0.83% | 2,688.0 | 0.85% | 65.02% |
| 2037 | 476.4 | 0.95% | 464.1 | 0.85% | 2,710.8 | 0.85% | 64.96% |
| 2038 | 481.0 | 0.97% | 468.0 | 0.84% | 2,733.7 | 0.84% | 64.88% |
| 2039 | 485.6 | 0.96% | 471.9 | 0.83% | 2,756.8 | 0.85% | 64.63% |
| 2040 | 490.3 | 0.97% | 475.8 | 0.83% | 2,780.1 | 0.85% | 64.73% |

**Montana-Dakota Utilities Co.**
**Forecasted Energy (MWh) and**
**Seasonal Demands (MW) Prior to Demand Response**
**South Dakota**

| Year | Summer Peak net of Energy Efficiency Programs (MW) | % Chg | Winter Peak net of Energy Efficiency Programs (MW) | % Chg | Annual Energy Requirments (GWh) | % Chg | Load Factor (%) |
|---|---|---|---|---|---|---|---|
| 2021 | 28.2 | | 27.7 | | 161.3 | | 65.30% |
| 2022 | 28.3 | 0.35% | 27.9 | 0.72% | 162.4 | 0.68% | 65.51% |
| 2023 | 28.4 | 0.35% | 28.0 | 0.36% | 163.5 | 0.68% | 65.54% |
| 2024 | 28.5 | 0.35% | 28.2 | 0.71% | 164.6 | 0.67% | 65.93% |
| 2025 | 28.6 | 0.35% | 28.4 | 0.71% | 165.8 | 0.73% | 66.18% |
| 2026 | 28.9 | 1.05% | 28.6 | 0.70% | 166.9 | 0.66% | 65.93% |
| 2027 | 29.2 | 1.04% | 28.8 | 0.70% | 168.0 | 0.66% | 65.50% |
| 2028 | 29.4 | 0.68% | 29.0 | 0.69% | 169.2 | 0.71% | 65.70% |
| 2029 | 29.6 | 0.68% | 29.2 | 0.69% | 170.4 | 0.71% | 65.72% |
| 2030 | 29.9 | 1.01% | 29.4 | 0.68% | 171.6 | 0.70% | 65.52% |
| 2031 | 30.1 | 0.67% | 29.6 | 0.68% | 172.8 | 0.70% | 65.36% |
| 2032 | 30.4 | 1.00% | 29.8 | 0.68% | 174.1 | 0.75% | 65.38% |
| 2033 | 30.7 | 0.99% | 30.0 | 0.67% | 175.3 | 0.69% | 65.18% |
| 2034 | 30.9 | 0.65% | 30.2 | 0.67% | 176.6 | 0.74% | 65.24% |
| 2035 | 31.2 | 0.97% | 30.5 | 0.99% | 177.9 | 0.74% | 64.91% |
| 2036 | 31.4 | 0.64% | 30.7 | 0.66% | 179.2 | 0.73% | 65.15% |
| 2037 | 31.7 | 0.96% | 30.9 | 0.65% | 180.5 | 0.73% | 65.00% |
| 2038 | 32.0 | 0.95% | 31.1 | 0.65% | 181.9 | 0.78% | 64.89% |
| 2039 | 32.3 | 0.94% | 31.4 | 0.96% | 183.2 | 0.71% | 64.57% |
| 2040 | 32.6 | 0.93% | 31.6 | 0.64% | 184.6 | 0.76% | 64.64% |

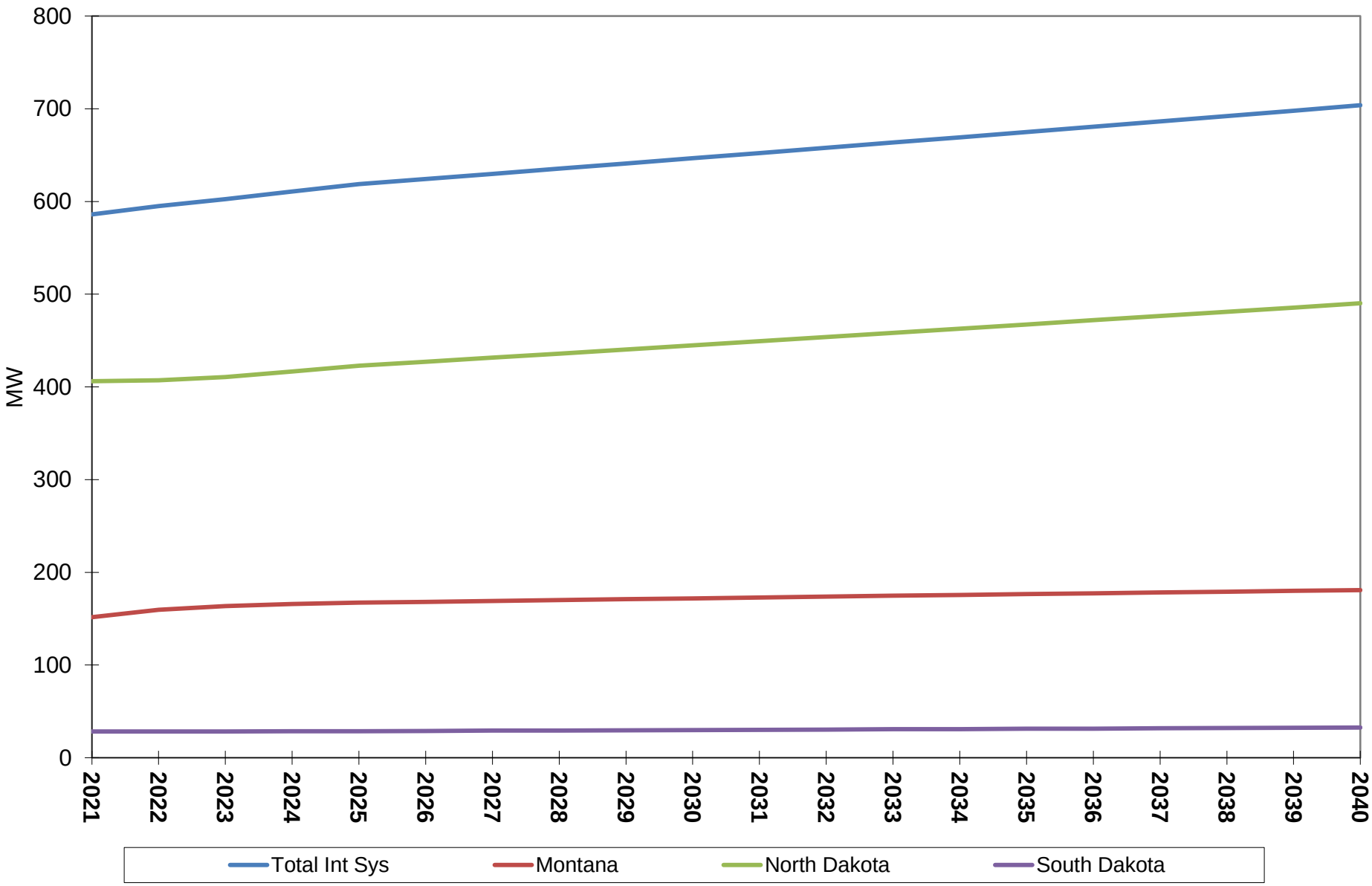
# Montana-Dakota Integrated System

## Forecast of Annual Energy by State



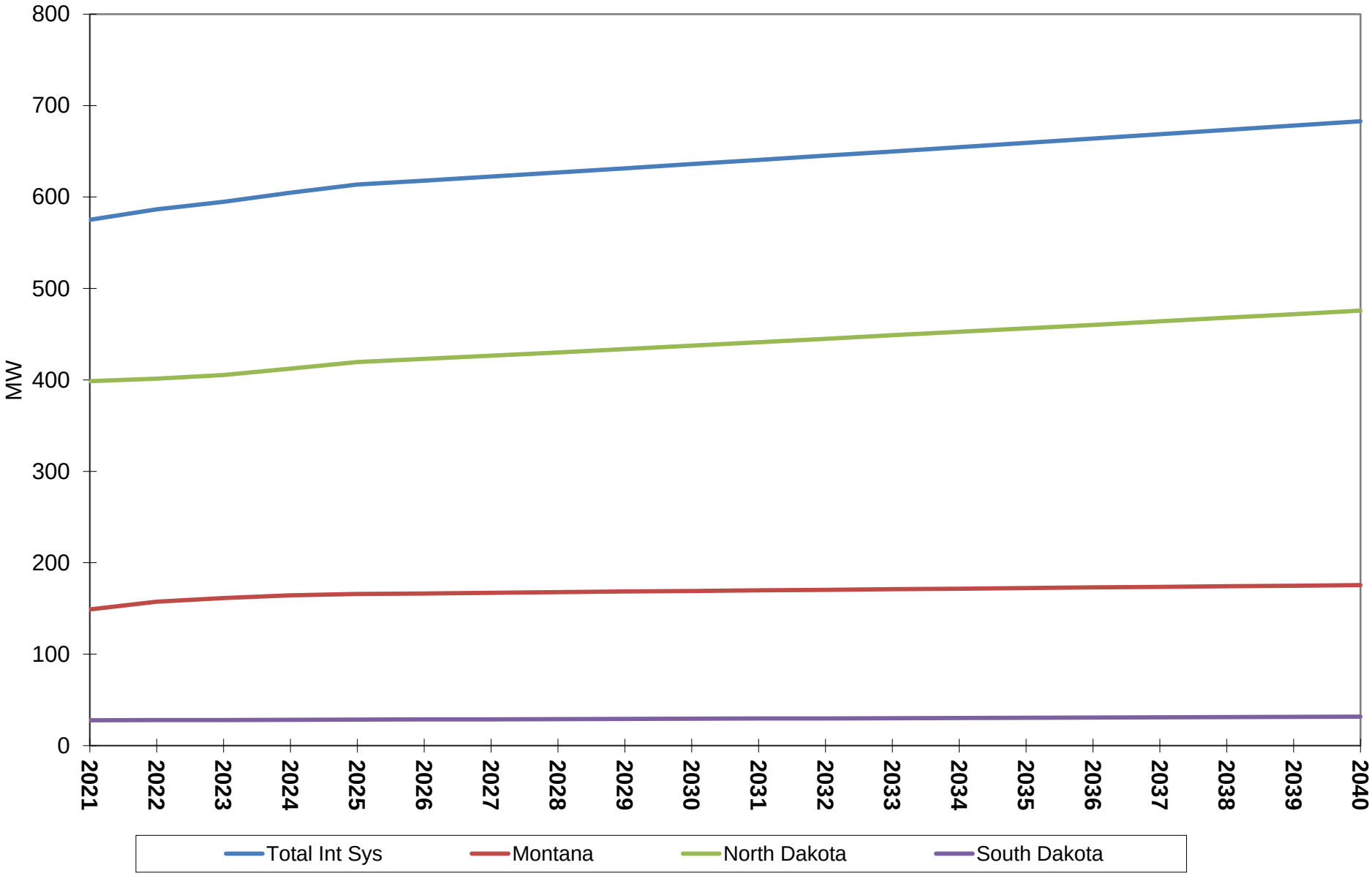
# Montana-Dakota Integrated System

## Forecast of Summer Peak Demand (Prior to Demand Response) by State



# Montana-Dakota Integrated System

## Forecast of Winter Peak Demand by State



# APPENDIX D

# Monthly Forecasts – Montana
# (2021-2030)

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**MONTANA YEAR 2021**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 988.7 | 872.0 | 794.2 | 635.9 | 570.3 | 712.3 | 882.5 | 806.2 | 645.4 | 616.8 | 735.9 | 933.6 | 9,194.7 |
| # of Residential Customers | 19,942 | 19,943 | 19,948 | 19,934 | 19,909 | 19,881 | 19,861 | 19,861 | 19,851 | 19,849 | 19,878 | 19,895 | 19,896 |
| Total Residential Sales - MWh | 19,716 | 17,391 | 15,843 | 12,676 | 11,355 | 14,161 | 17,527 | 16,012 | 12,812 | 12,243 | 14,629 | 18,573 | 182,938 |
| Use per Small Comm & Ind Customer - kWh | 2,409.7 | 2,222.7 | 2,186.0 | 1,850.5 | 1,747.5 | 1,984.0 | 2,390.1 | 2,263.2 | 1,975.1 | 1,836.4 | 1,973.4 | 2,322.6 | 25,152.1 |
| # of Small Comm & Ind Customers | 5,321 | 5,320 | 5,317 | 5,371 | 5,418 | 5,433 | 5,440 | 5,440 | 5,468 | 5,434 | 5,378 | 5,363 | 5,392 |
| Total Small Comm & Ind Sales - MWh | 12,822 | 11,825 | 11,623 | 9,939 | 9,468 | 10,779 | 13,002 | 12,312 | 10,800 | 9,979 | 10,613 | 12,456 | 135,618 |
| Large Comm & Ind Sales | 42,347 | 37,807 | 41,014 | 38,138 | 40,245 | 35,910 | 39,114 | 38,316 | 38,672 | 39,628 | 39,706 | 44,191 | 475,088 |
| Total Sales (Residential, SC&I and LC&I) | 74,885 | 67,023 | 68,480 | 60,753 | 61,068 | 60,850 | 69,643 | 66,640 | 62,284 | 61,850 | 64,948 | 75,220 | 793,644 |
| Other Public Sales | 441 | 421 | 431 | 398 | 427 | 557 | 667 | 591 | 494 | 372 | 355 | 424 | 5,578 |
| Street & Highway Lighting Sales | 297 | 260 | 270 | 255 | 241 | 236 | 239 | 242 | 236 | 237 | 245 | 290 | 3,048 |
| Interdepartmental Sales | 17 | 16 | 15 | 13 | 12 | 11 | 13 | 12 | 13 | 13 | 15 | 16 | 166 |
| Total Billed Sales - MWh | 75,640 | 67,720 | 69,196 | 61,419 | 61,748 | 61,654 | 70,562 | 67,485 | 63,027 | 62,472 | 65,563 | 75,950 | 802,436 |
| Company Use | 45 | 38 | 39 | 32 | 24 | 29 | 33 | 31 | 28 | 28 | 31 | 42 | 400 |
| Total Energy | 75,685 | 67,758 | 69,235 | 61,451 | 61,772 | 61,683 | 70,595 | 67,516 | 63,055 | 62,500 | 65,594 | 75,992 | 802,836 |
| Total Requirements (Energy + Losses) | 81,771 | 73,206 | 74,802 | 66,392 | 66,739 | 66,643 | 76,272 | 72,945 | 68,125 | 67,526 | 70,868 | 82,103 | 867,392 |
| # of Large Comm & Ind Customers | 259 | 259 | 260 | 262 | 263 | 264 | 264 | 266 | 273 | 269 | 259 | 258 | 263 |
| # of Other Public Customers | 102 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 103 | 102 | 102 | 102 |
| # of Street & Highway Lighting Customers | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| Peak Demand Net of Energy Efficiency Progs | 144.2 | 134.0 | 119.2 | 111.7 | 103.0 | 130.4 | 151.6 | 143.8 | 123.8 | 112.4 | 131.1 | 143.8 | 151.6 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**MONTANA YEAR 2022**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 988.7 | 872.0 | 794.2 | 635.9 | 570.3 | 712.3 | 882.5 | 806.2 | 645.4 | 616.8 | 735.9 | 933.6 | 9,194.7 |
| # of Residential Customers | 19,942 | 19,943 | 19,948 | 19,934 | 19,909 | 19,881 | 19,861 | 19,861 | 19,851 | 19,849 | 19,878 | 19,895 | 19,896 |
| Total Residential Sales - MWh | 19,716 | 17,391 | 15,843 | 12,676 | 11,355 | 14,161 | 17,527 | 16,012 | 12,812 | 12,243 | 14,629 | 18,573 | 182,938 |
| Use per Small Comm & Ind Customer - kWh | 2,440.7 | 2,251.2 | 2,214.1 | 1,874.4 | 1,770.1 | 2,009.5 | 2,420.7 | 2,292.2 | 2,000.5 | 1,860.1 | 1,998.9 | 2,352.7 | 25,475.8 |
| # of Small Comm & Ind Customers | 5,339 | 5,338 | 5,335 | 5,389 | 5,436 | 5,451 | 5,458 | 5,458 | 5,486 | 5,452 | 5,396 | 5,381 | 5,410 |
| Total Small Comm & Ind Sales - MWh | 13,031 | 12,017 | 11,812 | 10,101 | 9,622 | 10,954 | 13,212 | 12,511 | 10,975 | 10,141 | 10,786 | 12,660 | 137,822 |
| Large Comm & Ind Sales | 46,466 | 41,504 | 44,984 | 41,765 | 44,095 | 39,350 | 42,876 | 42,014 | 42,378 | 43,433 | 43,535 | 47,392 | 519,792 |
| Total Sales (Residential, SC&I and LC&I) | 79,213 | 70,912 | 72,639 | 64,542 | 65,072 | 64,465 | 73,615 | 70,537 | 66,165 | 65,817 | 68,950 | 78,625 | 840,552 |
| Other Public Sales | 440 | 420 | 430 | 397 | 426 | 556 | 666 | 590 | 493 | 371 | 355 | 423 | 5,567 |
| Street & Highway Lighting Sales | 297 | 260 | 270 | 255 | 241 | 236 | 239 | 242 | 236 | 237 | 245 | 290 | 3,048 |
| Interdepartmental Sales | 17 | 16 | 15 | 13 | 12 | 11 | 13 | 12 | 13 | 13 | 15 | 16 | 166 |
| Total Billed Sales - MWh | 79,967 | 71,608 | 73,354 | 65,207 | 65,751 | 65,268 | 74,533 | 71,381 | 66,907 | 66,438 | 69,565 | 79,354 | 849,333 |
| Company Use | 45 | 38 | 39 | 32 | 24 | 29 | 33 | 31 | 28 | 28 | 31 | 42 | 400 |
| Total Energy | 80,012 | 71,646 | 73,393 | 65,239 | 65,775 | 65,297 | 74,566 | 71,412 | 66,935 | 66,466 | 69,596 | 79,396 | 849,733 |
| Total Requirements (Energy + Losses) | 86,446 | 77,407 | 79,295 | 70,485 | 71,064 | 70,548 | 80,562 | 77,154 | 72,317 | 71,811 | 75,192 | 85,780 | 918,061 |
| # of Large Comm & Ind Customers | 260 | 260 | 261 | 263 | 264 | 265 | 265 | 267 | 274 | 270 | 260 | 259 | 264 |
| # of Other Public Customers | 102 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 103 | 102 | 102 | 102 |
| # of Street & Highway Lighting Customers | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| Peak Demand Net of Energy Efficiency Progs | 148.8 | 138.3 | 123.0 | 115.3 | 108.5 | 137.4 | 159.7 | 151.5 | 130.4 | 118.4 | 138.7 | 152.2 | 159.7 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**MONTANA YEAR 2023**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 988.7 | 872.0 | 794.2 | 635.9 | 570.3 | 712.3 | 882.5 | 806.2 | 645.4 | 616.8 | 735.9 | 933.6 | 9,194.7 |
| # of Residential Customers | 19,942 | 19,943 | 19,948 | 19,934 | 19,909 | 19,881 | 19,861 | 19,861 | 19,851 | 19,849 | 19,878 | 19,895 | 19,896 |
| Total Residential Sales - MWh | 19,716 | 17,391 | 15,843 | 12,676 | 11,355 | 14,161 | 17,527 | 16,012 | 12,812 | 12,243 | 14,629 | 18,573 | 182,938 |
| Use per Small Comm & Ind Customer - kWh | 2,472.3 | 2,280.2 | 2,242.9 | 1,898.5 | 1,793.0 | 2,035.3 | 2,452.2 | 2,322.1 | 2,026.2 | 1,884.3 | 2,024.8 | 2,382.5 | 25,804.7 |
| # of Small Comm & Ind Customers | 5,357 | 5,356 | 5,352 | 5,407 | 5,454 | 5,470 | 5,476 | 5,476 | 5,505 | 5,470 | 5,414 | 5,399 | 5,428 |
| Total Small Comm & Ind Sales - MWh | 13,244 | 12,213 | 12,004 | 10,265 | 9,779 | 11,133 | 13,428 | 12,716 | 11,154 | 10,307 | 10,962 | 12,863 | 140,068 |
| Large Comm & Ind Sales | 48,214 | 43,070 | 46,673 | 43,322 | 45,740 | 40,818 | 44,477 | 43,586 | 43,959 | 45,054 | 45,167 | 48,943 | 539,023 |
| Total Sales (Residential, SC&I and LC&I) | 81,174 | 72,674 | 74,520 | 66,263 | 66,874 | 66,112 | 75,432 | 72,314 | 67,925 | 67,604 | 70,758 | 80,379 | 862,029 |
| Other Public Sales | 439 | 419 | 429 | 396 | 424 | 554 | 664 | 589 | 492 | 370 | 354 | 422 | 5,552 |
| Street & Highway Lighting Sales | 297 | 260 | 270 | 255 | 241 | 236 | 239 | 242 | 236 | 237 | 245 | 290 | 3,048 |
| Interdepartmental Sales | 17 | 16 | 15 | 13 | 12 | 11 | 13 | 12 | 13 | 13 | 15 | 16 | 166 |
| Total Billed Sales - MWh | 81,927 | 73,369 | 75,234 | 66,927 | 67,551 | 66,913 | 76,348 | 73,157 | 68,666 | 68,224 | 71,372 | 81,107 | 870,795 |
| Company Use | 45 | 38 | 39 | 32 | 24 | 29 | 33 | 31 | 28 | 28 | 31 | 42 | 400 |
| Total Energy | 81,972 | 73,407 | 75,273 | 66,959 | 67,575 | 66,942 | 76,381 | 73,188 | 68,694 | 68,252 | 71,403 | 81,149 | 871,195 |
| Total Requirements (Energy + Losses) | 88,563 | 79,310 | 81,326 | 72,343 | 73,009 | 72,325 | 82,523 | 79,073 | 74,218 | 73,740 | 77,145 | 87,674 | 941,249 |
| # of Large Comm & Ind Customers | 261 | 261 | 262 | 264 | 265 | 266 | 266 | 268 | 275 | 271 | 261 | 260 | 265 |
| # of Other Public Customers | 102 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 103 | 102 | 102 | 102 |
| # of Street & Highway Lighting Customers | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| Peak Demand Net of Energy Efficiency Progs | 157.5 | 146.4 | 130.2 | 122.1 | 111.1 | 140.7 | 163.5 | 155.1 | 133.5 | 121.2 | 142.2 | 156.0 | 163.5 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**MONTANA YEAR 2024**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 988.7 | 872.0 | 794.2 | 635.9 | 570.3 | 712.3 | 882.5 | 806.2 | 645.4 | 616.8 | 735.9 | 933.6 | 9,194.7 |
| # of Residential Customers | 19,942 | 19,943 | 19,948 | 19,934 | 19,909 | 19,881 | 19,861 | 19,861 | 19,851 | 19,849 | 19,878 | 19,895 | 19,896 |
| Total Residential Sales - MWh | 19,716 | 17,391 | 15,843 | 12,676 | 11,355 | 14,161 | 17,527 | 16,012 | 12,812 | 12,243 | 14,629 | 18,573 | 182,938 |
| Use per Small Comm & Ind Customer - kWh | 2,503.1 | 2,308.7 | 2,270.9 | 1,922.2 | 1,815.4 | 2,060.9 | 2,482.8 | 2,350.9 | 2,051.8 | 1,907.8 | 2,050.1 | 2,411.5 | 26,126.6 |
| # of Small Comm & Ind Customers | 5,375 | 5,374 | 5,370 | 5,425 | 5,472 | 5,488 | 5,495 | 5,495 | 5,523 | 5,488 | 5,432 | 5,417 | 5,446 |
| Total Small Comm & Ind Sales - MWh | 13,454 | 12,407 | 12,195 | 10,428 | 9,934 | 11,310 | 13,643 | 12,918 | 11,332 | 10,470 | 11,136 | 13,063 | 142,290 |
| Large Comm & Ind Sales | 49,442 | 44,168 | 47,862 | 44,422 | 46,903 | 41,855 | 45,609 | 44,695 | 45,077 | 46,201 | 46,317 | 49,932 | 552,483 |
| Total Sales (Residential, SC&I and LC&I) | 82,612 | 73,966 | 75,900 | 67,526 | 68,192 | 67,326 | 76,779 | 73,625 | 69,221 | 68,914 | 72,082 | 81,568 | 877,711 |
| Other Public Sales | 438 | 418 | 428 | 395 | 424 | 553 | 663 | 588 | 491 | 369 | 353 | 421 | 5,541 |
| Street & Highway Lighting Sales | 297 | 260 | 270 | 255 | 241 | 236 | 239 | 242 | 236 | 237 | 245 | 290 | 3,048 |
| Interdepartmental Sales | 17 | 16 | 15 | 13 | 12 | 11 | 13 | 12 | 13 | 13 | 15 | 16 | 166 |
| Total Billed Sales - MWh | 83,364 | 74,660 | 76,613 | 68,189 | 68,869 | 68,126 | 77,694 | 74,467 | 69,961 | 69,533 | 72,695 | 82,295 | 886,466 |
| Company Use | 45 | 38 | 39 | 32 | 24 | 29 | 33 | 31 | 28 | 28 | 31 | 42 | 400 |
| Total Energy | 83,409 | 74,698 | 76,652 | 68,221 | 68,893 | 68,155 | 77,727 | 74,498 | 69,989 | 69,561 | 72,726 | 82,337 | 886,866 |
| Total Requirements (Energy + Losses) | 90,116 | 80,704 | 82,816 | 73,707 | 74,433 | 73,635 | 83,977 | 80,488 | 75,617 | 75,154 | 78,574 | 88,958 | 958,179 |
| # of Large Comm & Ind Customers | 262 | 262 | 263 | 265 | 266 | 267 | 267 | 269 | 276 | 272 | 262 | 261 | 266 |
| # of Other Public Customers | 102 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 103 | 102 | 102 | 102 |
| # of Street & Highway Lighting Customers | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| Peak Demand Net of Energy Efficiency Progs | 161.4 | 150.0 | 133.4 | 125.1 | 112.8 | 142.7 | 165.9 | 157.4 | 135.4 | 123.0 | 144.7 | 158.8 | 165.9 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**MONTANA YEAR 2025**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 988.7 | 872.0 | 794.2 | 635.9 | 570.3 | 712.3 | 882.5 | 806.2 | 645.4 | 616.8 | 735.9 | 933.6 | 9,194.7 |
| # of Residential Customers | 19,942 | 19,943 | 19,948 | 19,934 | 19,909 | 19,881 | 19,861 | 19,861 | 19,851 | 19,849 | 19,878 | 19,895 | 19,896 |
| Total Residential Sales - MWh | 19,716 | 17,391 | 15,843 | 12,676 | 11,355 | 14,161 | 17,527 | 16,012 | 12,812 | 12,243 | 14,629 | 18,573 | 182,938 |
| Use per Small Comm & Ind Customer - kWh | 2,533.2 | 2,337.1 | 2,298.5 | 1,945.6 | 1,837.5 | 2,085.9 | 2,512.9 | 2,379.5 | 2,076.7 | 1,931.2 | 2,075.1 | 2,438.4 | 26,442.0 |
| # of Small Comm & Ind Customers | 5,392 | 5,390 | 5,387 | 5,442 | 5,489 | 5,505 | 5,512 | 5,512 | 5,540 | 5,505 | 5,449 | 5,434 | 5,463 |
| Total Small Comm & Ind Sales - MWh | 13,659 | 12,597 | 12,382 | 10,588 | 10,086 | 11,483 | 13,851 | 13,116 | 11,505 | 10,631 | 11,307 | 13,250 | 144,455 |
| Large Comm & Ind Sales | 50,048 | 44,705 | 48,450 | 44,979 | 47,489 | 42,378 | 46,176 | 45,249 | 45,640 | 46,776 | 46,890 | 50,334 | 559,114 |
| Total Sales (Residential, SC&I and LC&I) | 83,423 | 74,693 | 76,675 | 68,243 | 68,930 | 68,022 | 77,554 | 74,377 | 69,957 | 69,650 | 72,826 | 82,157 | 886,507 |
| Other Public Sales | 437 | 417 | 427 | 394 | 423 | 552 | 661 | 586 | 490 | 368 | 352 | 420 | 5,527 |
| Street & Highway Lighting Sales | 297 | 260 | 270 | 255 | 241 | 236 | 239 | 242 | 236 | 237 | 245 | 290 | 3,048 |
| Interdepartmental Sales | 17 | 16 | 15 | 13 | 12 | 11 | 13 | 12 | 13 | 13 | 15 | 16 | 166 |
| Total Billed Sales - MWh | 84,174 | 75,386 | 77,387 | 68,905 | 69,606 | 68,821 | 78,467 | 75,217 | 70,696 | 70,268 | 73,438 | 82,883 | 895,248 |
| Company Use | 45 | 38 | 39 | 32 | 24 | 29 | 33 | 31 | 28 | 28 | 31 | 42 | 400 |
| Total Energy | 84,219 | 75,424 | 77,426 | 68,937 | 69,630 | 68,850 | 78,500 | 75,248 | 70,724 | 70,296 | 73,469 | 82,925 | 895,648 |
| Total Requirements (Energy + Losses) | 90,991 | 81,489 | 83,652 | 74,480 | 75,229 | 74,386 | 84,812 | 81,299 | 76,411 | 75,949 | 79,377 | 89,593 | 967,668 |
| # of Large Comm & Ind Customers | 263 | 263 | 264 | 266 | 267 | 268 | 268 | 270 | 277 | 273 | 263 | 262 | 267 |
| # of Other Public Customers | 102 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 103 | 102 | 102 | 102 |
| # of Street & Highway Lighting Customers | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| Peak Demand Net of Energy Efficiency Progs | 164.3 | 152.7 | 135.8 | 127.3 | 113.7 | 143.9 | 167.3 | 158.7 | 136.6 | 124.0 | 146.2 | 160.4 | 167.3 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**MONTANA YEAR 2026**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 988.7 | 872.0 | 794.2 | 635.9 | 570.3 | 712.3 | 882.5 | 806.2 | 645.4 | 616.8 | 735.9 | 933.6 | 9,194.7 |
| # of Residential Customers | 19,942 | 19,943 | 19,948 | 19,934 | 19,909 | 19,881 | 19,861 | 19,861 | 19,851 | 19,849 | 19,878 | 19,895 | 19,896 |
| Total Residential Sales - MWh | 19,716 | 17,391 | 15,843 | 12,676 | 11,355 | 14,161 | 17,527 | 16,012 | 12,812 | 12,243 | 14,629 | 18,573 | 182,938 |
| Use per Small Comm & Ind Customer - kWh | 2,559.8 | 2,361.1 | 2,321.9 | 1,965.6 | 1,856.4 | 2,107.4 | 2,538.7 | 2,404.0 | 2,098.1 | 1,950.9 | 2,096.2 | 2,465.6 | 26,716.0 |
| # of Small Comm & Ind Customers | 5,409 | 5,408 | 5,405 | 5,460 | 5,507 | 5,523 | 5,530 | 5,530 | 5,558 | 5,523 | 5,467 | 5,451 | 5,481 |
| Total Small Comm & Ind Sales - MWh | 13,846 | 12,769 | 12,550 | 10,732 | 10,223 | 11,639 | 14,039 | 13,294 | 11,661 | 10,775 | 11,460 | 13,440 | 146,428 |
| Large Comm & Ind Sales | 50,132 | 44,782 | 48,532 | 45,053 | 47,568 | 42,449 | 46,253 | 45,324 | 45,716 | 46,854 | 46,969 | 50,444 | 560,076 |
| Total Sales (Residential, SC&I and LC&I) | 83,694 | 74,942 | 76,925 | 68,461 | 69,146 | 68,249 | 77,819 | 74,630 | 70,189 | 69,872 | 73,058 | 82,457 | 889,442 |
| Other Public Sales | 436 | 416 | 426 | 393 | 422 | 551 | 660 | 585 | 489 | 368 | 352 | 419 | 5,517 |
| Street & Highway Lighting Sales | 297 | 260 | 270 | 255 | 241 | 236 | 239 | 242 | 236 | 237 | 245 | 290 | 3,048 |
| Interdepartmental Sales | 17 | 16 | 15 | 13 | 12 | 11 | 13 | 12 | 13 | 13 | 15 | 16 | 166 |
| Total Billed Sales - MWh | 84,444 | 75,634 | 77,636 | 69,122 | 69,821 | 69,047 | 78,731 | 75,469 | 70,927 | 70,490 | 73,670 | 83,182 | 898,173 |
| Company Use | 45 | 38 | 39 | 32 | 24 | 29 | 33 | 31 | 28 | 28 | 31 | 42 | 400 |
| Total Energy | 84,489 | 75,672 | 77,675 | 69,154 | 69,845 | 69,076 | 78,764 | 75,500 | 70,955 | 70,518 | 73,701 | 83,224 | 898,573 |
| Total Requirements (Energy + Losses) | 91,283 | 81,757 | 83,921 | 74,715 | 75,461 | 74,630 | 85,097 | 81,571 | 76,660 | 76,188 | 79,627 | 89,916 | 970,826 |
| # of Large Comm & Ind Customers | 264 | 264 | 265 | 267 | 268 | 269 | 269 | 271 | 278 | 274 | 264 | 263 | 268 |
| # of Other Public Customers | 102 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 103 | 102 | 102 | 102 |
| # of Street & Highway Lighting Customers | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| Peak Demand Net of Energy Efficiency Progs | 165.9 | 154.2 | 137.1 | 128.6 | 114.3 | 144.6 | 168.1 | 159.4 | 137.2 | 124.6 | 146.6 | 160.9 | 168.1 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**MONTANA YEAR 2027**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 988.7 | 872.0 | 794.2 | 635.9 | 570.3 | 712.3 | 882.5 | 806.2 | 645.4 | 616.8 | 735.9 | 933.6 | 9,194.7 |
| # of Residential Customers | 19,942 | 19,943 | 19,948 | 19,934 | 19,909 | 19,881 | 19,861 | 19,861 | 19,851 | 19,849 | 19,878 | 19,895 | 19,896 |
| Total Residential Sales - MWh | 19,716 | 17,391 | 15,843 | 12,676 | 11,355 | 14,161 | 17,527 | 16,012 | 12,812 | 12,243 | 14,629 | 18,573 | 182,938 |
| Use per Small Comm & Ind Customer - kWh | 2,589.1 | 2,388.1 | 2,348.7 | 1,988.3 | 1,877.8 | 2,131.7 | 2,568.1 | 2,431.9 | 2,122.1 | 1,973.3 | 2,120.5 | 2,493.1 | 27,023.0 |
| # of Small Comm & Ind Customers | 5,427 | 5,426 | 5,423 | 5,478 | 5,525 | 5,541 | 5,548 | 5,548 | 5,577 | 5,542 | 5,485 | 5,469 | 5,499 |
| Total Small Comm & Ind Sales - MWh | 14,051 | 12,958 | 12,737 | 10,892 | 10,375 | 11,812 | 14,248 | 13,492 | 11,835 | 10,936 | 11,631 | 13,635 | 148,602 |
| Large Comm & Ind Sales | 50,281 | 44,915 | 48,675 | 45,183 | 47,705 | 42,571 | 46,388 | 45,456 | 45,847 | 46,989 | 47,106 | 50,593 | 561,709 |
| Total Sales (Residential, SC&I and LC&I) | 84,048 | 75,264 | 77,255 | 68,751 | 69,435 | 68,544 | 78,163 | 74,960 | 70,494 | 70,168 | 73,366 | 82,801 | 893,249 |
| Other Public Sales | 434 | 415 | 425 | 392 | 421 | 550 | 658 | 584 | 488 | 367 | 351 | 418 | 5,503 |
| Street & Highway Lighting Sales | 297 | 260 | 270 | 255 | 241 | 236 | 239 | 242 | 236 | 237 | 245 | 290 | 3,048 |
| Interdepartmental Sales | 17 | 16 | 15 | 13 | 12 | 11 | 13 | 12 | 13 | 13 | 15 | 16 | 166 |
| Total Billed Sales - MWh | 84,796 | 75,955 | 77,965 | 69,411 | 70,109 | 69,341 | 79,073 | 75,798 | 71,231 | 70,785 | 73,977 | 83,525 | 901,966 |
| Company Use | 45 | 38 | 39 | 32 | 24 | 29 | 33 | 31 | 28 | 28 | 31 | 42 | 400 |
| Total Energy | 84,841 | 75,993 | 78,004 | 69,443 | 70,133 | 69,370 | 79,106 | 75,829 | 71,259 | 70,813 | 74,008 | 83,567 | 902,366 |
| Total Requirements (Energy + Losses) | 91,663 | 82,104 | 84,276 | 75,027 | 75,772 | 74,948 | 85,467 | 81,926 | 76,989 | 76,507 | 79,959 | 90,287 | 974,925 |
| # of Large Comm & Ind Customers | 265 | 265 | 266 | 268 | 269 | 270 | 270 | 272 | 279 | 275 | 265 | 264 | 269 |
| # of Other Public Customers | 102 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 103 | 102 | 102 | 102 |
| # of Street & Highway Lighting Customers | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| Peak Demand Net of Energy Efficiency Progs | 166.4 | 154.7 | 137.6 | 129.0 | 114.9 | 145.4 | 169.0 | 160.3 | 138.0 | 125.3 | 147.2 | 161.5 | 169.0 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**MONTANA YEAR 2028**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 988.7 | 872.0 | 794.2 | 635.9 | 570.3 | 712.3 | 882.5 | 806.2 | 645.4 | 616.8 | 735.9 | 933.6 | 9,194.7 |
| # of Residential Customers | 19,942 | 19,943 | 19,948 | 19,934 | 19,909 | 19,881 | 19,861 | 19,861 | 19,851 | 19,849 | 19,878 | 19,895 | 19,896 |
| Total Residential Sales - MWh | 19,716 | 17,391 | 15,843 | 12,676 | 11,355 | 14,161 | 17,527 | 16,012 | 12,812 | 12,243 | 14,629 | 18,573 | 182,938 |
| Use per Small Comm & Ind Customer - kWh | 2,617.4 | 2,414.2 | 2,374.6 | 2,010.0 | 1,898.4 | 2,155.2 | 2,596.3 | 2,458.5 | 2,145.3 | 1,994.8 | 2,143.7 | 2,519.6 | 27,318.3 |
| # of Small Comm & Ind Customers | 5,445 | 5,444 | 5,440 | 5,496 | 5,543 | 5,559 | 5,566 | 5,566 | 5,595 | 5,560 | 5,503 | 5,487 | 5,517 |
| Total Small Comm & Ind Sales - MWh | 14,252 | 13,143 | 12,918 | 11,047 | 10,523 | 11,981 | 14,451 | 13,684 | 12,003 | 11,091 | 11,797 | 13,825 | 150,715 |
| Large Comm & Ind Sales | 50,430 | 45,049 | 48,818 | 45,312 | 47,842 | 42,694 | 46,521 | 45,588 | 45,979 | 47,125 | 47,244 | 50,743 | 563,345 |
| Total Sales (Residential, SC&I and LC&I) | 84,398 | 75,583 | 77,579 | 69,035 | 69,720 | 68,836 | 78,499 | 75,284 | 70,794 | 70,459 | 73,670 | 83,141 | 896,998 |
| Other Public Sales | 433 | 414 | 424 | 392 | 420 | 549 | 657 | 582 | 486 | 366 | 350 | 417 | 5,490 |
| Street & Highway Lighting Sales | 297 | 260 | 270 | 255 | 241 | 236 | 239 | 242 | 236 | 237 | 245 | 290 | 3,048 |
| Interdepartmental Sales | 17 | 16 | 15 | 13 | 12 | 11 | 13 | 12 | 13 | 13 | 15 | 16 | 166 |
| Total Billed Sales - MWh | 85,145 | 76,273 | 78,288 | 69,695 | 70,393 | 69,632 | 79,408 | 76,120 | 71,529 | 71,075 | 74,280 | 83,864 | 905,702 |
| Company Use | 45 | 38 | 39 | 32 | 24 | 29 | 33 | 31 | 28 | 28 | 31 | 42 | 400 |
| Total Energy | 85,190 | 76,311 | 78,327 | 69,727 | 70,417 | 69,661 | 79,441 | 76,151 | 71,557 | 71,103 | 74,311 | 83,906 | 906,102 |
| Total Requirements (Energy + Losses) | 92,040 | 82,447 | 84,625 | 75,334 | 76,079 | 75,262 | 85,829 | 82,274 | 77,311 | 76,820 | 80,286 | 90,653 | 978,960 |
| # of Large Comm & Ind Customers | 266 | 266 | 267 | 269 | 270 | 271 | 271 | 273 | 280 | 276 | 266 | 265 | 270 |
| # of Other Public Customers | 102 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 103 | 102 | 102 | 102 |
| # of Street & Highway Lighting Customers | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| Peak Demand Net of Energy Efficiency Progs | 167.1 | 155.3 | 138.1 | 129.5 | 115.6 | 146.3 | 170.1 | 161.3 | 138.9 | 126.1 | 147.8 | 162.2 | 170.1 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**MONTANA YEAR 2029**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 988.7 | 872.0 | 794.2 | 635.9 | 570.3 | 712.3 | 882.5 | 806.2 | 645.4 | 616.8 | 735.9 | 933.6 | 9,194.7 |
| # of Residential Customers | 19,942 | 19,943 | 19,948 | 19,934 | 19,909 | 19,881 | 19,861 | 19,861 | 19,851 | 19,849 | 19,878 | 19,895 | 19,896 |
| Total Residential Sales - MWh | 19,716 | 17,391 | 15,843 | 12,676 | 11,355 | 14,161 | 17,527 | 16,012 | 12,812 | 12,243 | 14,629 | 18,573 | 182,938 |
| Use per Small Comm & Ind Customer - kWh | 2,644.8 | 2,439.9 | 2,399.7 | 2,031.0 | 1,918.5 | 2,177.9 | 2,623.7 | 2,484.5 | 2,168.0 | 2,016.0 | 2,166.3 | 2,546.0 | 27,606.3 |
| # of Small Comm & Ind Customers | 5,462 | 5,460 | 5,457 | 5,513 | 5,560 | 5,576 | 5,583 | 5,583 | 5,612 | 5,577 | 5,520 | 5,504 | 5,534 |
| Total Small Comm & Ind Sales - MWh | 14,446 | 13,322 | 13,095 | 11,197 | 10,667 | 12,144 | 14,648 | 13,871 | 12,167 | 11,243 | 11,958 | 14,013 | 152,771 |
| Large Comm & Ind Sales | 50,578 | 45,182 | 48,960 | 45,441 | 47,979 | 42,816 | 46,656 | 45,720 | 46,111 | 47,261 | 47,381 | 50,891 | 564,976 |
| Total Sales (Residential, SC&I and LC&I) | 84,740 | 75,895 | 77,898 | 69,314 | 70,001 | 69,121 | 78,831 | 75,603 | 71,090 | 70,747 | 73,968 | 83,477 | 900,685 |
| Other Public Sales | 433 | 414 | 424 | 391 | 419 | 548 | 655 | 581 | 485 | 365 | 350 | 416 | 5,481 |
| Street & Highway Lighting Sales | 297 | 260 | 270 | 255 | 241 | 236 | 239 | 242 | 236 | 237 | 245 | 290 | 3,048 |
| Interdepartmental Sales | 17 | 16 | 15 | 13 | 12 | 11 | 13 | 12 | 13 | 13 | 15 | 16 | 166 |
| Total Billed Sales - MWh | 85,487 | 76,585 | 78,607 | 69,973 | 70,673 | 69,916 | 79,738 | 76,438 | 71,824 | 71,362 | 74,578 | 84,199 | 909,380 |
| Company Use | 45 | 38 | 39 | 32 | 24 | 29 | 33 | 31 | 28 | 28 | 31 | 42 | 400 |
| Total Energy | 85,532 | 76,623 | 78,646 | 70,005 | 70,697 | 69,945 | 79,771 | 76,469 | 71,852 | 71,390 | 74,609 | 84,241 | 909,780 |
| Total Requirements (Energy + Losses) | 92,410 | 82,784 | 84,970 | 75,634 | 76,382 | 75,569 | 86,185 | 82,618 | 77,630 | 77,130 | 80,608 | 91,015 | 982,935 |
| # of Large Comm & Ind Customers | 266 | 266 | 267 | 269 | 270 | 271 | 271 | 273 | 280 | 276 | 266 | 265 | 270 |
| # of Other Public Customers | 102 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 103 | 102 | 102 | 102 |
| # of Street & Highway Lighting Customers | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| Peak Demand Net of Energy Efficiency Progs | 167.8 | 156.0 | 138.7 | 130.1 | 116.2 | 147.1 | 171.0 | 162.2 | 139.6 | 126.7 | 148.4 | 162.8 | 171.0 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**MONTANA YEAR 2030**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 988.7 | 872.0 | 794.2 | 635.9 | 570.3 | 712.3 | 882.5 | 806.2 | 645.4 | 616.8 | 735.9 | 933.6 | 9,194.7 |
| # of Residential Customers | 19,942 | 19,943 | 19,948 | 19,934 | 19,909 | 19,881 | 19,861 | 19,861 | 19,851 | 19,849 | 19,878 | 19,895 | 19,896 |
| Total Residential Sales - MWh | 19,716 | 17,391 | 15,843 | 12,676 | 11,355 | 14,161 | 17,527 | 16,012 | 12,812 | 12,243 | 14,629 | 18,573 | 182,938 |
| Use per Small Comm & Ind Customer - kWh | 2,672.4 | 2,465.0 | 2,424.1 | 2,052.1 | 1,938.1 | 2,200.0 | 2,650.8 | 2,510.1 | 2,190.4 | 2,036.6 | 2,188.5 | 2,571.7 | 27,889.6 |
| # of Small Comm & Ind Customers | 5,479 | 5,478 | 5,475 | 5,531 | 5,578 | 5,595 | 5,601 | 5,601 | 5,630 | 5,595 | 5,538 | 5,522 | 5,552 |
| Total Small Comm & Ind Sales - MWh | 14,642 | 13,503 | 13,272 | 11,350 | 10,811 | 12,309 | 14,847 | 14,059 | 12,332 | 11,395 | 12,120 | 14,201 | 154,841 |
| Large Comm & Ind Sales | 50,727 | 45,316 | 49,103 | 45,571 | 48,116 | 42,938 | 46,790 | 45,852 | 46,243 | 47,397 | 47,518 | 51,040 | 566,611 |
| Total Sales (Residential, SC&I and LC&I) | 85,085 | 76,210 | 78,218 | 69,597 | 70,282 | 69,408 | 79,164 | 75,923 | 71,387 | 71,035 | 74,267 | 83,814 | 904,390 |
| Other Public Sales | 432 | 413 | 423 | 390 | 418 | 546 | 653 | 580 | 484 | 364 | 349 | 415 | 5,467 |
| Street & Highway Lighting Sales | 297 | 260 | 270 | 255 | 241 | 236 | 239 | 242 | 236 | 237 | 245 | 290 | 3,048 |
| Interdepartmental Sales | 17 | 16 | 15 | 13 | 12 | 11 | 13 | 12 | 13 | 13 | 15 | 16 | 166 |
| Total Billed Sales - MWh | 85,831 | 76,899 | 78,926 | 70,255 | 70,953 | 70,201 | 80,069 | 76,757 | 72,120 | 71,649 | 74,876 | 84,535 | 913,071 |
| Company Use | 45 | 38 | 39 | 32 | 24 | 29 | 33 | 31 | 28 | 28 | 31 | 42 | 400 |
| Total Energy | 85,876 | 76,937 | 78,965 | 70,287 | 70,977 | 70,230 | 80,102 | 76,788 | 72,148 | 71,677 | 74,907 | 84,577 | 913,471 |
| Total Requirements (Energy + Losses) | 92,781 | 83,124 | 85,315 | 75,939 | 76,684 | 75,877 | 86,543 | 82,963 | 77,949 | 77,441 | 80,930 | 91,378 | 986,924 |
| # of Large Comm & Ind Customers | 267 | 267 | 268 | 270 | 271 | 272 | 272 | 274 | 281 | 277 | 267 | 266 | 271 |
| # of Other Public Customers | 102 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 103 | 102 | 102 | 102 |
| # of Street & Highway Lighting Customers | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| Peak Demand Net of Energy Efficiency Progs | 168.5 | 156.6 | 139.3 | 130.6 | 116.8 | 147.9 | 171.9 | 163.0 | 140.3 | 127.4 | 149.0 | 163.5 | 171.9 |

# APPENDIX E

# Monthly Forecasts - North Dakota
# (2021-2030)

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**NORTH DAKOTA YEAR 2021**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,106.8 | 981.3 | 876.3 | 680.1 | 642.1 | 700.5 | 858.7 | 783.1 | 644.9 | 667.3 | 825.5 | 1,036.1 | 9,802.3 |
| # of Residential Customers | 78,753 | 78,912 | 78,966 | 78,891 | 78,904 | 78,994 | 79,015 | 79,135 | 79,187 | 79,246 | 79,354 | 79,448 | 79,067 |
| Total Residential Sales - MWh | 87,160 | 77,435 | 69,196 | 53,652 | 50,665 | 55,335 | 67,852 | 61,973 | 51,066 | 52,880 | 65,510 | 82,313 | 775,037 |
| Use per Small Comm & Ind Customer - kWh | 4,770.7 | 4,438.3 | 4,364.4 | 3,668.5 | 3,569.3 | 3,609.7 | 4,009.4 | 3,922.8 | 3,584.4 | 3,719.1 | 4,096.9 | 4,662.5 | 48,395.6 |
| # of Small Comm & Ind Customers | 12,193 | 12,210 | 12,225 | 12,248 | 12,286 | 12,308 | 12,319 | 12,320 | 12,461 | 12,436 | 12,281 | 12,278 | 12,297 |
| Total Small Comm & Ind Sales - MWh | 58,169 | 54,192 | 53,355 | 44,932 | 43,852 | 44,428 | 49,392 | 48,329 | 44,665 | 46,251 | 50,314 | 57,246 | 595,125 |
| Large Comm & Ind Sales | 61,689 | 57,945 | 60,894 | 54,359 | 56,234 | 57,129 | 62,885 | 62,218 | 58,982 | 57,299 | 57,951 | 60,963 | 708,548 |
| Total Sales (Residential, SC&I and LC&I) | 207,018 | 189,572 | 183,445 | 152,943 | 150,751 | 156,892 | 180,129 | 172,520 | 154,713 | 156,430 | 173,775 | 200,522 | 2,078,710 |
| Other Public Sales | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Street & Highway Lighting Sales | 4,293 | 3,988 | 4,221 | 3,960 | 4,486 | 4,794 | 5,576 | 5,270 | 4,415 | 4,105 | 4,052 | 4,373 | 53,533 |
| Interdepartmental Sales | 1,409 | 1,241 | 1,283 | 1,148 | 1,098 | 1,016 | 1,067 | 1,097 | 1,148 | 1,244 | 1,314 | 1,434 | 14,499 |
| Total Billed Sales - MWh | 212,720 | 194,801 | 188,949 | 158,051 | 156,335 | 162,702 | 186,772 | 178,887 | 160,276 | 161,779 | 179,141 | 206,329 | 2,146,742 |
| Company Use | 421 | 399 | 423 | 376 | 384 | 392 | 435 | 423 | 388 | 386 | 378 | 417 | 4,822 |
| Total Energy | 213,141 | 195,200 | 189,372 | 158,427 | 156,719 | 163,094 | 187,207 | 179,310 | 160,664 | 162,165 | 179,519 | 206,746 | 2,151,564 |
| Total Requirements (Energy + Losses) | 230,299 | 210,913 | 204,617 | 171,181 | 169,335 | 176,220 | 202,273 | 193,740 | 173,595 | 175,218 | 193,969 | 223,388 | 2,324,748 |
| # of Large Comm & Ind Customers | 1,232 | 1,236 | 1,244 | 1,254 | 1,266 | 1,275 | 1,284 | 1,297 | 1,325 | 1,325 | 1,306 | 1,305 | 1,279 |
| # of Other Public Customers | 590 | 590 | 591 | 593 | 594 | 594 | 593 | 593 | 602 | 597 | 585 | 581 | 592 |
| # of Street & Highway Lighting Customers | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 |
| Peak Demand Net of Energy Efficiency Progs | 391.6 | 361.6 | 322.6 | 298.7 | 284.0 | 370.8 | 406.2 | 389.1 | 357.1 | 308.2 | 341.6 | 385.4 | 406.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**NORTH DAKOTA YEAR 2022**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,106.7 | 981.3 | 876.3 | 680.1 | 642.1 | 700.5 | 858.7 | 783.1 | 644.9 | 667.3 | 825.5 | 1,038.8 | 9,805.0 |
| # of Residential Customers | 79,002 | 79,161 | 79,215 | 79,140 | 79,154 | 79,244 | 79,265 | 79,385 | 79,437 | 79,496 | 79,605 | 79,699 | 79,317 |
| Total Residential Sales - MWh | 87,435 | 77,680 | 69,414 | 53,822 | 50,825 | 55,510 | 68,065 | 62,168 | 51,227 | 53,047 | 65,717 | 82,791 | 777,701 |
| Use per Small Comm & Ind Customer - kWh | 4,804.1 | 4,469.5 | 4,395.1 | 3,694.4 | 3,594.2 | 3,635.0 | 4,037.6 | 3,950.0 | 3,609.4 | 3,745.2 | 4,125.6 | 4,695.6 | 48,735.1 |
| # of Small Comm & Ind Customers | 12,320 | 12,337 | 12,352 | 12,375 | 12,414 | 12,436 | 12,447 | 12,449 | 12,591 | 12,565 | 12,409 | 12,406 | 12,425 |
| Total Small Comm & Ind Sales - MWh | 59,186 | 55,140 | 54,288 | 45,718 | 44,618 | 45,205 | 50,256 | 49,174 | 45,446 | 47,059 | 51,194 | 58,254 | 605,538 |
| Large Comm & Ind Sales | 61,564 | 57,836 | 60,811 | 54,347 | 56,294 | 57,206 | 62,966 | 62,281 | 59,005 | 57,254 | 57,859 | 61,172 | 708,595 |
| Total Sales (Residential, SC&I and LC&I) | 208,185 | 190,656 | 184,513 | 153,887 | 151,737 | 157,921 | 181,287 | 173,623 | 155,678 | 157,360 | 174,770 | 202,217 | 2,091,834 |
| Other Public Sales | 4,382 | 4,070 | 4,308 | 4,041 | 4,578 | 4,893 | 5,691 | 5,378 | 4,506 | 4,190 | 4,135 | 4,462 | 54,634 |
| Street & Highway Lighting Sales | 1,409 | 1,241 | 1,283 | 1,148 | 1,098 | 1,016 | 1,067 | 1,097 | 1,148 | 1,244 | 1,314 | 1,434 | 14,499 |
| Interdepartmental Sales | 18 | 16 | 16 | 14 | 13 | 11 | 12 | 11 | 11 | 12 | 14 | 16 | 164 |
| Total Billed Sales - MWh | 213,994 | 195,983 | 190,120 | 159,090 | 157,426 | 163,841 | 188,057 | 180,109 | 161,343 | 162,806 | 180,233 | 208,129 | 2,161,131 |
| Company Use | 421 | 399 | 423 | 376 | 384 | 392 | 435 | 423 | 388 | 386 | 378 | 417 | 4,822 |
| Total Energy | 214,415 | 196,382 | 190,543 | 159,466 | 157,810 | 164,233 | 188,492 | 180,532 | 161,731 | 163,192 | 180,611 | 208,546 | 2,165,953 |
| Total Requirements (Energy + Losses) | 231,656 | 212,173 | 205,865 | 172,289 | 170,500 | 177,439 | 203,649 | 195,049 | 174,736 | 176,314 | 195,134 | 225,315 | 2,340,119 |
| # of Large Comm & Ind Customers | 1,244 | 1,248 | 1,257 | 1,267 | 1,279 | 1,288 | 1,297 | 1,310 | 1,338 | 1,339 | 1,319 | 1,318 | 1,292 |
| # of Other Public Customers | 590 | 590 | 591 | 593 | 594 | 594 | 593 | 593 | 602 | 597 | 585 | 581 | 592 |
| # of Street & Highway Lighting Customers | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 |
| Peak Demand Net of Energy Efficiency Progs | 398.7 | 368.2 | 328.4 | 304.2 | 284.3 | 371.2 | 406.6 | 389.4 | 357.5 | 308.5 | 343.8 | 387.9 | 406.6 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**NORTH DAKOTA YEAR 2023**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,106.8 | 981.3 | 876.3 | 680.1 | 642.1 | 700.5 | 858.7 | 783.1 | 644.9 | 667.3 | 825.5 | 1,038.8 | 9,805.0 |
| # of Residential Customers | 79,554 | 79,715 | 79,770 | 79,694 | 79,707 | 79,799 | 79,820 | 79,941 | 79,993 | 80,052 | 80,162 | 80,257 | 79,872 |
| Total Residential Sales - MWh | 88,047 | 78,223 | 69,900 | 54,199 | 51,181 | 55,898 | 68,542 | 62,604 | 51,586 | 53,418 | 66,177 | 83,367 | 783,142 |
| Use per Small Comm & Ind Customer - kWh | 4,839.5 | 4,502.1 | 4,427.3 | 3,721.3 | 3,620.8 | 3,661.6 | 4,067.1 | 3,978.9 | 3,635.6 | 3,772.7 | 4,155.6 | 4,726.2 | 49,087.9 |
| # of Small Comm & Ind Customers | 12,446 | 12,464 | 12,479 | 12,503 | 12,541 | 12,564 | 12,575 | 12,577 | 12,721 | 12,694 | 12,537 | 12,533 | 12,553 |
| Total Small Comm & Ind Sales - MWh | 60,232 | 56,114 | 55,248 | 46,527 | 45,408 | 46,004 | 51,144 | 50,043 | 46,249 | 47,891 | 52,099 | 59,233 | 616,192 |
| Large Comm & Ind Sales | 61,927 | 58,177 | 61,178 | 54,695 | 56,681 | 57,606 | 63,406 | 62,708 | 59,395 | 57,608 | 58,205 | 62,524 | 714,110 |
| Total Sales (Residential, SC&I and LC&I) | 210,206 | 192,514 | 186,326 | 155,421 | 153,270 | 159,508 | 183,092 | 175,355 | 157,230 | 158,917 | 176,481 | 205,124 | 2,113,444 |
| Other Public Sales | 4,470 | 4,153 | 4,395 | 4,122 | 4,671 | 4,991 | 5,806 | 5,487 | 4,596 | 4,274 | 4,219 | 4,503 | 55,687 |
| Street & Highway Lighting Sales | 1,409 | 1,241 | 1,283 | 1,148 | 1,098 | 1,016 | 1,067 | 1,097 | 1,148 | 1,244 | 1,314 | 1,434 | 14,499 |
| Interdepartmental Sales | 18 | 16 | 16 | 14 | 13 | 11 | 12 | 11 | 11 | 12 | 14 | 16 | 164 |
| Total Billed Sales - MWh | 216,103 | 197,924 | 192,020 | 160,705 | 159,052 | 165,526 | 189,977 | 181,950 | 162,985 | 164,447 | 182,028 | 211,077 | 2,183,794 |
| Company Use | 421 | 399 | 423 | 376 | 384 | 392 | 435 | 423 | 388 | 386 | 378 | 417 | 4,822 |
| Total Energy | 216,524 | 198,323 | 192,443 | 161,081 | 159,436 | 165,918 | 190,412 | 182,373 | 163,373 | 164,833 | 182,406 | 211,494 | 2,188,616 |
| Total Requirements (Energy + Losses) | 233,935 | 214,270 | 207,917 | 174,034 | 172,256 | 179,259 | 205,723 | 197,038 | 176,510 | 178,087 | 197,073 | 228,500 | 2,364,602 |
| # of Large Comm & Ind Customers | 1,258 | 1,262 | 1,270 | 1,281 | 1,292 | 1,302 | 1,311 | 1,324 | 1,353 | 1,353 | 1,333 | 1,333 | 1,306 |
| # of Other Public Customers | 590 | 590 | 591 | 593 | 594 | 594 | 593 | 593 | 602 | 597 | 585 | 581 | 592 |
| # of Street & Highway Lighting Customers | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 |
| Peak Demand Net of Energy Efficiency Progs | 401.3 | 370.6 | 330.6 | 306.1 | 284.7 | 371.7 | 407.2 | 390.0 | 358.0 | 309.0 | 347.2 | 391.8 | 407.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**NORTH DAKOTA YEAR 2024**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,106.8 | 981.3 | 876.3 | 680.1 | 642.1 | 700.5 | 858.7 | 783.1 | 644.9 | 667.3 | 825.5 | 1,038.7 | 9,804.9 |
| # of Residential Customers | 80,107 | 80,269 | 80,324 | 80,248 | 80,261 | 80,353 | 80,374 | 80,496 | 80,549 | 80,609 | 80,719 | 80,815 | 80,427 |
| Total Residential Sales - MWh | 88,659 | 78,767 | 70,386 | 54,575 | 51,537 | 56,286 | 69,018 | 63,039 | 51,945 | 53,789 | 66,637 | 83,944 | 788,582 |
| Use per Small Comm & Ind Customer - kWh | 4,868.8 | 4,529.5 | 4,454.2 | 3,744.0 | 3,642.7 | 3,683.5 | 4,091.9 | 4,003.1 | 3,657.6 | 3,795.5 | 4,180.8 | 4,757.0 | 49,387.8 |
| # of Small Comm & Ind Customers | 12,573 | 12,591 | 12,606 | 12,630 | 12,669 | 12,693 | 12,703 | 12,705 | 12,851 | 12,824 | 12,665 | 12,661 | 12,681 |
| Total Small Comm & Ind Sales - MWh | 61,216 | 57,031 | 56,150 | 47,287 | 46,149 | 46,755 | 51,979 | 50,860 | 47,004 | 48,673 | 52,950 | 60,229 | 626,283 |
| Large Comm & Ind Sales | 63,781 | 59,953 | 63,122 | 56,409 | 58,471 | 59,419 | 65,395 | 64,717 | 61,321 | 59,453 | 59,990 | 64,434 | 736,465 |
| Total Sales (Residential, SC&I and LC&I) | 213,656 | 195,751 | 189,658 | 158,271 | 156,157 | 162,460 | 186,392 | 178,616 | 160,270 | 161,915 | 179,577 | 208,607 | 2,151,330 |
| Other Public Sales | 4,481 | 4,163 | 4,406 | 4,133 | 4,682 | 5,004 | 5,820 | 5,501 | 4,608 | 4,285 | 4,229 | 4,514 | 55,826 |
| Street & Highway Lighting Sales | 1,409 | 1,241 | 1,283 | 1,148 | 1,098 | 1,016 | 1,067 | 1,097 | 1,148 | 1,244 | 1,314 | 1,434 | 14,499 |
| Interdepartmental Sales | 18 | 16 | 16 | 14 | 13 | 11 | 12 | 11 | 11 | 12 | 14 | 16 | 164 |
| Total Billed Sales - MWh | 219,564 | 201,171 | 195,363 | 163,566 | 161,950 | 168,491 | 193,291 | 185,225 | 166,037 | 167,456 | 185,134 | 214,571 | 2,221,819 |
| Company Use | 421 | 399 | 423 | 376 | 384 | 392 | 435 | 423 | 388 | 386 | 378 | 417 | 4,822 |
| Total Energy | 219,985 | 201,570 | 195,786 | 163,942 | 162,334 | 168,883 | 193,726 | 185,648 | 166,425 | 167,842 | 185,512 | 214,988 | 2,226,641 |
| Total Requirements (Energy + Losses) | 237,674 | 217,778 | 211,529 | 177,125 | 175,387 | 182,463 | 209,304 | 200,576 | 179,807 | 181,338 | 200,429 | 232,275 | 2,405,685 |
| # of Large Comm & Ind Customers | 1,270 | 1,274 | 1,283 | 1,293 | 1,305 | 1,315 | 1,324 | 1,337 | 1,366 | 1,367 | 1,346 | 1,346 | 1,319 |
| # of Other Public Customers | 590 | 590 | 591 | 593 | 594 | 594 | 593 | 593 | 602 | 597 | 585 | 581 | 592 |
| # of Street & Highway Lighting Customers | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 |
| Peak Demand Net of Energy Efficiency Progs | 405.3 | 374.3 | 333.9 | 309.2 | 286.7 | 374.3 | 410.0 | 392.7 | 360.4 | 311.1 | 353.1 | 398.4 | 410.0 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**NORTH DAKOTA YEAR 2025**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,106.8 | 981.3 | 876.3 | 680.1 | 642.1 | 700.5 | 858.7 | 783.1 | 644.9 | 667.3 | 825.5 | 1,036.0 | 9,802.3 |
| # of Residential Customers | 80,660 | 80,823 | 80,878 | 80,802 | 80,815 | 80,907 | 80,929 | 81,052 | 81,105 | 81,165 | 81,276 | 81,372 | 80,982 |
| Total Residential Sales - MWh | 89,271 | 79,311 | 70,872 | 54,952 | 51,893 | 56,675 | 69,495 | 63,474 | 52,303 | 54,161 | 67,097 | 84,303 | 793,807 |
| Use per Small Comm & Ind Customer - kWh | 4,902.4 | 4,560.8 | 4,484.8 | 3,769.7 | 3,667.8 | 3,709.1 | 4,120.3 | 4,030.9 | 3,683.1 | 3,821.8 | 4,209.6 | 4,785.8 | 49,725.0 |
| # of Small Comm & Ind Customers | 12,700 | 12,718 | 12,734 | 12,758 | 12,797 | 12,821 | 12,831 | 12,833 | 12,980 | 12,953 | 12,793 | 12,789 | 12,809 |
| Total Small Comm & Ind Sales - MWh | 62,261 | 58,004 | 57,109 | 48,094 | 46,937 | 47,554 | 52,867 | 51,728 | 47,806 | 49,504 | 53,854 | 61,206 | 636,924 |
| Large Comm & Ind Sales | 65,718 | 61,806 | 65,148 | 58,196 | 60,335 | 61,309 | 67,470 | 66,809 | 63,324 | 61,373 | 61,853 | 65,432 | 758,773 |
| Total Sales (Residential, SC&I and LC&I) | 217,250 | 199,121 | 193,129 | 161,242 | 159,165 | 165,538 | 189,832 | 182,011 | 163,433 | 165,038 | 182,804 | 210,941 | 2,189,504 |
| Other Public Sales | 4,493 | 4,173 | 4,417 | 4,143 | 4,694 | 5,016 | 5,835 | 5,515 | 4,619 | 4,295 | 4,240 | 4,526 | 55,966 |
| Street & Highway Lighting Sales | 1,409 | 1,241 | 1,283 | 1,148 | 1,098 | 1,016 | 1,067 | 1,097 | 1,148 | 1,244 | 1,314 | 1,434 | 14,499 |
| Interdepartmental Sales | 18 | 16 | 16 | 14 | 13 | 11 | 12 | 11 | 11 | 12 | 14 | 16 | 164 |
| Total Billed Sales - MWh | 223,170 | 204,551 | 198,845 | 166,547 | 164,970 | 171,581 | 196,746 | 188,634 | 169,211 | 170,589 | 188,372 | 216,917 | 2,260,133 |
| Company Use | 421 | 399 | 423 | 376 | 384 | 392 | 435 | 423 | 388 | 386 | 378 | 417 | 4,822 |
| Total Energy | 223,591 | 204,950 | 199,268 | 166,923 | 165,354 | 171,973 | 197,181 | 189,057 | 169,599 | 170,975 | 188,750 | 217,334 | 2,264,955 |
| Total Requirements (Energy + Losses) | 241,570 | 221,430 | 215,291 | 180,345 | 178,650 | 185,801 | 213,036 | 204,259 | 183,236 | 184,723 | 203,927 | 234,810 | 2,447,078 |
| # of Large Comm & Ind Customers | 1,283 | 1,287 | 1,296 | 1,306 | 1,318 | 1,328 | 1,337 | 1,351 | 1,380 | 1,380 | 1,360 | 1,359 | 1,332 |
| # of Other Public Customers | 590 | 590 | 591 | 593 | 594 | 594 | 593 | 593 | 602 | 597 | 585 | 581 | 592 |
| # of Street & Highway Lighting Customers | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 |
| Peak Demand Net of Energy Efficiency Progs | 412.2 | 380.7 | 339.5 | 314.5 | 290.8 | 379.7 | 415.9 | 398.3 | 365.6 | 315.6 | 359.3 | 405.4 | 415.9 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**NORTH DAKOTA YEAR 2026**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,106.8 | 981.3 | 876.3 | 680.1 | 642.1 | 700.5 | 858.7 | 783.1 | 644.9 | 667.3 | 825.5 | 1,036.0 | 9,802.2 |
| # of Residential Customers | 80,909 | 81,072 | 81,128 | 81,051 | 81,065 | 81,157 | 81,179 | 81,302 | 81,355 | 81,415 | 81,527 | 81,624 | 81,232 |
| Total Residential Sales - MWh | 89,547 | 79,555 | 71,090 | 55,122 | 52,053 | 56,850 | 69,709 | 63,669 | 52,465 | 54,328 | 67,303 | 84,562 | 796,253 |
| Use per Small Comm & Ind Customer - kWh | 4,930.7 | 4,586.8 | 4,510.7 | 3,791.5 | 3,688.9 | 3,730.4 | 4,143.7 | 4,053.9 | 3,704.2 | 3,843.6 | 4,234.2 | 4,815.7 | 50,013.0 |
| # of Small Comm & Ind Customers | 12,826 | 12,845 | 12,860 | 12,884 | 12,924 | 12,948 | 12,959 | 12,961 | 13,109 | 13,082 | 12,919 | 12,916 | 12,936 |
| Total Small Comm & Ind Sales - MWh | 63,241 | 58,917 | 58,007 | 48,850 | 47,675 | 48,301 | 53,698 | 52,542 | 48,559 | 50,282 | 54,701 | 62,199 | 646,972 |
| Large Comm & Ind Sales | 66,242 | 62,298 | 65,660 | 58,656 | 60,812 | 61,795 | 68,006 | 67,337 | 63,822 | 61,854 | 62,344 | 66,005 | 764,831 |
| Total Sales (Residential, SC&I and LC&I) | 219,030 | 200,770 | 194,757 | 162,628 | 160,540 | 166,946 | 191,413 | 183,548 | 164,846 | 166,464 | 184,348 | 212,766 | 2,208,056 |
| Other Public Sales | 4,504 | 4,184 | 4,428 | 4,154 | 4,705 | 5,029 | 5,849 | 5,528 | 4,631 | 4,306 | 4,250 | 4,537 | 56,105 |
| Street & Highway Lighting Sales | 1,409 | 1,241 | 1,283 | 1,148 | 1,098 | 1,016 | 1,067 | 1,097 | 1,148 | 1,244 | 1,314 | 1,434 | 14,499 |
| Interdepartmental Sales | 18 | 16 | 16 | 14 | 13 | 11 | 12 | 11 | 11 | 12 | 14 | 16 | 164 |
| Total Billed Sales - MWh | 224,961 | 206,211 | 200,484 | 167,944 | 166,356 | 173,002 | 198,341 | 190,184 | 170,636 | 172,026 | 189,926 | 218,753 | 2,278,824 |
| Company Use | 421 | 399 | 423 | 376 | 384 | 392 | 435 | 423 | 388 | 386 | 378 | 417 | 4,822 |
| Total Energy | 225,382 | 206,610 | 200,907 | 168,320 | 166,740 | 173,394 | 198,776 | 190,607 | 171,024 | 172,412 | 190,304 | 219,170 | 2,283,646 |
| Total Requirements (Energy + Losses) | 243,505 | 223,224 | 217,062 | 181,855 | 180,148 | 187,337 | 214,760 | 205,934 | 184,776 | 186,276 | 205,606 | 236,793 | 2,467,276 |
| # of Large Comm & Ind Customers | 1,296 | 1,300 | 1,309 | 1,320 | 1,332 | 1,342 | 1,352 | 1,365 | 1,394 | 1,395 | 1,374 | 1,373 | 1,346 |
| # of Other Public Customers | 590 | 590 | 591 | 593 | 594 | 594 | 593 | 593 | 602 | 597 | 585 | 581 | 592 |
| # of Street & Highway Lighting Customers | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 |
| Peak Demand Net of Energy Efficiency Progs | 419.4 | 387.3 | 345.5 | 319.9 | 293.7 | 383.5 | 420.1 | 402.4 | 369.3 | 318.8 | 362.1 | 408.6 | 420.1 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**NORTH DAKOTA YEAR 2027**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,106.8 | 981.3 | 876.3 | 680.1 | 642.1 | 700.5 | 858.7 | 783.1 | 644.9 | 667.3 | 825.5 | 1,036.0 | 9,802.2 |
| # of Residential Customers | 81,158 | 81,322 | 81,378 | 81,301 | 81,314 | 81,407 | 81,428 | 81,552 | 81,605 | 81,666 | 81,778 | 81,875 | 81,482 |
| Total Residential Sales - MWh | 89,822 | 79,800 | 71,309 | 55,291 | 52,213 | 57,025 | 69,924 | 63,866 | 52,626 | 54,495 | 67,511 | 84,823 | 798,705 |
| Use per Small Comm & Ind Customer - kWh | 4,962.9 | 4,616.8 | 4,540.3 | 3,816.2 | 3,713.0 | 3,754.9 | 4,170.9 | 4,080.5 | 3,728.4 | 3,869.0 | 4,261.8 | 4,843.0 | 50,336.6 |
| # of Small Comm & Ind Customers | 12,953 | 12,972 | 12,987 | 13,012 | 13,052 | 13,076 | 13,087 | 13,089 | 13,239 | 13,211 | 13,047 | 13,044 | 13,064 |
| Total Small Comm & Ind Sales - MWh | 64,285 | 59,889 | 58,965 | 49,657 | 48,462 | 49,099 | 54,585 | 53,410 | 49,360 | 51,113 | 55,604 | 63,172 | 657,601 |
| Large Comm & Ind Sales | 66,851 | 62,869 | 66,255 | 59,188 | 61,366 | 62,360 | 68,630 | 67,950 | 64,400 | 62,413 | 62,913 | 66,559 | 771,754 |
| Total Sales (Residential, SC&I and LC&I) | 220,958 | 202,558 | 196,529 | 164,136 | 162,041 | 168,484 | 193,139 | 185,226 | 166,386 | 168,021 | 186,028 | 214,554 | 2,228,060 |
| Other Public Sales | 4,515 | 4,194 | 4,439 | 4,164 | 4,717 | 5,041 | 5,864 | 5,542 | 4,643 | 4,317 | 4,261 | 4,548 | 56,245 |
| Street & Highway Lighting Sales | 1,409 | 1,241 | 1,283 | 1,148 | 1,098 | 1,016 | 1,067 | 1,097 | 1,148 | 1,244 | 1,314 | 1,434 | 14,499 |
| Interdepartmental Sales | 18 | 16 | 16 | 14 | 13 | 11 | 12 | 11 | 11 | 12 | 14 | 16 | 164 |
| Total Billed Sales - MWh | 226,900 | 208,009 | 202,267 | 169,462 | 167,869 | 174,552 | 200,082 | 191,876 | 172,188 | 173,594 | 191,617 | 220,552 | 2,298,968 |
| Company Use | 421 | 399 | 423 | 376 | 384 | 392 | 435 | 423 | 388 | 386 | 378 | 417 | 4,822 |
| Total Energy | 227,321 | 208,408 | 202,690 | 169,838 | 168,253 | 174,944 | 200,517 | 192,299 | 172,576 | 173,980 | 191,995 | 220,969 | 2,303,790 |
| Total Requirements (Energy + Losses) | 245,600 | 225,166 | 218,988 | 183,495 | 181,782 | 189,011 | 216,641 | 207,762 | 186,453 | 187,970 | 207,433 | 238,737 | 2,489,038 |
| # of Large Comm & Ind Customers | 1,309 | 1,313 | 1,322 | 1,333 | 1,345 | 1,355 | 1,365 | 1,378 | 1,408 | 1,408 | 1,387 | 1,387 | 1,359 |
| # of Other Public Customers | 590 | 590 | 591 | 593 | 594 | 594 | 593 | 593 | 602 | 597 | 585 | 581 | 592 |
| # of Street & Highway Lighting Customers | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 |
| Peak Demand Net of Energy Efficiency Progs | 422.7 | 390.4 | 348.2 | 322.5 | 296.9 | 387.6 | 424.6 | 406.7 | 373.3 | 322.2 | 365.3 | 412.2 | 424.6 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**NORTH DAKOTA YEAR 2028**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,106.8 | 981.3 | 876.3 | 680.1 | 642.1 | 700.5 | 858.7 | 783.1 | 644.9 | 667.3 | 825.5 | 1,036.0 | 9,802.2 |
| # of Residential Customers | 81,407 | 81,571 | 81,627 | 81,550 | 81,564 | 81,657 | 81,678 | 81,802 | 81,856 | 81,917 | 82,029 | 82,126 | 81,732 |
| Total Residential Sales - MWh | 90,098 | 80,044 | 71,528 | 55,461 | 52,373 | 57,200 | 70,138 | 64,062 | 52,788 | 54,662 | 67,718 | 85,082 | 801,154 |
| Use per Small Comm & Ind Customer - kWh | 4,989.3 | 4,641.4 | 4,564.5 | 3,836.7 | 3,732.7 | 3,774.9 | 4,193.2 | 4,102.2 | 3,748.4 | 3,889.4 | 4,284.4 | 4,871.5 | 50,607.2 |
| # of Small Comm & Ind Customers | 13,080 | 13,099 | 13,114 | 13,139 | 13,180 | 13,204 | 13,215 | 13,217 | 13,368 | 13,341 | 13,175 | 13,171 | 13,192 |
| Total Small Comm & Ind Sales - MWh | 65,260 | 60,798 | 59,859 | 50,410 | 49,197 | 49,844 | 55,413 | 54,219 | 50,109 | 51,888 | 56,447 | 64,162 | 667,606 |
| Large Comm & Ind Sales | 67,386 | 63,371 | 66,778 | 59,657 | 61,853 | 62,856 | 69,177 | 68,489 | 64,908 | 62,903 | 63,413 | 67,145 | 777,936 |
| Total Sales (Residential, SC&I and LC&I) | 222,744 | 204,213 | 198,165 | 165,528 | 163,423 | 169,900 | 194,728 | 186,770 | 167,805 | 169,453 | 187,578 | 216,389 | 2,246,696 |
| Other Public Sales | 4,526 | 4,204 | 4,450 | 4,174 | 4,729 | 5,053 | 5,879 | 5,556 | 4,654 | 4,327 | 4,271 | 4,560 | 56,383 |
| Street & Highway Lighting Sales | 1,409 | 1,241 | 1,283 | 1,148 | 1,098 | 1,016 | 1,067 | 1,097 | 1,148 | 1,244 | 1,314 | 1,434 | 14,499 |
| Interdepartmental Sales | 18 | 16 | 16 | 14 | 13 | 11 | 12 | 11 | 11 | 12 | 14 | 16 | 164 |
| Total Billed Sales - MWh | 228,697 | 209,674 | 203,914 | 170,864 | 169,263 | 175,980 | 201,686 | 193,434 | 173,618 | 175,036 | 193,177 | 222,399 | 2,317,742 |
| Company Use | 421 | 399 | 423 | 376 | 384 | 392 | 435 | 423 | 388 | 386 | 378 | 417 | 4,822 |
| Total Energy | 229,118 | 210,073 | 204,337 | 171,240 | 169,647 | 176,372 | 202,121 | 193,857 | 174,006 | 175,422 | 193,555 | 222,816 | 2,322,564 |
| Total Requirements (Energy + Losses) | 247,541 | 226,965 | 220,768 | 185,009 | 183,288 | 190,554 | 218,374 | 209,445 | 187,998 | 189,528 | 209,119 | 240,733 | 2,509,322 |
| # of Large Comm & Ind Customers | 1,321 | 1,325 | 1,335 | 1,345 | 1,358 | 1,368 | 1,378 | 1,391 | 1,421 | 1,422 | 1,400 | 1,400 | 1,372 |
| # of Other Public Customers | 590 | 590 | 591 | 593 | 594 | 594 | 593 | 593 | 602 | 597 | 585 | 581 | 592 |
| # of Street & Highway Lighting Customers | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 |
| Peak Demand Net of Energy Efficiency Progs | 426.4 | 393.8 | 351.2 | 325.3 | 299.8 | 391.4 | 428.8 | 410.7 | 377.0 | 325.4 | 368.2 | 415.4 | 428.8 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**NORTH DAKOTA YEAR 2029**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,106.8 | 981.3 | 876.3 | 680.1 | 642.1 | 700.5 | 858.7 | 783.1 | 644.9 | 667.3 | 825.5 | 1,036.0 | 9,802.2 |
| # of Residential Customers | 81,656 | 81,821 | 81,877 | 81,799 | 81,813 | 81,907 | 81,928 | 82,053 | 82,106 | 82,167 | 82,280 | 82,377 | 81,982 |
| Total Residential Sales - MWh | 90,374 | 80,290 | 71,747 | 55,631 | 52,534 | 57,375 | 70,353 | 64,257 | 52,949 | 54,830 | 67,925 | 85,342 | 803,607 |
| Use per Small Comm & Ind Customer - kWh | 5,020.1 | 4,670.2 | 4,592.6 | 3,860.3 | 3,755.9 | 3,798.3 | 4,219.2 | 4,127.8 | 3,771.6 | 3,913.7 | 4,310.9 | 4,900.8 | 50,919.9 |
| # of Small Comm & Ind Customers | 13,207 | 13,226 | 13,242 | 13,267 | 13,308 | 13,332 | 13,343 | 13,345 | 13,498 | 13,470 | 13,303 | 13,299 | 13,320 |
| Total Small Comm & Ind Sales - MWh | 66,301 | 61,768 | 60,815 | 51,215 | 49,983 | 50,639 | 56,297 | 55,085 | 50,909 | 52,717 | 57,348 | 65,176 | 678,253 |
| Large Comm & Ind Sales | 68,009 | 63,954 | 67,386 | 60,202 | 62,418 | 63,433 | 69,815 | 69,116 | 65,499 | 63,475 | 63,996 | 67,765 | 785,068 |
| Total Sales (Residential, SC&I and LC&I) | 224,684 | 206,012 | 199,948 | 167,048 | 164,935 | 171,447 | 196,465 | 188,458 | 169,357 | 171,022 | 189,269 | 218,283 | 2,266,928 |
| Other Public Sales | 4,538 | 4,215 | 4,461 | 4,184 | 4,740 | 5,066 | 5,893 | 5,570 | 4,666 | 4,338 | 4,283 | 4,571 | 56,525 |
| Street & Highway Lighting Sales | 1,409 | 1,241 | 1,283 | 1,148 | 1,098 | 1,016 | 1,067 | 1,097 | 1,148 | 1,244 | 1,314 | 1,434 | 14,499 |
| Interdepartmental Sales | 18 | 16 | 16 | 14 | 13 | 11 | 12 | 11 | 11 | 12 | 14 | 16 | 164 |
| Total Billed Sales - MWh | 230,649 | 211,484 | 205,708 | 172,394 | 170,786 | 177,540 | 203,437 | 195,136 | 175,182 | 176,616 | 194,880 | 224,304 | 2,338,116 |
| Company Use | 421 | 399 | 423 | 376 | 384 | 392 | 435 | 423 | 388 | 386 | 378 | 417 | 4,822 |
| Total Energy | 231,070 | 211,883 | 206,131 | 172,770 | 171,170 | 177,932 | 203,872 | 195,559 | 175,570 | 177,002 | 195,258 | 224,721 | 2,342,938 |
| Total Requirements (Energy + Losses) | 249,650 | 228,921 | 222,706 | 186,662 | 184,934 | 192,240 | 220,265 | 211,284 | 189,688 | 191,235 | 210,959 | 242,791 | 2,531,335 |
| # of Large Comm & Ind Customers | 1,334 | 1,338 | 1,347 | 1,358 | 1,371 | 1,381 | 1,391 | 1,404 | 1,435 | 1,435 | 1,414 | 1,413 | 1,385 |
| # of Other Public Customers | 590 | 590 | 591 | 593 | 594 | 594 | 593 | 593 | 602 | 597 | 585 | 581 | 592 |
| # of Street & Highway Lighting Customers | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 |
| Peak Demand Net of Energy Efficiency Progs | 429.8 | 396.9 | 354.0 | 327.9 | 302.9 | 395.4 | 433.2 | 414.9 | 380.8 | 328.7 | 371.5 | 419.1 | 433.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**NORTH DAKOTA YEAR 2030**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,106.8 | 981.3 | 876.3 | 680.1 | 642.1 | 700.5 | 858.7 | 783.1 | 644.9 | 667.3 | 825.5 | 1,036.0 | 9,802.2 |
| # of Residential Customers | 81,905 | 82,070 | 82,127 | 82,049 | 82,063 | 82,156 | 82,178 | 82,303 | 82,356 | 82,418 | 82,531 | 82,628 | 82,232 |
| Total Residential Sales - MWh | 90,649 | 80,535 | 71,965 | 55,800 | 52,694 | 57,550 | 70,567 | 64,453 | 53,111 | 54,996 | 68,132 | 85,601 | 806,053 |
| Use per Small Comm & Ind Customer - kWh | 5,050.5 | 4,698.5 | 4,620.5 | 3,883.8 | 3,778.6 | 3,821.3 | 4,244.6 | 4,152.5 | 3,794.3 | 3,937.1 | 4,337.0 | 4,929.7 | 51,226.8 |
| # of Small Comm & Ind Customers | 13,334 | 13,353 | 13,369 | 13,394 | 13,436 | 13,460 | 13,472 | 13,474 | 13,628 | 13,600 | 13,431 | 13,427 | 13,448 |
| Total Small Comm & Ind Sales - MWh | 67,344 | 62,739 | 61,771 | 52,020 | 50,769 | 51,435 | 57,183 | 55,951 | 51,709 | 53,545 | 58,250 | 66,191 | 688,907 |
| Large Comm & Ind Sales | 68,638 | 64,545 | 68,001 | 60,753 | 62,990 | 64,017 | 70,459 | 69,750 | 66,096 | 64,052 | 64,584 | 68,392 | 792,277 |
| Total Sales (Residential, SC&I and LC&I) | 226,631 | 207,819 | 201,737 | 168,573 | 166,453 | 173,002 | 198,209 | 190,154 | 170,916 | 172,593 | 190,966 | 220,184 | 2,287,237 |
| Other Public Sales | 4,549 | 4,226 | 4,473 | 4,195 | 4,753 | 5,079 | 5,908 | 5,584 | 4,678 | 4,350 | 4,293 | 4,582 | 56,670 |
| Street & Highway Lighting Sales | 1,409 | 1,241 | 1,283 | 1,148 | 1,098 | 1,016 | 1,067 | 1,097 | 1,148 | 1,244 | 1,314 | 1,434 | 14,499 |
| Interdepartmental Sales | 18 | 16 | 16 | 14 | 13 | 11 | 12 | 11 | 11 | 12 | 14 | 16 | 164 |
| Total Billed Sales - MWh | 232,607 | 213,302 | 207,509 | 173,930 | 172,317 | 179,108 | 205,196 | 196,846 | 176,753 | 178,199 | 196,587 | 226,216 | 2,358,570 |
| Company Use | 421 | 399 | 423 | 376 | 384 | 392 | 435 | 423 | 388 | 386 | 378 | 417 | 4,822 |
| Total Energy | 233,028 | 213,701 | 207,932 | 174,306 | 172,701 | 179,500 | 205,631 | 197,269 | 177,141 | 178,585 | 196,965 | 226,633 | 2,363,392 |
| Total Requirements (Energy + Losses) | 251,766 | 230,885 | 224,652 | 188,322 | 186,588 | 193,934 | 222,166 | 213,131 | 191,385 | 192,945 | 212,803 | 244,857 | 2,553,434 |
| # of Large Comm & Ind Customers | 1,347 | 1,351 | 1,361 | 1,372 | 1,384 | 1,395 | 1,405 | 1,419 | 1,449 | 1,450 | 1,428 | 1,428 | 1,399 |
| # of Other Public Customers | 590 | 590 | 591 | 593 | 594 | 594 | 593 | 593 | 602 | 597 | 585 | 581 | 592 |
| # of Street & Highway Lighting Customers | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 | 527 |
| Peak Demand Net of Energy Efficiency Progs | 433.6 | 400.4 | 357.2 | 330.8 | 305.9 | 399.5 | 437.6 | 419.1 | 384.7 | 332.1 | 374.6 | 422.7 | 437.6 |

# APPENDIX F

# Monthly Forecasts – South Dakota
# (2021-2030)

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**SOUTH DAKOTA YEAR 2021**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,184.4 | 1,066.4 | 931.6 | 691.0 | 717.7 | 730.5 | 937.2 | 789.9 | 669.3 | 687.2 | 900.1 | 1,144.8 | 10,444.5 |
| # of Residential Customers | 6,496 | 6,495 | 6,495 | 6,499 | 6,504 | 6,501 | 6,501 | 6,507 | 6,576 | 6,561 | 6,485 | 6,476 | 6,508 |
| Total Residential Sales - MWh | 7,694 | 6,926 | 6,051 | 4,491 | 4,668 | 4,749 | 6,093 | 5,140 | 4,401 | 4,509 | 5,837 | 7,414 | 67,973 |
| Use per Small Comm & Ind Customer - kWh | 2,308.5 | 2,161.3 | 1,907.3 | 1,397.5 | 1,547.7 | 1,448.2 | 1,770.7 | 1,558.7 | 1,410.1 | 1,431.0 | 1,863.9 | 2,228.6 | 20,997.9 |
| # of Small Comm & Ind Customers | 1,877 | 1,878 | 1,878 | 1,892 | 1,908 | 1,919 | 1,919 | 1,917 | 1,953 | 1,942 | 1,895 | 1,894 | 1,906 |
| Total Small Comm & Ind Sales - MWh | 4,333 | 4,059 | 3,582 | 2,644 | 2,953 | 2,779 | 3,398 | 2,988 | 2,754 | 2,779 | 3,532 | 4,221 | 40,022 |
| Large Comm & Ind Sales | 3,214 | 3,141 | 3,038 | 2,510 | 3,293 | 2,930 | 3,378 | 3,196 | 3,215 | 3,154 | 3,624 | 3,536 | 38,229 |
| Total Sales (Residential, SC&I and LC&I) | 15,241 | 14,126 | 12,671 | 9,645 | 10,914 | 10,458 | 12,869 | 11,324 | 10,370 | 10,442 | 12,993 | 15,171 | 146,224 |
| Other Public Sales | 136 | 137 | 133 | 85 | 164 | 113 | 135 | 117 | 113 | 109 | 122 | 141 | 1,505 |
| Street & Highway Lighting Sales | 110 | 103 | 105 | 94 | 112 | 97 | 104 | 99 | 105 | 104 | 108 | 115 | 1,256 |
| Interdepartmental Sales | - | - | - | - | - | - | - | - | - | - | - | - | |
| Total Billed Sales - MWh | 15,487 | 14,366 | 12,909 | 9,824 | 11,190 | 10,668 | 13,108 | 11,540 | 10,588 | 10,655 | 13,223 | 15,427 | 148,985 |
| Company Use | 62 | 58 | 40 | 16 | 22 | 11 | 14 | 11 | 11 | 14 | 30 | 56 | 345 |
| Total Energy | 15,549 | 14,424 | 12,949 | 9,840 | 11,212 | 10,679 | 13,122 | 11,551 | 10,599 | 10,669 | 13,253 | 15,483 | 149,330 |
| Total Requirements (Energy + Losses) | 16,799 | 15,584 | 13,990 | 10,631 | 12,114 | 11,538 | 14,177 | 12,480 | 11,451 | 11,527 | 14,319 | 16,728 | 161,338 |
| # of Large Comm & Ind Customers | 110 | 110 | 110 | 110 | 111 | 111 | 111 | 111 | 113 | 113 | 112 | 112 | 111 |
| # of Other Public Customers | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 | 44 | 45 | 45 |
| # of Street & Highway Lighting Customers | 12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 20 |
| Peak Demand Net of Energy Efficiency Progs | 27.5 | 25.1 | 23.3 | 20.9 | 16.6 | 24.1 | 28.2 | 25.8 | 22.1 | 19.2 | 24.4 | 26.6 | 28.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**SOUTH DAKOTA YEAR 2022**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,184.5 | 1,066.3 | 931.7 | 691.1 | 717.6 | 730.4 | 937.3 | 789.8 | 669.2 | 687.2 | 899.8 | 1,144.8 | 10,444.1 |
| # of Residential Customers | 6,498 | 6,497 | 6,497 | 6,501 | 6,506 | 6,503 | 6,503 | 6,509 | 6,578 | 6,563 | 6,488 | 6,478 | 6,510 |
| Total Residential Sales - MWh | 7,697 | 6,928 | 6,053 | 4,493 | 4,669 | 4,750 | 6,095 | 5,141 | 4,402 | 4,510 | 5,838 | 7,416 | 67,992 |
| Use per Small Comm & Ind Customer - kWh | 2,308.8 | 2,162.3 | 1,908.0 | 1,397.7 | 1,548.4 | 1,449.0 | 1,771.9 | 1,559.8 | 1,411.3 | 1,432.0 | 1,864.9 | 2,231.7 | 21,010.4 |
| # of Small Comm & Ind Customers | 1,891 | 1,892 | 1,892 | 1,906 | 1,922 | 1,933 | 1,933 | 1,931 | 1,967 | 1,956 | 1,909 | 1,908 | 1,920 |
| Total Small Comm & Ind Sales - MWh | 4,366 | 4,091 | 3,610 | 2,664 | 2,976 | 2,801 | 3,425 | 3,012 | 2,776 | 2,801 | 3,560 | 4,258 | 40,340 |
| Large Comm & Ind Sales | 3,271 | 3,195 | 3,091 | 2,554 | 3,350 | 2,981 | 3,436 | 3,252 | 3,272 | 3,209 | 3,687 | 3,595 | 38,893 |
| Total Sales (Residential, SC&I and LC&I) | 15,334 | 14,214 | 12,754 | 9,711 | 10,995 | 10,532 | 12,956 | 11,405 | 10,450 | 10,520 | 13,085 | 15,269 | 147,225 |
| Other Public Sales | 136 | 137 | 133 | 85 | 164 | 113 | 135 | 117 | 113 | 109 | 122 | 141 | 1,505 |
| Street & Highway Lighting Sales | 110 | 103 | 105 | 94 | 112 | 97 | 104 | 99 | 105 | 104 | 108 | 115 | 1,256 |
| Interdepartmental Sales | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Billed Sales - MWh | 15,580 | 14,454 | 12,992 | 9,890 | 11,271 | 10,742 | 13,195 | 11,621 | 10,668 | 10,733 | 13,315 | 15,525 | 149,986 |
| Company Use | 62 | 58 | 40 | 16 | 22 | 11 | 14 | 11 | 11 | 14 | 30 | 56 | 345 |
| Total Energy | 15,642 | 14,512 | 13,032 | 9,906 | 11,293 | 10,753 | 13,209 | 11,632 | 10,679 | 10,747 | 13,345 | 15,581 | 150,331 |
| Total Requirements (Energy + Losses) | 16,900 | 15,679 | 14,080 | 10,703 | 12,201 | 11,618 | 14,271 | 12,567 | 11,538 | 11,611 | 14,418 | 16,834 | 162,420 |
| # of Large Comm & Ind Customers | 111 | 111 | 111 | 111 | 112 | 112 | 112 | 112 | 114 | 114 | 113 | 113 | 112 |
| # of Other Public Customers | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 | 44 | 45 | 45 |
| # of Street & Highway Lighting Customers | 12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 20 |
| Peak Demand Net of Energy Efficiency Progs | 27.7 | 25.3 | 23.5 | 21.0 | 16.6 | 24.1 | 28.2 | 25.8 | 22.1 | 19.2 | 24.5 | 26.7 | 28.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**SOUTH DAKOTA YEAR 2023**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,184.5 | 1,066.3 | 931.8 | 691.2 | 717.7 | 730.4 | 937.3 | 789.7 | 669.3 | 687.2 | 899.8 | 1,144.6 | 10,444.1 |
| # of Residential Customers | 6,499 | 6,498 | 6,498 | 6,502 | 6,507 | 6,505 | 6,504 | 6,511 | 6,579 | 6,564 | 6,489 | 6,480 | 6,511 |
| Total Residential Sales - MWh | 7,698 | 6,929 | 6,055 | 4,494 | 4,670 | 4,751 | 6,096 | 5,142 | 4,403 | 4,511 | 5,839 | 7,417 | 68,005 |
| Use per Small Comm & Ind Customer - kWh | 2,316.0 | 2,168.7 | 1,913.8 | 1,401.7 | 1,553.0 | 1,453.7 | 1,777.8 | 1,564.4 | 1,414.9 | 1,436.2 | 1,871.3 | 2,238.1 | 21,074.1 |
| # of Small Comm & Ind Customers | 1,902 | 1,903 | 1,903 | 1,917 | 1,933 | 1,944 | 1,944 | 1,942 | 1,979 | 1,967 | 1,919 | 1,919 | 1,931 |
| Total Small Comm & Ind Sales - MWh | 4,405 | 4,127 | 3,642 | 2,687 | 3,002 | 2,826 | 3,456 | 3,038 | 2,800 | 2,825 | 3,591 | 4,295 | 40,694 |
| Large Comm & Ind Sales | 3,324 | 3,248 | 3,142 | 2,596 | 3,405 | 3,031 | 3,493 | 3,306 | 3,326 | 3,261 | 3,748 | 3,657 | 39,537 |
| Total Sales (Residential, SC&I and LC&I) | 15,427 | 14,304 | 12,839 | 9,777 | 11,077 | 10,608 | 13,045 | 11,486 | 10,529 | 10,597 | 13,178 | 15,369 | 148,236 |
| Other Public Sales | 136 | 137 | 133 | 85 | 164 | 113 | 135 | 117 | 113 | 109 | 122 | 141 | 1,505 |
| Street & Highway Lighting Sales | 110 | 103 | 105 | 94 | 112 | 97 | 104 | 99 | 105 | 104 | 108 | 115 | 1,256 |
| Interdepartmental Sales | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Billed Sales - MWh | 15,673 | 14,544 | 13,077 | 9,956 | 11,353 | 10,818 | 13,284 | 11,702 | 10,747 | 10,810 | 13,408 | 15,625 | 150,997 |
| Company Use | 62 | 58 | 40 | 16 | 22 | 11 | 14 | 11 | 11 | 14 | 30 | 56 | 345 |
| Total Energy | 15,735 | 14,602 | 13,117 | 9,972 | 11,375 | 10,829 | 13,298 | 11,713 | 10,758 | 10,824 | 13,438 | 15,681 | 151,342 |
| Total Requirements (Energy + Losses) | 17,000 | 15,776 | 14,172 | 10,774 | 12,290 | 11,700 | 14,367 | 12,655 | 11,623 | 11,694 | 14,519 | 16,942 | 163,512 |
| # of Large Comm & Ind Customers | 111 | 111 | 111 | 111 | 112 | 112 | 112 | 112 | 114 | 114 | 113 | 113 | 112 |
| # of Other Public Customers | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 | 44 | 45 | 45 |
| # of Street & Highway Lighting Customers | 12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 20 |
| Peak Demand Net of Energy Efficiency Progs | 27.8 | 25.4 | 23.6 | 21.1 | 16.6 | 24.1 | 28.2 | 25.8 | 22.1 | 19.2 | 24.6 | 26.9 | 28.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**SOUTH DAKOTA YEAR 2024**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,184.5 | 1,066.3 | 931.8 | 691.2 | 717.8 | 730.5 | 937.1 | 789.9 | 669.3 | 687.1 | 900.0 | 1,144.6 | 10,444.5 |
| # of Residential Customers | 6,499 | 6,499 | 6,498 | 6,502 | 6,507 | 6,505 | 6,505 | 6,511 | 6,579 | 6,565 | 6,489 | 6,480 | 6,512 |
| Total Residential Sales - MWh | 7,698 | 6,930 | 6,055 | 4,494 | 4,671 | 4,752 | 6,096 | 5,143 | 4,403 | 4,511 | 5,840 | 7,417 | 68,010 |
| Use per Small Comm & Ind Customer - kWh | 2,321.8 | 2,174.4 | 1,919.1 | 1,405.4 | 1,557.3 | 1,457.6 | 1,781.7 | 1,568.6 | 1,418.9 | 1,440.1 | 1,876.2 | 2,243.9 | 21,129.7 |
| # of Small Comm & Ind Customers | 1,914 | 1,915 | 1,915 | 1,929 | 1,945 | 1,956 | 1,956 | 1,954 | 1,991 | 1,979 | 1,931 | 1,931 | 1,943 |
| Total Small Comm & Ind Sales - MWh | 4,444 | 4,164 | 3,675 | 2,711 | 3,029 | 2,851 | 3,485 | 3,065 | 2,825 | 2,850 | 3,623 | 4,333 | 41,055 |
| Large Comm & Ind Sales | 3,382 | 3,305 | 3,196 | 2,640 | 3,464 | 3,083 | 3,554 | 3,363 | 3,383 | 3,318 | 3,813 | 3,720 | 40,221 |
| Total Sales (Residential, SC&I and LC&I) | 15,524 | 14,399 | 12,926 | 9,845 | 11,164 | 10,686 | 13,135 | 11,571 | 10,611 | 10,679 | 13,276 | 15,470 | 149,286 |
| Other Public Sales | 136 | 137 | 133 | 85 | 164 | 113 | 135 | 117 | 113 | 109 | 122 | 141 | 1,505 |
| Street & Highway Lighting Sales | 110 | 103 | 105 | 94 | 112 | 97 | 104 | 99 | 105 | 104 | 108 | 115 | 1,256 |
| Interdepartmental Sales | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Billed Sales - MWh | 15,770 | 14,639 | 13,164 | 10,024 | 11,440 | 10,896 | 13,374 | 11,787 | 10,829 | 10,892 | 13,506 | 15,726 | 152,047 |
| Company Use | 62 | 58 | 40 | 16 | 22 | 11 | 14 | 11 | 11 | 14 | 30 | 56 | 345 |
| Total Energy | 15,832 | 14,697 | 13,204 | 10,040 | 11,462 | 10,907 | 13,388 | 11,798 | 10,840 | 10,906 | 13,536 | 15,782 | 152,392 |
| Total Requirements (Energy + Losses) | 17,105 | 15,879 | 14,266 | 10,847 | 12,384 | 11,784 | 14,465 | 12,747 | 11,712 | 11,783 | 14,624 | 17,051 | 164,647 |
| # of Large Comm & Ind Customers | 112 | 112 | 112 | 112 | 113 | 113 | 113 | 113 | 115 | 115 | 114 | 114 | 113 |
| # of Other Public Customers | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 | 44 | 45 | 45 |
| # of Street & Highway Lighting Customers | 12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 20 |
| Peak Demand Net of Energy Efficiency Progs | 28.0 | 25.6 | 23.8 | 21.3 | 16.5 | 23.9 | 28.0 | 25.6 | 21.9 | 19.1 | 24.8 | 27 | 28 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**SOUTH DAKOTA YEAR 2025**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,184.5 | 1,066.3 | 931.8 | 691.2 | 717.8 | 730.5 | 937.1 | 789.9 | 669.3 | 687.1 | 900.0 | 1,144.4 | 10,444.3 |
| # of Residential Customers | 6,499 | 6,499 | 6,498 | 6,502 | 6,507 | 6,505 | 6,505 | 6,511 | 6,579 | 6,565 | 6,489 | 6,480 | 6,512 |
| Total Residential Sales - MWh | 7,698 | 6,930 | 6,055 | 4,494 | 4,671 | 4,752 | 6,096 | 5,143 | 4,403 | 4,511 | 5,840 | 7,416 | 68,009 |
| Use per Small Comm & Ind Customer - kWh | 2,328.8 | 2,181.8 | 1,925.7 | 1,410.3 | 1,562.4 | 1,462.1 | 1,787.5 | 1,573.5 | 1,423.6 | 1,445.2 | 1,882.1 | 2,248.7 | 21,196.3 |
| # of Small Comm & Ind Customers | 1,925 | 1,925 | 1,925 | 1,940 | 1,956 | 1,967 | 1,967 | 1,965 | 2,002 | 1,990 | 1,942 | 1,942 | 1,954 |
| Total Small Comm & Ind Sales - MWh | 4,483 | 4,200 | 3,707 | 2,736 | 3,056 | 2,876 | 3,516 | 3,092 | 2,850 | 2,876 | 3,655 | 4,367 | 41,414 |
| Large Comm & Ind Sales | 3,441 | 3,362 | 3,252 | 2,687 | 3,525 | 3,137 | 3,616 | 3,421 | 3,442 | 3,376 | 3,879 | 3,782 | 40,920 |
| Total Sales (Residential, SC&I and LC&I) | 15,622 | 14,492 | 13,014 | 9,917 | 11,252 | 10,765 | 13,228 | 11,656 | 10,695 | 10,763 | 13,374 | 15,565 | 150,343 |
| Other Public Sales | 136 | 137 | 133 | 85 | 164 | 113 | 135 | 117 | 113 | 109 | 122 | 141 | 1,505 |
| Street & Highway Lighting Sales | 110 | 103 | 105 | 94 | 112 | 97 | 104 | 99 | 105 | 104 | 108 | 115 | 1,256 |
| Interdepartmental Sales | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Billed Sales - MWh | 15,868 | 14,732 | 13,252 | 10,096 | 11,528 | 10,975 | 13,467 | 11,872 | 10,913 | 10,976 | 13,604 | 15,821 | 153,104 |
| Company Use | 62 | 58 | 40 | 16 | 22 | 11 | 14 | 11 | 11 | 14 | 30 | 56 | 345 |
| Total Energy | 15,930 | 14,790 | 13,292 | 10,112 | 11,550 | 10,986 | 13,481 | 11,883 | 10,924 | 10,990 | 13,634 | 15,877 | 153,449 |
| Total Requirements (Energy + Losses) | 17,211 | 15,979 | 14,361 | 10,925 | 12,479 | 11,869 | 14,565 | 12,839 | 11,802 | 11,874 | 14,730 | 17,154 | 165,788 |
| # of Large Comm & Ind Customers | 113 | 113 | 113 | 113 | 114 | 114 | 114 | 114 | 116 | 116 | 115 | 115 | 114 |
| # of Other Public Customers | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 | 44 | 45 | 45 |
| # of Street & Highway Lighting Customers | 12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 20 |
| Peak Demand Net of Energy Efficiency Progs | 28.2 | 25.8 | 23.9 | 21.4 | 16.6 | 24.1 | 28.2 | 25.8 | 22.1 | 19.2 | 25.0 | 27.3 | 28.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**SOUTH DAKOTA YEAR 2026**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,184.5 | 1,066.3 | 931.8 | 691.2 | 717.7 | 730.4 | 937.3 | 789.7 | 669.3 | 687.2 | 899.8 | 1,144.5 | 10,443.9 |
| # of Residential Customers | 6,499 | 6,498 | 6,498 | 6,502 | 6,507 | 6,505 | 6,504 | 6,511 | 6,579 | 6,564 | 6,489 | 6,479 | 6,511 |
| Total Residential Sales - MWh | 7,698 | 6,929 | 6,055 | 4,494 | 4,670 | 4,751 | 6,096 | 5,142 | 4,403 | 4,511 | 5,839 | 7,415 | 68,003 |
| Use per Small Comm & Ind Customer - kWh | 2,334.4 | 2,186.5 | 1,929.2 | 1,413.1 | 1,565.3 | 1,465.1 | 1,791.7 | 1,576.9 | 1,426.0 | 1,447.6 | 1,886.3 | 2,255.5 | 21,241.6 |
| # of Small Comm & Ind Customers | 1,935 | 1,936 | 1,936 | 1,951 | 1,967 | 1,978 | 1,978 | 1,976 | 2,014 | 2,002 | 1,953 | 1,953 | 1,965 |
| Total Small Comm & Ind Sales - MWh | 4,517 | 4,233 | 3,735 | 2,757 | 3,079 | 2,898 | 3,544 | 3,116 | 2,872 | 2,898 | 3,684 | 4,405 | 41,738 |
| Large Comm & Ind Sales | 3,498 | 3,417 | 3,305 | 2,731 | 3,582 | 3,188 | 3,676 | 3,477 | 3,499 | 3,431 | 3,943 | 3,847 | 41,594 |
| Total Sales (Residential, SC&I and LC&I) | 15,713 | 14,579 | 13,095 | 9,982 | 11,331 | 10,837 | 13,316 | 11,735 | 10,774 | 10,840 | 13,466 | 15,667 | 151,335 |
| Other Public Sales | 136 | 137 | 133 | 85 | 164 | 113 | 135 | 117 | 113 | 109 | 122 | 141 | 1,505 |
| Street & Highway Lighting Sales | 110 | 103 | 105 | 94 | 112 | 97 | 104 | 99 | 105 | 104 | 108 | 115 | 1,256 |
| Interdepartmental Sales | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Billed Sales - MWh | 15,959 | 14,819 | 13,333 | 10,161 | 11,607 | 11,047 | 13,555 | 11,951 | 10,992 | 11,053 | 13,696 | 15,923 | 154,096 |
| Company Use | 62 | 58 | 40 | 16 | 22 | 11 | 14 | 11 | 11 | 14 | 30 | 56 | 345 |
| Total Energy | 16,021 | 14,877 | 13,373 | 10,177 | 11,629 | 11,058 | 13,569 | 11,962 | 11,003 | 11,067 | 13,726 | 15,979 | 154,441 |
| Total Requirements (Energy + Losses) | 17,309 | 16,073 | 14,448 | 10,995 | 12,564 | 11,947 | 14,660 | 12,924 | 11,888 | 11,957 | 14,830 | 17,264 | 166,859 |
| # of Large Comm & Ind Customers | 113 | 113 | 113 | 113 | 114 | 114 | 114 | 114 | 116 | 116 | 115 | 115 | 114 |
| # of Other Public Customers | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 | 44 | 45 | 45 |
| # of Street & Highway Lighting Customers | 12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 20 |
| Peak Demand Net of Energy Efficiency Progs | 28.4 | 25.9 | 24.1 | 21.6 | 16.7 | 24.3 | 28.4 | 26.0 | 22.2 | 19.3 | 25.2 | 27.5 | 28.4 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**SOUTH DAKOTA YEAR 2027**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,184.5 | 1,066.3 | 931.7 | 691.1 | 717.8 | 730.3 | 937.3 | 789.9 | 669.2 | 687.2 | 900.0 | 1,144.3 | 10,443.9 |
| # of Residential Customers | 6,498 | 6,497 | 6,497 | 6,501 | 6,506 | 6,504 | 6,503 | 6,510 | 6,578 | 6,563 | 6,488 | 6,479 | 6,510 |
| Total Residential Sales - MWh | 7,697 | 6,928 | 6,053 | 4,493 | 4,670 | 4,750 | 6,095 | 5,142 | 4,402 | 4,510 | 5,839 | 7,414 | 67,993 |
| Use per Small Comm & Ind Customer - kWh | 2,343.4 | 2,194.2 | 1,936.3 | 1,418.2 | 1,571.1 | 1,469.6 | 1,796.9 | 1,582.6 | 1,431.8 | 1,452.8 | 1,892.5 | 2,263.9 | 21,317.1 |
| # of Small Comm & Ind Customers | 1,945 | 1,946 | 1,946 | 1,961 | 1,977 | 1,989 | 1,989 | 1,986 | 2,024 | 2,012 | 1,963 | 1,963 | 1,975 |
| Total Small Comm & Ind Sales - MWh | 4,558 | 4,270 | 3,768 | 2,781 | 3,106 | 2,923 | 3,574 | 3,143 | 2,898 | 2,923 | 3,715 | 4,444 | 42,103 |
| Large Comm & Ind Sales | 3,559 | 3,476 | 3,362 | 2,778 | 3,645 | 3,244 | 3,740 | 3,538 | 3,559 | 3,491 | 4,012 | 3,914 | 42,318 |
| Total Sales (Residential, SC&I and LC&I) | 15,814 | 14,674 | 13,183 | 10,052 | 11,421 | 10,917 | 13,409 | 11,823 | 10,859 | 10,924 | 13,566 | 15,772 | 152,414 |
| Other Public Sales | 136 | 137 | 133 | 85 | 164 | 113 | 135 | 117 | 113 | 109 | 122 | 141 | 1,505 |
| Street & Highway Lighting Sales | 110 | 103 | 105 | 94 | 112 | 97 | 104 | 99 | 105 | 104 | 108 | 115 | 1,256 |
| Interdepartmental Sales | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Billed Sales - MWh | 16,060 | 14,914 | 13,421 | 10,231 | 11,697 | 11,127 | 13,648 | 12,039 | 11,077 | 11,137 | 13,796 | 16,028 | 155,175 |
| Company Use | 62 | 58 | 40 | 16 | 22 | 11 | 14 | 11 | 11 | 14 | 30 | 56 | 345 |
| Total Energy | 16,122 | 14,972 | 13,461 | 10,247 | 11,719 | 11,138 | 13,662 | 12,050 | 11,088 | 11,151 | 13,826 | 16,084 | 155,520 |
| Total Requirements (Energy + Losses) | 17,418 | 16,176 | 14,543 | 11,071 | 12,661 | 12,034 | 14,761 | 13,019 | 11,980 | 12,048 | 14,938 | 17,377 | 168,026 |
| # of Large Comm & Ind Customers | 114 | 114 | 114 | 114 | 115 | 115 | 115 | 115 | 117 | 117 | 116 | 116 | 115 |
| # of Other Public Customers | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 | 44 | 45 | 45 |
| # of Street & Highway Lighting Customers | 12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 20 |
| Peak Demand Net of Energy Efficiency Progs | 28.6 | 26.1 | 24.3 | 21.7 | 16.9 | 24.5 | 28.7 | 26.2 | 22.5 | 19.5 | 25.3 | 27.7 | 28.7 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**SOUTH DAKOTA YEAR 2028**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,184.6 | 1,066.3 | 931.7 | 691.1 | 717.8 | 730.4 | 937.1 | 790.0 | 669.3 | 687.1 | 900.1 | 1,144.4 | 10,444.0 |
| # of Residential Customers | 6,496 | 6,496 | 6,496 | 6,500 | 6,505 | 6,502 | 6,502 | 6,508 | 6,576 | 6,562 | 6,486 | 6,477 | 6,509 |
| Total Residential Sales - MWh | 7,695 | 6,927 | 6,052 | 4,492 | 4,669 | 4,749 | 6,093 | 5,141 | 4,401 | 4,509 | 5,838 | 7,412 | 67,978 |
| Use per Small Comm & Ind Customer - kWh | 2,353.1 | 2,203.6 | 1,944.8 | 1,424.4 | 1,578.0 | 1,476.0 | 1,804.8 | 1,589.5 | 1,437.8 | 1,459.2 | 1,900.6 | 2,274.5 | 21,409.8 |
| # of Small Comm & Ind Customers | 1,954 | 1,955 | 1,955 | 1,970 | 1,986 | 1,998 | 1,998 | 1,995 | 2,033 | 2,021 | 1,972 | 1,971 | 1,984 |
| Total Small Comm & Ind Sales - MWh | 4,598 | 4,308 | 3,802 | 2,806 | 3,134 | 2,949 | 3,606 | 3,171 | 2,923 | 2,949 | 3,748 | 4,483 | 42,477 |
| Large Comm & Ind Sales | 3,621 | 3,537 | 3,422 | 2,827 | 3,708 | 3,300 | 3,805 | 3,600 | 3,622 | 3,552 | 4,082 | 3,982 | 43,058 |
| Total Sales (Residential, SC&I and LC&I) | 15,914 | 14,772 | 13,276 | 10,125 | 11,511 | 10,998 | 13,504 | 11,912 | 10,946 | 11,010 | 13,668 | 15,877 | 153,513 |
| Other Public Sales | 136 | 137 | 133 | 85 | 164 | 113 | 135 | 117 | 113 | 109 | 122 | 141 | 1,505 |
| Street & Highway Lighting Sales | 110 | 103 | 105 | 94 | 112 | 97 | 104 | 99 | 105 | 104 | 108 | 115 | 1,256 |
| Interdepartmental Sales | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Billed Sales - MWh | 16,160 | 15,012 | 13,514 | 10,304 | 11,787 | 11,208 | 13,743 | 12,128 | 11,164 | 11,223 | 13,898 | 16,133 | 156,274 |
| Company Use | 62 | 58 | 40 | 16 | 22 | 11 | 14 | 11 | 11 | 14 | 30 | 56 | 345 |
| Total Energy | 16,222 | 15,070 | 13,554 | 10,320 | 11,809 | 11,219 | 13,757 | 12,139 | 11,175 | 11,237 | 13,928 | 16,189 | 156,619 |
| Total Requirements (Energy + Losses) | 17,526 | 16,282 | 14,644 | 11,150 | 12,759 | 12,121 | 14,863 | 13,115 | 12,074 | 12,141 | 15,048 | 17,491 | 169,214 |
| # of Large Comm & Ind Customers | 114 | 114 | 114 | 114 | 115 | 115 | 115 | 115 | 117 | 117 | 116 | 116 | 115 |
| # of Other Public Customers | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 | 44 | 45 | 45 |
| # of Street & Highway Lighting Customers | 12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 20 |
| Peak Demand Net of Energy Efficiency Progs | 28.8 | 26.3 | 24.4 | 21.9 | 17.0 | 24.7 | 28.9 | 26.4 | 22.6 | 19.7 | 25.5 | 27.9 | 28.9 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**SOUTH DAKOTA YEAR 2029**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,184.6 | 1,066.4 | 931.8 | 691.1 | 717.7 | 730.3 | 937.2 | 789.8 | 669.2 | 687.2 | 899.9 | 1,144.4 | 10,443.9 |
| # of Residential Customers | 6,495 | 6,494 | 6,494 | 6,498 | 6,503 | 6,501 | 6,500 | 6,507 | 6,575 | 6,560 | 6,485 | 6,475 | 6,507 |
| Total Residential Sales - MWh | 7,694 | 6,925 | 6,051 | 4,491 | 4,667 | 4,748 | 6,092 | 5,139 | 4,400 | 4,508 | 5,836 | 7,410 | 67,961 |
| Use per Small Comm & Ind Customer - kWh | 2,361.5 | 2,211.2 | 1,951.7 | 1,429.8 | 1,584.2 | 1,482.1 | 1,811.8 | 1,595.5 | 1,443.5 | 1,464.8 | 1,908.2 | 2,283.2 | 21,491.0 |
| # of Small Comm & Ind Customers | 1,964 | 1,965 | 1,965 | 1,980 | 1,996 | 2,008 | 2,008 | 2,005 | 2,043 | 2,031 | 1,982 | 1,981 | 1,994 |
| Total Small Comm & Ind Sales - MWh | 4,638 | 4,345 | 3,835 | 2,831 | 3,162 | 2,976 | 3,638 | 3,199 | 2,949 | 2,975 | 3,782 | 4,523 | 42,853 |
| Large Comm & Ind Sales | 3,684 | 3,599 | 3,481 | 2,876 | 3,773 | 3,358 | 3,871 | 3,663 | 3,685 | 3,614 | 4,153 | 4,052 | 43,809 |
| Total Sales (Residential, SC&I and LC&I) | 16,016 | 14,869 | 13,367 | 10,198 | 11,602 | 11,082 | 13,601 | 12,001 | 11,034 | 11,097 | 13,771 | 15,985 | 154,623 |
| Other Public Sales | 136 | 137 | 133 | 85 | 164 | 113 | 135 | 117 | 113 | 109 | 122 | 141 | 1,505 |
| Street & Highway Lighting Sales | 110 | 103 | 105 | 94 | 112 | 97 | 104 | 99 | 105 | 104 | 108 | 115 | 1,256 |
| Interdepartmental Sales | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Billed Sales - MWh | 16,262 | 15,109 | 13,605 | 10,377 | 11,878 | 11,292 | 13,840 | 12,217 | 11,252 | 11,310 | 14,001 | 16,241 | 157,384 |
| Company Use | 62 | 58 | 40 | 16 | 22 | 11 | 14 | 11 | 11 | 14 | 30 | 56 | 345 |
| Total Energy | 16,324 | 15,167 | 13,645 | 10,393 | 11,900 | 11,303 | 13,854 | 12,228 | 11,263 | 11,324 | 14,031 | 16,297 | 157,729 |
| Total Requirements (Energy + Losses) | 17,637 | 16,387 | 14,742 | 11,229 | 12,857 | 12,212 | 14,968 | 13,211 | 12,169 | 12,235 | 15,159 | 17,607 | 170,413 |
| # of Large Comm & Ind Customers | 115 | 115 | 115 | 115 | 116 | 116 | 116 | 116 | 118 | 118 | 117 | 117 | 116 |
| # of Other Public Customers | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 | 44 | 45 | 45 |
| # of Street & Highway Lighting Customers | 12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 20 |
| Peak Demand Net of Energy Efficiency Progs | 29.0 | 26.5 | 24.6 | 22.0 | 17.2 | 25.0 | 29.2 | 26.7 | 22.9 | 19.9 | 25.7 | 28.1 | 29.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**SOUTH DAKOTA YEAR 2030**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,184.5 | 1,066.2 | 931.8 | 691.0 | 717.6 | 730.4 | 937.2 | 790.0 | 669.3 | 687.3 | 899.9 | 1,144.4 | 10,443.8 |
| # of Residential Customers | 6,493 | 6,492 | 6,492 | 6,496 | 6,501 | 6,498 | 6,498 | 6,504 | 6,573 | 6,558 | 6,483 | 6,473 | 6,505 |
| Total Residential Sales - MWh | 7,691 | 6,922 | 6,049 | 4,489 | 4,665 | 4,746 | 6,090 | 5,138 | 4,399 | 4,507 | 5,834 | 7,408 | 67,938 |
| Use per Small Comm & Ind Customer - kWh | 2,371.5 | 2,221.4 | 1,960.0 | 1,435.4 | 1,590.5 | 1,488.3 | 1,819.5 | 1,602.8 | 1,449.1 | 1,471.1 | 1,916.1 | 2,292.5 | 21,581.7 |
| # of Small Comm & Ind Customers | 1,973 | 1,974 | 1,974 | 1,989 | 2,005 | 2,017 | 2,017 | 2,014 | 2,053 | 2,040 | 1,991 | 1,990 | 2,003 |
| Total Small Comm & Ind Sales - MWh | 4,679 | 4,385 | 3,869 | 2,855 | 3,189 | 3,002 | 3,670 | 3,228 | 2,975 | 3,001 | 3,815 | 4,562 | 43,230 |
| Large Comm & Ind Sales | 3,748 | 3,662 | 3,542 | 2,927 | 3,839 | 3,417 | 3,938 | 3,726 | 3,749 | 3,677 | 4,225 | 4,122 | 44,572 |
| Total Sales (Residential, SC&I and LC&I) | 16,118 | 14,969 | 13,460 | 10,271 | 11,693 | 11,165 | 13,698 | 12,092 | 11,123 | 11,185 | 13,874 | 16,092 | 155,740 |
| Other Public Sales | 136 | 137 | 133 | 85 | 164 | 113 | 135 | 117 | 113 | 109 | 122 | 141 | 1,505 |
| Street & Highway Lighting Sales | 110 | 103 | 105 | 94 | 112 | 97 | 104 | 99 | 105 | 104 | 108 | 115 | 1,256 |
| Interdepartmental Sales | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Billed Sales - MWh | 16,364 | 15,209 | 13,698 | 10,450 | 11,969 | 11,375 | 13,937 | 12,308 | 11,341 | 11,398 | 14,104 | 16,348 | 158,501 |
| Company Use | 62 | 58 | 40 | 16 | 22 | 11 | 14 | 11 | 11 | 14 | 30 | 56 | 345 |
| Total Energy | 16,426 | 15,267 | 13,738 | 10,466 | 11,991 | 11,386 | 13,951 | 12,319 | 11,352 | 11,412 | 14,134 | 16,404 | 158,846 |
| Total Requirements (Energy + Losses) | 17,747 | 16,495 | 14,843 | 11,308 | 12,955 | 12,302 | 15,073 | 13,310 | 12,265 | 12,330 | 15,271 | 17,723 | 171,622 |
| # of Large Comm & Ind Customers | 115 | 115 | 115 | 115 | 116 | 116 | 116 | 116 | 118 | 118 | 117 | 117 | 116 |
| # of Other Public Customers | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 | 44 | 45 | 45 |
| # of Street & Highway Lighting Customers | 12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 20 |
| Peak Demand Net of Energy Efficiency Progs | 29.2 | 26.7 | 24.8 | 22.2 | 17.3 | 25.1 | 29.4 | 26.9 | 23.0 | 20.0 | 25.9 | 28.3 | 29.4 |

# APPENDIX G

# Monthly Forecasts – Integrated System (2021-2030)

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**INTEGRATED SYSTEM YEAR 2021**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,089.2 | 965.8 | 864.2 | 672.4 | 633.2 | 704.6 | 868.0 | 787.9 | 646.5 | 659.0 | 813.3 | 1,023.4 | 9,727.3 |
| # of Residential Customers | 105,191 | 105,350 | 105,409 | 105,324 | 105,317 | 105,376 | 105,377 | 105,503 | 105,614 | 105,656 | 105,717 | 105,819 | 105,471 |
| Total Residential Sales - MWh | 114,570 | 101,752 | 91,090 | 70,819 | 66,688 | 74,245 | 91,472 | 83,125 | 68,279 | 69,632 | 85,976 | 108,300 | 1,025,948 |
| Use per Small Comm & Ind Customer - kWh | 3,884.5 | 3,610.7 | 3,530.4 | 2,947.8 | 2,869.3 | 2,949.4 | 3,343.4 | 3,233.7 | 2,928.2 | 2,978.4 | 3,296.5 | 3,784.1 | 39,334.8 |
| # of Small Comm & Ind Customers | 19,391 | 19,408 | 19,420 | 19,511 | 19,612 | 19,660 | 19,678 | 19,677 | 19,882 | 19,812 | 19,554 | 19,535 | 19,595 |
| Total Small Comm & Ind Sales - MWh | 75,324 | 70,076 | 68,560 | 57,515 | 56,273 | 57,986 | 65,792 | 63,629 | 58,219 | 59,009 | 64,459 | 73,923 | 770,765 |
| Large Comm & Ind Sales | 107,250 | 98,893 | 104,946 | 95,007 | 99,772 | 95,969 | 105,377 | 103,730 | 100,869 | 100,081 | 101,281 | 108,690 | 1,221,865 |
| Total Sales (Residential, SC&I and LC&I) | 297,144 | 270,721 | 264,596 | 223,341 | 222,733 | 228,200 | 262,641 | 250,484 | 227,367 | 228,722 | 251,716 | 290,913 | 3,018,578 |
| Other Public Sales | 577 | 558 | 564 | 483 | 591 | 670 | 802 | 708 | 607 | 481 | 477 | 565 | 7,083 |
| Street & Highway Lighting Sales | 4,700 | 4,351 | 4,596 | 4,309 | 4,839 | 5,127 | 5,919 | 5,611 | 4,756 | 4,446 | 4,405 | 4,778 | 57,837 |
| Interdepartmental Sales | 1,426 | 1,257 | 1,298 | 1,161 | 1,110 | 1,027 | 1,080 | 1,109 | 1,161 | 1,257 | 1,329 | 1,450 | 14,665 |
| Total Billed Sales - MWh | 303,847 | 276,887 | 271,054 | 229,294 | 229,273 | 235,024 | 270,442 | 257,912 | 233,891 | 234,906 | 257,927 | 297,706 | 3,098,163 |
| Company Use | 528 | 495 | 502 | 424 | 430 | 432 | 482 | 465 | 427 | 428 | 439 | 515 | 5,567 |
| Total Energy | 304,375 | 277,382 | 271,556 | 229,718 | 229,703 | 235,456 | 270,924 | 258,377 | 234,318 | 235,334 | 258,366 | 298,221 | 3,103,730 |
| Total Requirements (Energy + Losses) | 328,869 | 299,703 | 293,409 | 248,204 | 248,188 | 254,401 | 292,722 | 279,165 | 253,171 | 254,271 | 279,156 | 322,219 | 3,353,478 |
| # of Large Comm & Ind Customers | 1,601 | 1,605 | 1,614 | 1,626 | 1,640 | 1,650 | 1,659 | 1,674 | 1,711 | 1,707 | 1,677 | 1,675 | 1,653 |
| # of Other Public Customers | 737 | 736 | 737 | 740 | 741 | 741 | 740 | 740 | 751 | 746 | 731 | 728 | 739 |
| # of Street & Highway Lighting Customers | 575 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 584 | 584 | 584 | 583 |
| Peak Demand Net of Energy Efficiency Progs | 563.3 | 520.7 | 465.1 | 431.3 | 403.6 | 525.3 | 586.0 | 558.7 | 503.0 | 439.8 | 497.1 | 555.8 | 586.0 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**INTEGRATED SYSTEM YEAR 2022**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,089.2 | 965.9 | 864.2 | 672.4 | 633.2 | 704.6 | 868.0 | 787.9 | 646.5 | 659.1 | 813.3 | 1,025.5 | 9,729.5 |
| # of Residential Customers | 105,442 | 105,601 | 105,660 | 105,575 | 105,569 | 105,628 | 105,629 | 105,755 | 105,866 | 105,908 | 105,971 | 106,072 | 105,723 |
| Total Residential Sales - MWh | 114,848 | 101,999 | 91,310 | 70,991 | 66,849 | 74,421 | 91,687 | 83,321 | 68,441 | 69,800 | 86,184 | 108,780 | 1,028,631 |
| Use per Small Comm & Ind Customer - kWh | 3,917.3 | 3,641.2 | 3,560.4 | 2,973.2 | 2,893.8 | 2,974.8 | 3,372.0 | 3,261.3 | 2,953.4 | 3,004.1 | 3,324.5 | 3,816.8 | 39,671.0 |
| # of Small Comm & Ind Customers | 19,550 | 19,567 | 19,579 | 19,670 | 19,772 | 19,820 | 19,838 | 19,838 | 20,044 | 19,973 | 19,714 | 19,695 | 19,755 |
| Total Small Comm & Ind Sales - MWh | 76,583 | 71,248 | 69,710 | 58,483 | 57,216 | 58,960 | 66,893 | 64,697 | 59,197 | 60,001 | 65,540 | 75,172 | 783,700 |
| Large Comm & Ind Sales | 111,301 | 102,535 | 108,886 | 98,666 | 103,739 | 99,537 | 110,022 | 108,291 | 105,375 | 106,159 | 107,271 | 114,422 | 1,276,204 |
| Total Sales (Residential, SC&I and LC&I) | 302,732 | 275,782 | 269,906 | 228,140 | 227,804 | 232,918 | 268,602 | 256,309 | 233,013 | 235,960 | 258,995 | 298,374 | 3,088,535 |
| Other Public Sales | 4,958 | 4,627 | 4,871 | 4,523 | 5,168 | 5,562 | 6,492 | 6,085 | 5,112 | 4,670 | 4,612 | 5,026 | 61,706 |
| Street & Highway Lighting Sales | 1,816 | 1,604 | 1,658 | 1,497 | 1,451 | 1,349 | 1,410 | 1,438 | 1,489 | 1,585 | 1,667 | 1,839 | 18,803 |
| Interdepartmental Sales | 35 | 32 | 31 | 27 | 25 | 22 | 25 | 23 | 24 | 25 | 29 | 32 | 330 |
| Total Billed Sales - MWh | 309,541 | 282,045 | 276,466 | 234,187 | 234,448 | 239,851 | 276,529 | 263,855 | 239,638 | 242,240 | 265,303 | 305,271 | 3,169,374 |
| Company Use | 528 | 495 | 502 | 424 | 430 | 432 | 482 | 465 | 427 | 428 | 439 | 515 | 5,567 |
| Total Energy | 310,069 | 282,540 | 276,968 | 234,611 | 234,878 | 240,283 | 277,011 | 264,320 | 240,065 | 242,668 | 265,742 | 305,786 | 3,174,941 |
| Total Requirements (Energy + Losses) | 335,002 | 305,259 | 299,240 | 253,477 | 253,765 | 259,605 | 299,286 | 285,574 | 259,369 | 262,180 | 287,110 | 330,374 | 3,430,241 |
| # of Large Comm & Ind Customers | 1,615 | 1,619 | 1,629 | 1,641 | 1,655 | 1,665 | 1,674 | 1,689 | 1,726 | 1,723 | 1,692 | 1,690 | 1,668 |
| # of Other Public Customers | 737 | 736 | 737 | 740 | 741 | 741 | 740 | 740 | 751 | 746 | 731 | 728 | 739 |
| # of Street & Highway Lighting Customers | 575 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 584 | 584 | 584 | 583 |
| Peak Demand Net of Energy Efficiency Progs | 575.2 | 531.8 | 474.9 | 440.5 | 410.4 | 533.9 | 595.9 | 568.0 | 511.1 | 447.1 | 508.4 | 568.4 | 595.9 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**INTEGRATED SYSTEM YEAR 2023**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,089.3 | 966.0 | 864.3 | 672.5 | 633.3 | 704.5 | 868.0 | 787.8 | 646.5 | 659.1 | 813.3 | 1,025.6 | 9,729.9 |
| # of Residential Customers | 105,995 | 106,156 | 106,216 | 106,130 | 106,123 | 106,185 | 106,185 | 106,313 | 106,423 | 106,465 | 106,529 | 106,632 | 106,279 |
| Total Residential Sales - MWh | 115,461 | 102,543 | 91,798 | 71,369 | 67,206 | 74,810 | 92,165 | 83,758 | 68,801 | 70,172 | 86,645 | 109,357 | 1,034,085 |
| Use per Small Comm & Ind Customer - kWh | 3,952.3 | 3,673.6 | 3,592.5 | 2,999.9 | 2,920.0 | 3,001.5 | 3,402.3 | 3,290.7 | 2,979.6 | 3,031.3 | 3,354.4 | 3,848.2 | 40,024.1 |
| # of Small Comm & Ind Customers | 19,705 | 19,723 | 19,734 | 19,827 | 19,928 | 19,978 | 19,995 | 19,995 | 20,205 | 20,131 | 19,870 | 19,851 | 19,912 |
| Total Small Comm & Ind Sales - MWh | 77,881 | 72,454 | 70,894 | 59,479 | 58,189 | 59,963 | 68,028 | 65,797 | 60,203 | 61,023 | 66,652 | 76,391 | 796,954 |
| Large Comm & Ind Sales | 117,991 | 108,583 | 115,519 | 104,993 | 110,352 | 105,835 | 115,902 | 114,126 | 111,060 | 110,449 | 111,500 | 119,650 | 1,345,960 |
| Total Sales (Residential, SC&I and LC&I) | 311,333 | 283,580 | 278,211 | 235,841 | 235,747 | 240,608 | 276,095 | 263,681 | 240,064 | 241,644 | 264,797 | 305,398 | 3,176,999 |
| Other Public Sales | 5,045 | 4,709 | 4,957 | 4,603 | 5,259 | 5,658 | 6,605 | 6,193 | 5,201 | 4,753 | 4,695 | 5,066 | 62,744 |
| Street & Highway Lighting Sales | 1,816 | 1,604 | 1,658 | 1,497 | 1,451 | 1,349 | 1,410 | 1,438 | 1,489 | 1,585 | 1,667 | 1,839 | 18,803 |
| Interdepartmental Sales | 35 | 32 | 31 | 27 | 25 | 22 | 25 | 23 | 24 | 25 | 29 | 32 | 330 |
| Total Billed Sales - MWh | 318,229 | 289,925 | 284,857 | 241,968 | 242,482 | 247,637 | 284,135 | 271,335 | 246,778 | 248,007 | 271,188 | 312,335 | 3,258,876 |
| Company Use | 528 | 495 | 502 | 424 | 430 | 432 | 482 | 465 | 427 | 428 | 439 | 515 | 5,567 |
| Total Energy | 318,757 | 290,420 | 285,359 | 242,392 | 242,912 | 248,069 | 284,617 | 271,800 | 247,205 | 248,435 | 271,627 | 312,850 | 3,264,443 |
| Total Requirements (Energy + Losses) | 344,388 | 313,772 | 308,305 | 261,883 | 262,445 | 268,016 | 307,503 | 293,656 | 267,083 | 268,411 | 293,469 | 338,006 | 3,526,937 |
| # of Large Comm & Ind Customers | 1,630 | 1,634 | 1,643 | 1,656 | 1,669 | 1,680 | 1,689 | 1,704 | 1,742 | 1,738 | 1,707 | 1,706 | 1,683 |
| # of Other Public Customers | 737 | 736 | 737 | 740 | 741 | 741 | 740 | 740 | 751 | 746 | 731 | 728 | 739 |
| # of Street & Highway Lighting Customers | 575 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 584 | 584 | 584 | 583 |
| Peak Demand Net of Energy Efficiency Progs | 588.2 | 543.8 | 485.7 | 450.5 | 418.2 | 543.8 | 607.4 | 578.9 | 520.5 | 455.7 | 522.6 | 584.2 | 607.4 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**INTEGRATED SYSTEM YEAR 2024**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,089.4 | 966.0 | 864.3 | 672.5 | 633.3 | 704.5 | 867.9 | 787.8 | 646.5 | 659.1 | 813.4 | 1,025.6 | 9,730.3 |
| # of Residential Customers | 106,548 | 106,711 | 106,770 | 106,684 | 106,677 | 106,739 | 106,740 | 106,868 | 106,979 | 107,023 | 107,086 | 107,190 | 106,835 |
| Total Residential Sales - MWh | 116,073 | 103,088 | 92,284 | 71,745 | 67,563 | 75,199 | 92,641 | 84,194 | 69,160 | 70,543 | 87,106 | 109,934 | 1,039,530 |
| Use per Small Comm & Ind Customer - kWh | 3,983.2 | 3,702.3 | 3,620.7 | 3,023.7 | 2,942.9 | 3,025.1 | 3,428.9 | 3,316.6 | 3,003.2 | 3,055.2 | 3,380.7 | 3,879.5 | 40,340.0 |
| # of Small Comm & Ind Customers | 19,862 | 19,880 | 19,891 | 19,984 | 20,086 | 20,137 | 20,154 | 20,154 | 20,365 | 20,291 | 20,028 | 20,009 | 20,070 |
| Total Small Comm & Ind Sales - MWh | 79,114 | 73,602 | 72,020 | 60,426 | 59,112 | 60,916 | 69,107 | 66,843 | 61,161 | 61,993 | 67,709 | 77,625 | 809,628 |
| Large Comm & Ind Sales | 125,280 | 115,541 | 122,855 | 111,866 | 117,513 | 112,752 | 123,233 | 121,450 | 118,176 | 117,647 | 118,515 | 126,761 | 1,431,589 |
| Total Sales (Residential, SC&I and LC&I) | 320,467 | 292,231 | 287,159 | 244,037 | 244,188 | 248,867 | 284,981 | 272,487 | 248,497 | 250,183 | 273,330 | 314,320 | 3,280,747 |
| Other Public Sales | 5,055 | 4,718 | 4,967 | 4,613 | 5,270 | 5,670 | 6,618 | 6,206 | 5,212 | 4,763 | 4,704 | 5,076 | 62,872 |
| Street & Highway Lighting Sales | 1,816 | 1,604 | 1,658 | 1,497 | 1,451 | 1,349 | 1,410 | 1,438 | 1,489 | 1,585 | 1,667 | 1,839 | 18,803 |
| Interdepartmental Sales | 35 | 32 | 31 | 27 | 25 | 22 | 25 | 23 | 24 | 25 | 29 | 32 | 330 |
| Total Billed Sales - MWh | 327,373 | 298,585 | 293,815 | 250,174 | 250,934 | 255,908 | 293,034 | 280,154 | 255,222 | 256,556 | 279,730 | 321,267 | 3,362,752 |
| Company Use | 528 | 495 | 502 | 424 | 430 | 432 | 482 | 465 | 427 | 428 | 439 | 515 | 5,567 |
| Total Energy | 327,901 | 299,080 | 294,317 | 250,598 | 251,364 | 256,340 | 293,516 | 280,619 | 255,649 | 256,984 | 280,169 | 321,782 | 3,368,319 |
| Total Requirements (Energy + Losses) | 354,267 | 323,129 | 317,983 | 270,749 | 271,576 | 276,952 | 317,119 | 303,184 | 276,206 | 277,648 | 302,697 | 347,656 | 3,639,166 |
| # of Large Comm & Ind Customers | 1,644 | 1,648 | 1,658 | 1,670 | 1,684 | 1,695 | 1,704 | 1,719 | 1,757 | 1,754 | 1,722 | 1,721 | 1,698 |
| # of Other Public Customers | 737 | 736 | 737 | 740 | 741 | 741 | 740 | 740 | 751 | 746 | 731 | 728 | 739 |
| # of Street & Highway Lighting Customers | 575 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 584 | 584 | 584 | 583 |
| Peak Demand Net of Energy Efficiency Progs | 604.5 | 559.0 | 499.2 | 463.2 | 427.0 | 555.0 | 620.2 | 591.1 | 531.1 | 465.2 | 539.2 | 602.5 | 620.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**INTEGRATED SYSTEM YEAR 2025**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,089.5 | 966.1 | 864.4 | 672.5 | 633.4 | 704.5 | 867.9 | 787.8 | 646.5 | 659.2 | 813.5 | 1,023.6 | 9,728.6 |
| # of Residential Customers | 107,101 | 107,265 | 107,324 | 107,238 | 107,231 | 107,293 | 107,295 | 107,424 | 107,535 | 107,579 | 107,643 | 107,747 | 107,390 |
| Total Residential Sales - MWh | 116,685 | 103,632 | 92,770 | 72,122 | 67,919 | 75,588 | 93,118 | 84,629 | 69,518 | 70,915 | 87,566 | 110,292 | 1,044,754 |
| Use per Small Comm & Ind Customer - kWh | 4,016.7 | 3,733.9 | 3,651.5 | 3,049.6 | 2,968.0 | 3,051.0 | 3,458.1 | 3,345.0 | 3,029.0 | 3,081.5 | 3,409.4 | 3,908.9 | 40,680.3 |
| # of Small Comm & Ind Customers | 20,017 | 20,033 | 20,046 | 20,140 | 20,242 | 20,293 | 20,310 | 20,310 | 20,522 | 20,448 | 20,184 | 20,165 | 20,226 |
| Total Small Comm & Ind Sales - MWh | 80,403 | 74,801 | 73,198 | 61,418 | 60,079 | 61,913 | 70,234 | 67,936 | 62,161 | 63,011 | 68,816 | 78,823 | 822,793 |
| Large Comm & Ind Sales | 128,636 | 118,390 | 126,279 | 114,987 | 120,778 | 115,949 | 126,691 | 124,908 | 121,531 | 120,954 | 121,747 | 128,977 | 1,469,827 |
| Total Sales (Residential, SC&I and LC&I) | 325,724 | 296,823 | 292,247 | 248,527 | 248,776 | 253,450 | 290,043 | 277,473 | 253,210 | 254,880 | 278,129 | 318,092 | 3,337,374 |
| Other Public Sales | 5,066 | 4,727 | 4,977 | 4,622 | 5,281 | 5,681 | 6,631 | 6,218 | 5,222 | 4,772 | 4,714 | 5,087 | 62,998 |
| Street & Highway Lighting Sales | 1,816 | 1,604 | 1,658 | 1,497 | 1,451 | 1,349 | 1,410 | 1,438 | 1,489 | 1,585 | 1,667 | 1,839 | 18,803 |
| Interdepartmental Sales | 35 | 32 | 31 | 27 | 25 | 22 | 25 | 23 | 24 | 25 | 29 | 32 | 330 |
| Total Billed Sales - MWh | 332,641 | 303,186 | 298,913 | 254,673 | 255,533 | 260,502 | 298,109 | 285,152 | 259,945 | 261,262 | 284,539 | 325,050 | 3,419,505 |
| Company Use | 528 | 495 | 502 | 424 | 430 | 432 | 482 | 465 | 427 | 428 | 439 | 515 | 5,567 |
| Total Energy | 333,169 | 303,681 | 299,415 | 255,097 | 255,963 | 260,934 | 298,591 | 285,617 | 260,372 | 261,690 | 284,978 | 325,565 | 3,425,072 |
| Total Requirements (Energy + Losses) | 359,959 | 328,100 | 323,491 | 275,609 | 276,545 | 281,915 | 322,600 | 308,584 | 281,308 | 282,733 | 307,892 | 351,744 | 3,700,480 |
| # of Large Comm & Ind Customers | 1,659 | 1,663 | 1,673 | 1,685 | 1,699 | 1,710 | 1,719 | 1,735 | 1,773 | 1,769 | 1,738 | 1,736 | 1,713 |
| # of Other Public Customers | 737 | 736 | 737 | 740 | 741 | 741 | 740 | 740 | 751 | 746 | 731 | 728 | 739 |
| # of Street & Highway Lighting Customers | 575 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 584 | 584 | 584 | 583 |
| Peak Demand Net of Energy Efficiency Progs | 623.5 | 576.7 | 514.8 | 477.8 | 433.0 | 562.8 | 628.9 | 599.4 | 538.6 | 471.8 | 548.5 | 612.9 | 628.9 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**INTEGRATED SYSTEM YEAR 2026**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,089.5 | 966.2 | 864.4 | 672.6 | 633.4 | 704.5 | 867.8 | 787.8 | 646.5 | 659.2 | 813.5 | 1,023.6 | 9,728.7 |
| # of Residential Customers | 107,350 | 107,513 | 107,574 | 107,487 | 107,481 | 107,543 | 107,544 | 107,674 | 107,785 | 107,828 | 107,894 | 107,998 | 107,639 |
| Total Residential Sales - MWh | 116,961 | 103,875 | 92,988 | 72,292 | 68,078 | 75,762 | 93,332 | 84,823 | 69,680 | 71,082 | 87,771 | 110,550 | 1,047,194 |
| Use per Small Comm & Ind Customer - kWh | 4,045.8 | 3,760.4 | 3,677.6 | 3,071.6 | 2,989.4 | 3,072.9 | 3,482.7 | 3,368.9 | 3,050.7 | 3,103.6 | 3,434.0 | 3,939.2 | 40,974.5 |
| # of Small Comm & Ind Customers | 20,170 | 20,189 | 20,201 | 20,295 | 20,398 | 20,449 | 20,467 | 20,467 | 20,681 | 20,607 | 20,339 | 20,320 | 20,382 |
| Total Small Comm & Ind Sales - MWh | 81,604 | 75,919 | 74,292 | 62,339 | 60,977 | 62,838 | 71,281 | 68,952 | 63,092 | 63,955 | 69,845 | 80,044 | 835,138 |
| Large Comm & Ind Sales | 129,301 | 119,014 | 126,926 | 115,565 | 121,391 | 116,557 | 127,364 | 125,567 | 122,162 | 121,568 | 122,381 | 129,725 | 1,477,521 |
| Total Sales (Residential, SC&I and LC&I) | 327,866 | 298,808 | 294,206 | 250,196 | 250,446 | 255,157 | 291,977 | 279,342 | 254,934 | 256,605 | 279,997 | 320,319 | 3,359,853 |
| Other Public Sales | 5,076 | 4,737 | 4,987 | 4,632 | 5,291 | 5,693 | 6,644 | 6,230 | 5,233 | 4,783 | 4,724 | 5,097 | 63,127 |
| Street & Highway Lighting Sales | 1,816 | 1,604 | 1,658 | 1,497 | 1,451 | 1,349 | 1,410 | 1,438 | 1,489 | 1,585 | 1,667 | 1,839 | 18,803 |
| Interdepartmental Sales | 35 | 32 | 31 | 27 | 25 | 22 | 25 | 23 | 24 | 25 | 29 | 32 | 330 |
| Total Billed Sales - MWh | 334,793 | 305,181 | 300,882 | 256,352 | 257,213 | 262,221 | 300,056 | 287,033 | 261,680 | 262,998 | 286,417 | 327,287 | 3,442,113 |
| Company Use | 528 | 495 | 502 | 424 | 430 | 432 | 482 | 465 | 427 | 428 | 439 | 515 | 5,567 |
| Total Energy | 335,321 | 305,676 | 301,384 | 256,776 | 257,643 | 262,653 | 300,538 | 287,498 | 262,107 | 263,426 | 286,856 | 327,802 | 3,447,680 |
| Total Requirements (Energy + Losses) | 362,284 | 330,256 | 325,618 | 277,423 | 278,360 | 283,773 | 324,705 | 310,616 | 283,183 | 284,609 | 309,922 | 354,160 | 3,724,909 |
| # of Large Comm & Ind Customers | 1,673 | 1,677 | 1,687 | 1,700 | 1,714 | 1,725 | 1,735 | 1,750 | 1,788 | 1,785 | 1,753 | 1,751 | 1,728 |
| # of Other Public Customers | 737 | 736 | 737 | 740 | 741 | 741 | 740 | 740 | 751 | 746 | 731 | 728 | 739 |
| # of Street & Highway Lighting Customers | 575 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 584 | 584 | 584 | 583 |
| Peak Demand Net of Energy Efficiency Progs | 634.2 | 586.4 | 523.7 | 486.0 | 436.6 | 567.6 | 634.2 | 604.5 | 543.1 | 475.7 | 552.0 | 616.7 | 634.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**INTEGRATED SYSTEM YEAR 2027**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,089.6 | 966.2 | 864.4 | 672.6 | 633.4 | 704.5 | 867.8 | 787.8 | 646.5 | 659.2 | 813.5 | 1,023.7 | 9,728.9 |
| # of Residential Customers | 107,598 | 107,762 | 107,823 | 107,736 | 107,729 | 107,792 | 107,792 | 107,923 | 108,034 | 108,078 | 108,144 | 108,249 | 107,888 |
| Total Residential Sales - MWh | 117,235 | 104,119 | 93,205 | 72,460 | 68,238 | 75,936 | 93,546 | 85,020 | 69,840 | 71,248 | 87,979 | 110,810 | 1,049,636 |
| Use per Small Comm & Ind Customer - kWh | 4,078.4 | 3,790.7 | 3,707.5 | 3,096.7 | 3,013.7 | 3,097.8 | 3,510.8 | 3,396.5 | 3,075.5 | 3,128.9 | 3,461.8 | 3,968.1 | 41,303.7 |
| # of Small Comm & Ind Customers | 20,325 | 20,344 | 20,356 | 20,451 | 20,554 | 20,606 | 20,624 | 20,623 | 20,840 | 20,765 | 20,495 | 20,476 | 20,538 |
| Total Small Comm & Ind Sales - MWh | 82,894 | 77,117 | 75,470 | 63,330 | 61,943 | 63,834 | 72,407 | 70,045 | 64,093 | 64,972 | 70,950 | 81,251 | 848,306 |
| Large Comm & Ind Sales | 130,120 | 119,777 | 127,721 | 116,274 | 122,145 | 117,300 | 128,187 | 126,373 | 122,931 | 122,322 | 123,156 | 130,495 | 1,486,801 |
| Total Sales (Residential, SC&I and LC&I) | 330,249 | 301,013 | 296,396 | 252,064 | 252,326 | 257,070 | 294,140 | 281,438 | 256,864 | 258,542 | 282,085 | 322,556 | 3,384,743 |
| Other Public Sales | 5,085 | 4,746 | 4,997 | 4,641 | 5,302 | 5,704 | 6,657 | 6,243 | 5,244 | 4,793 | 4,734 | 5,107 | 63,253 |
| Street & Highway Lighting Sales | 1,816 | 1,604 | 1,658 | 1,497 | 1,451 | 1,349 | 1,410 | 1,438 | 1,489 | 1,585 | 1,667 | 1,839 | 18,803 |
| Interdepartmental Sales | 35 | 32 | 31 | 27 | 25 | 22 | 25 | 23 | 24 | 25 | 29 | 32 | 330 |
| Total Billed Sales - MWh | 337,185 | 307,395 | 303,082 | 258,229 | 259,104 | 264,145 | 302,232 | 289,142 | 263,621 | 264,945 | 288,515 | 329,534 | 3,467,129 |
| Company Use | 528 | 495 | 502 | 424 | 430 | 432 | 482 | 465 | 427 | 428 | 439 | 515 | 5,567 |
| Total Energy | 337,713 | 307,890 | 303,584 | 258,653 | 259,534 | 264,577 | 302,714 | 289,607 | 264,048 | 265,373 | 288,954 | 330,049 | 3,472,696 |
| Total Requirements (Energy + Losses) | 364,868 | 332,647 | 327,994 | 279,452 | 280,403 | 285,852 | 327,056 | 312,895 | 285,281 | 286,712 | 312,189 | 356,588 | 3,751,937 |
| # of Large Comm & Ind Customers | 1,688 | 1,692 | 1,702 | 1,715 | 1,729 | 1,740 | 1,750 | 1,765 | 1,804 | 1,800 | 1,768 | 1,767 | 1,743 |
| # of Other Public Customers | 737 | 736 | 737 | 740 | 741 | 741 | 740 | 740 | 751 | 746 | 731 | 728 | 739 |
| # of Street & Highway Lighting Customers | 575 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 584 | 584 | 584 | 583 |
| Peak Demand Net of Energy Efficiency Progs | 638.2 | 590.2 | 527.0 | 489.1 | 440.7 | 572.7 | 640.0 | 610.0 | 548.2 | 480.1 | 555.9 | 621.2 | 640.0 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**INTEGRATED SYSTEM YEAR 2028**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,089.6 | 966.2 | 864.5 | 672.6 | 633.4 | 704.5 | 867.8 | 787.8 | 646.5 | 659.2 | 813.6 | 1,023.7 | 9,729.1 |
| # of Residential Customers | 107,845 | 108,010 | 108,071 | 107,984 | 107,978 | 108,040 | 108,041 | 108,171 | 108,283 | 108,328 | 108,393 | 108,498 | 108,137 |
| Total Residential Sales - MWh | 117,509 | 104,362 | 93,423 | 72,629 | 68,397 | 76,110 | 93,758 | 85,215 | 70,001 | 71,414 | 88,185 | 111,067 | 1,052,070 |
| Use per Small Comm & Ind Customer - kWh | 4,107.1 | 3,817.4 | 3,733.9 | 3,118.8 | 3,035.1 | 3,120.0 | 3,535.8 | 3,420.6 | 3,097.5 | 3,151.1 | 3,486.3 | 3,997.8 | 41,598.7 |
| # of Small Comm & Ind Customers | 20,479 | 20,498 | 20,509 | 20,605 | 20,709 | 20,761 | 20,779 | 20,778 | 20,996 | 20,922 | 20,650 | 20,629 | 20,693 |
| Total Small Comm & Ind Sales - MWh | 84,110 | 78,249 | 76,579 | 64,263 | 62,854 | 64,774 | 73,470 | 71,074 | 65,035 | 65,928 | 71,992 | 82,470 | 860,798 |
| Large Comm & Ind Sales | 130,866 | 120,474 | 128,447 | 116,921 | 122,832 | 117,975 | 128,932 | 127,106 | 123,634 | 123,009 | 123,864 | 131,299 | 1,495,359 |
| Total Sales (Residential, SC&I and LC&I) | 332,485 | 303,085 | 298,449 | 253,813 | 254,083 | 258,859 | 296,160 | 283,395 | 258,670 | 260,351 | 284,041 | 324,836 | 3,408,227 |
| Other Public Sales | 5,095 | 4,755 | 5,007 | 4,651 | 5,313 | 5,715 | 6,671 | 6,255 | 5,253 | 4,802 | 4,743 | 5,118 | 63,378 |
| Street & Highway Lighting Sales | 1,816 | 1,604 | 1,658 | 1,497 | 1,451 | 1,349 | 1,410 | 1,438 | 1,489 | 1,585 | 1,667 | 1,839 | 18,803 |
| Interdepartmental Sales | 35 | 32 | 31 | 27 | 25 | 22 | 25 | 23 | 24 | 25 | 29 | 32 | 330 |
| Total Billed Sales - MWh | 339,431 | 309,476 | 305,145 | 259,988 | 260,872 | 265,945 | 304,266 | 291,111 | 265,436 | 266,763 | 290,480 | 331,825 | 3,490,738 |
| Company Use | 528 | 495 | 502 | 424 | 430 | 432 | 482 | 465 | 427 | 428 | 439 | 515 | 5,567 |
| Total Energy | 339,959 | 309,971 | 305,647 | 260,412 | 261,302 | 266,377 | 304,748 | 291,576 | 265,863 | 267,191 | 290,919 | 332,340 | 3,496,305 |
| Total Requirements (Energy + Losses) | 367,294 | 334,896 | 330,224 | 281,351 | 282,313 | 287,796 | 329,253 | 315,021 | 287,242 | 288,677 | 314,312 | 359,064 | 3,777,443 |
| # of Large Comm & Ind Customers | 1,701 | 1,705 | 1,716 | 1,728 | 1,743 | 1,754 | 1,764 | 1,779 | 1,818 | 1,815 | 1,782 | 1,781 | 1,757 |
| # of Other Public Customers | 737 | 736 | 737 | 740 | 741 | 741 | 740 | 740 | 751 | 746 | 731 | 728 | 739 |
| # of Street & Highway Lighting Customers | 575 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 584 | 584 | 584 | 583 |
| Peak Demand Net of Energy Efficiency Progs | 642.8 | 594.5 | 530.7 | 492.6 | 444.4 | 577.7 | 645.5 | 615.2 | 552.9 | 484.3 | 559.6 | 625.3 | 645.5 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**INTEGRATED SYSTEM YEAR 2029**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,089.7 | 966.3 | 864.5 | 672.6 | 633.5 | 704.4 | 867.8 | 787.7 | 646.5 | 659.3 | 813.6 | 1,023.7 | 9,729.2 |
| # of Residential Customers | 108,093 | 108,258 | 108,319 | 108,231 | 108,225 | 108,289 | 108,289 | 108,421 | 108,532 | 108,576 | 108,643 | 108,747 | 108,385 |
| Total Residential Sales - MWh | 117,784 | 104,606 | 93,641 | 72,798 | 68,556 | 76,284 | 93,972 | 85,408 | 70,161 | 71,581 | 88,390 | 111,325 | 1,054,506 |
| Use per Small Comm & Ind Customer - kWh | 4,138.3 | 3,846.5 | 3,762.3 | 3,142.7 | 3,058.5 | 3,144.0 | 3,562.8 | 3,446.9 | 3,121.3 | 3,175.6 | 3,513.0 | 4,027.7 | 41,916.8 |
| # of Small Comm & Ind Customers | 20,633 | 20,651 | 20,664 | 20,760 | 20,864 | 20,916 | 20,934 | 20,933 | 21,153 | 21,078 | 20,805 | 20,784 | 20,848 |
| Total Small Comm & Ind Sales - MWh | 85,385 | 79,435 | 77,745 | 65,243 | 63,812 | 65,759 | 74,583 | 72,155 | 66,025 | 66,935 | 73,088 | 83,712 | 873,877 |
| Large Comm & Ind Sales | 131,700 | 121,252 | 129,256 | 117,644 | 123,599 | 118,732 | 129,771 | 127,928 | 124,420 | 123,779 | 124,655 | 132,137 | 1,504,873 |
| Total Sales (Residential, SC&I and LC&I) | 334,869 | 305,293 | 300,642 | 255,685 | 255,967 | 260,775 | 298,326 | 285,491 | 260,606 | 262,295 | 286,133 | 327,174 | 3,433,256 |
| Other Public Sales | 5,107 | 4,766 | 5,018 | 4,660 | 5,323 | 5,727 | 6,683 | 6,268 | 5,264 | 4,812 | 4,755 | 5,128 | 63,511 |
| Street & Highway Lighting Sales | 1,816 | 1,604 | 1,658 | 1,497 | 1,451 | 1,349 | 1,410 | 1,438 | 1,489 | 1,585 | 1,667 | 1,839 | 18,803 |
| Interdepartmental Sales | 35 | 32 | 31 | 27 | 25 | 22 | 25 | 23 | 24 | 25 | 29 | 32 | 330 |
| Total Billed Sales - MWh | 341,827 | 311,695 | 307,349 | 261,869 | 262,766 | 267,873 | 306,444 | 293,220 | 267,383 | 268,717 | 292,584 | 334,173 | 3,515,900 |
| Company Use | 528 | 495 | 502 | 424 | 430 | 432 | 482 | 465 | 427 | 428 | 439 | 515 | 5,567 |
| Total Energy | 342,355 | 312,190 | 307,851 | 262,293 | 263,196 | 268,305 | 306,926 | 293,685 | 267,810 | 269,145 | 293,023 | 334,688 | 3,521,467 |
| Total Requirements (Energy + Losses) | 369,884 | 337,294 | 332,605 | 283,384 | 284,360 | 289,880 | 331,606 | 317,300 | 289,345 | 290,788 | 316,585 | 361,600 | 3,804,631 |
| # of Large Comm & Ind Customers | 1,715 | 1,719 | 1,729 | 1,742 | 1,757 | 1,768 | 1,778 | 1,793 | 1,833 | 1,829 | 1,797 | 1,795 | 1,771 |
| # of Other Public Customers | 737 | 736 | 737 | 740 | 741 | 741 | 740 | 740 | 751 | 746 | 731 | 728 | 739 |
| # of Street & Highway Lighting Customers | 575 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 584 | 584 | 584 | 583 |
| Peak Demand Net of Energy Efficiency Progs | 647.0 | 598.4 | 534.2 | 495.8 | 448.4 | 582.8 | 651.2 | 620.7 | 557.8 | 488.5 | 563.7 | 629.8 | 651.2 |

**MONTHLY FORECASTS**
**SALES AND ENERGY (MWH)**
**PEAK DEMAND (MW)**

**INTEGRATED SYSTEM YEAR 2030**

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use per Residential Customer - kWh | 1,089.7 | 966.3 | 864.5 | 672.6 | 633.5 | 704.4 | 867.8 | 787.7 | 646.5 | 659.3 | 813.6 | 1,023.7 | 9,729.3 |
| # of Residential Customers | 108,340 | 108,505 | 108,567 | 108,479 | 108,473 | 108,535 | 108,537 | 108,668 | 108,780 | 108,825 | 108,892 | 108,996 | 108,633 |
| Total Residential Sales - MWh | 118,056 | 104,848 | 93,857 | 72,965 | 68,714 | 76,457 | 94,184 | 85,603 | 70,322 | 71,746 | 88,595 | 111,582 | 1,056,929 |
| Use per Small Comm & Ind Customer - kWh | 4,169.4 | 3,875.4 | 3,790.6 | 3,166.5 | 3,081.5 | 3,167.5 | 3,589.4 | 3,472.8 | 3,144.7 | 3,199.5 | 3,539.4 | 4,057.2 | 42,230.7 |
| # of Small Comm & Ind Customers | 20,786 | 20,805 | 20,818 | 20,914 | 21,019 | 21,072 | 21,090 | 21,089 | 21,311 | 21,235 | 20,960 | 20,939 | 21,003 |
| Total Small Comm & Ind Sales - MWh | 86,665 | 80,627 | 78,912 | 66,225 | 64,769 | 66,746 | 75,700 | 73,238 | 67,016 | 67,941 | 74,185 | 84,954 | 886,978 |
| Large Comm & Ind Sales | 132,542 | 122,040 | 130,075 | 118,376 | 124,374 | 119,497 | 130,616 | 128,757 | 125,213 | 124,555 | 125,452 | 132,983 | 1,514,480 |
| Total Sales (Residential, SC&I and LC&I) | 337,263 | 307,515 | 302,844 | 257,566 | 257,857 | 262,700 | 300,500 | 287,598 | 262,551 | 264,242 | 288,232 | 329,519 | 3,458,387 |
| Other Public Sales | 5,117 | 4,776 | 5,029 | 4,670 | 5,335 | 5,738 | 6,696 | 6,281 | 5,275 | 4,823 | 4,764 | 5,138 | 63,642 |
| Street & Highway Lighting Sales | 1,816 | 1,604 | 1,658 | 1,497 | 1,451 | 1,349 | 1,410 | 1,438 | 1,489 | 1,585 | 1,667 | 1,839 | 18,803 |
| Interdepartmental Sales | 35 | 32 | 31 | 27 | 25 | 22 | 25 | 23 | 24 | 25 | 29 | 32 | 330 |
| Total Billed Sales - MWh | 344,231 | 313,927 | 309,562 | 263,760 | 264,668 | 269,809 | 308,631 | 295,340 | 269,339 | 270,675 | 294,692 | 336,528 | 3,541,162 |
| Company Use | 528 | 495 | 502 | 424 | 430 | 432 | 482 | 465 | 427 | 428 | 439 | 515 | 5,567 |
| Total Energy | 344,759 | 314,422 | 310,064 | 264,184 | 265,098 | 270,241 | 309,113 | 295,805 | 269,766 | 271,103 | 295,131 | 337,043 | 3,546,729 |
| Total Requirements (Energy + Losses) | 372,481 | 339,705 | 334,997 | 285,428 | 286,414 | 291,972 | 333,969 | 319,591 | 291,458 | 292,903 | 318,863 | 364,145 | 3,831,926 |
| # of Large Comm & Ind Customers | 1,729 | 1,733 | 1,744 | 1,757 | 1,771 | 1,783 | 1,793 | 1,809 | 1,848 | 1,845 | 1,812 | 1,811 | 1,786 |
| # of Other Public Customers | 737 | 736 | 737 | 740 | 741 | 741 | 740 | 740 | 751 | 746 | 731 | 728 | 739 |
| # of Street & Highway Lighting Customers | 575 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 583 | 584 | 584 | 584 | 583 |
| Peak Demand Net of Energy Efficiency Progs | 651.7 | 602.7 | 538.2 | 499.5 | 452.1 | 587.8 | 656.7 | 625.9 | 562.6 | 492.7 | 567.5 | 634.3 | 656.7 |