Integrated Resource Plan

2015

Submitted to the
North Dakota Public Service Commission
July 1, 2015

Volume II: Attachment A

Montana-Dakota Utilities Co.

2015 Integrated Resource Plan

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Attachment A

MONTANA-DAKOTA UTILITIES CO.

A Division of MDU Resources Group, Inc.

Attachment A

MONTANA-DAKOTA UTILITIES CO.
ELECTRIC LOAD FORECAST
Integrated System (MT, ND, and SD)
2015–2034

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

December 31, 2014

ELECTRIC LOAD FORECAST

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Executive Summary

This report presents the 2015-2034 forecasts of Montana-Dakota Utilities Co.'s (Montana-Dakota) electric energy requirements and peak demands for the Integrated System of Montana, North Dakota, and South Dakota. The forecasts are 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 forecasts.

INTEGRATED SYSTEM

Total annual energy for the Integrated System is projected to grow at an average rate of 4.7% per year for the next five years and at an average rate of 2.1% per year through 2034. Integrated System summer peak demand is projected to grow at an average rate of 3.4% per year for the next five years and an average rate of 1.7% per year through 2034 prior to any reductions due to demand response programs. Integrated System winter peak demand is projected to grow at an average rate of 2.5% per year for the next five years and an average rate of 1.4% per year through 2034. Much of the higher rate of growth in the first five forecasted years can be attributed to the growth in load due to Bakken Oil Field activity and the Keystone XL Pipeline load that is projected to begin to ramp up in 2017.

As described in Montana-Dakota's 2013 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 a reduction of 0.25 percent of annual energy sales over the 20 year planning horizon of the IRPs through the use of 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 and 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 forecasts. The econometric models are developed using the statistical software package SAS®. In order to capture the extraordinary growth currently being experienced and expected as a result of the Bakken oil field activity, 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 forecast

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 third 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 2014), the most recent year for which a complete set of weather and actual monthly sales by sector was available was 2013.

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 forecasts for the Integrated System are 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 if 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. In fact, North Dakota has had the lowest unemployment in the nation for the last several years, and is at 2.8 percent – half the national rate of 5.6 percent as of December 2014. Unemployment rates are well below national averages in South Dakota and Montana as well. Therefore, the forecast for the Integrated System continues to reflect fairly strong growth.

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 were developed for each sales sector on a state by state basis rather than an Integrated System basis, HDD and CDD 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 HDD and CDD 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 HDD and CDD 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 HDD and CDD 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 1966-2014, respectively. Appendix A-5 lists the seasonal peaks and load factors of the Integrated System for the years 1960-2014. 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 same method of forecasting for each state individually was used again both last year and this year. 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 now 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 2014), 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 2013. The equations developed used historical data available through 2013 and were designed to forecast the time period 2014-2034.

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 six end-use categories which were forecasted individually. The remainder of the LC&I sales fall into a seventh category: General LC&I sales. The end-uses forecasted individually were as follows:

- North Dakota
    - Tesoro Refinery sales in Mandan
    - Dakota Westmoreland Coal Mining sales at Beulah and Coyote
    - Sabin Metals sales in Williston
- Montana
    - Westmoreland Coal Mining sales at Savage
    - Montana Oil Field sales
    - Keystone XL Pipeline

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 six 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 sales 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. However, in Montana and North Dakota, use per customer increased at a faster rate than expected despite the many gains in efficiency being made in lighting and other electric devices. The Electric Power Research Institute projects that demand is expected to decline by about 0.5% per year for the next ten years. Therefore, for both last year's load forecast and this year's load forecast, a modification was made to Montana and North Dakota use per residential customer to reflect the residential power use that is expected. The final residential use per customer models for Montana and North Dakota have use per customer growing at 0.5% per year through 2021 and then remaining flat for the remainder of the forecast.

South Dakota – The econometric process used in previous years allowed residential sales 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.

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^{hhld} 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.

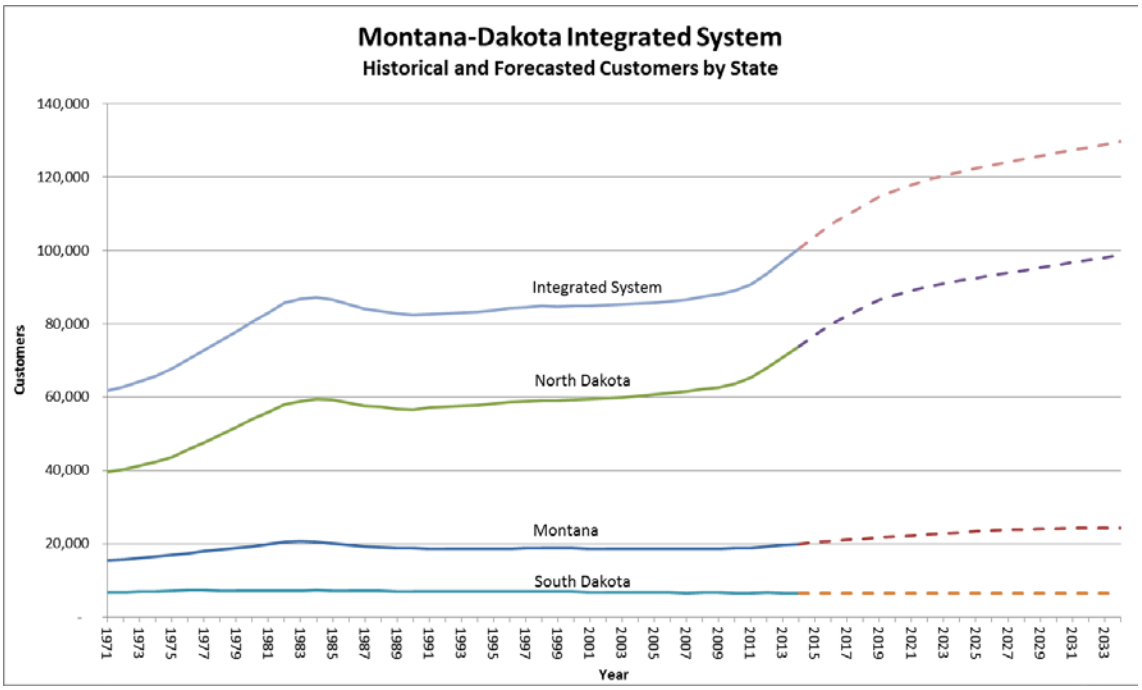
The forecast for number of customers by state was initially developed as described above. However, adjustments were made to the residential customer forecasts for North Dakota and Montana to reflect the higher rate of growth being experienced in parts of North Dakota and Montana due to the Bakken oil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

In North Dakota, customer growth for 2014, 2015, and 2016 was set to the actual residential customer growth seen as of mid-2014 when compared to 2013. In the following years, residential customer growth was allowed to gradually taper off to growth levels experienced prior to the development of the Bakken oil field.

For Montana where the Bakken development lags the development in North Dakota, customer growth for 2014 was set to the approximate residential customer growth seen from 2012 to 2013. Residential customer growth for 2015 and beyond was allowed to gradually decline to the growth levels experienced prior to the Bakken development.

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 chart below 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 the *b*'s are estimated parameters; e_t is the error term.

Montana:

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

where:

ln	= natural logarithm;
sci_kwh_t	= small commercial & industrial sales;
CDD_t	= cooling degree days; and
$emp\_no\_farm\_mining_t$	= total employment, excluding farm and mining.

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 (1989-2013), 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 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 for both the historical and forecasted time periods.

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 grow faster than what was projected by W&P.

Since residential customer number forecasts had been developed for North Dakota and Montana reflecting the higher 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 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 six LC&I end-uses (Tesoro Refinery, Westmoreland and Dakota Westmoreland, Sabin Metals, Montana Oil Fields, and Keystone XL Pipeline) 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 Tesoro Refinery, Westmoreland Coal, Montana Oil Fields, Sabin Metals, or Keystone XL Pipeline) 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 SCI sales, General LC&I sales are forecast 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 final models for North Dakota and Montana were identical with the only statistically significant variable being the time-trend variable. For South Dakota, both time (year) and employment were statistically significant variables.

The final model for North Dakota and Montana 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 (1989-2013), 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 final model for South Dakota is as follows:

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

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 the addition of several new General LC&I customers that are in the process of being added or that will be added in 2014, 2015, and 2016. Information regarding the specific LC&I customers that are expected to come on line is provided by Montana-Dakota's field personnel who have contact with and closely monitor these customers.

1.4. Street Lighting

The sales forecast for the street lighting sector (public street and highway lighting) for each state was held constant at the actual 2013 levels.

1.5. Miscellaneous

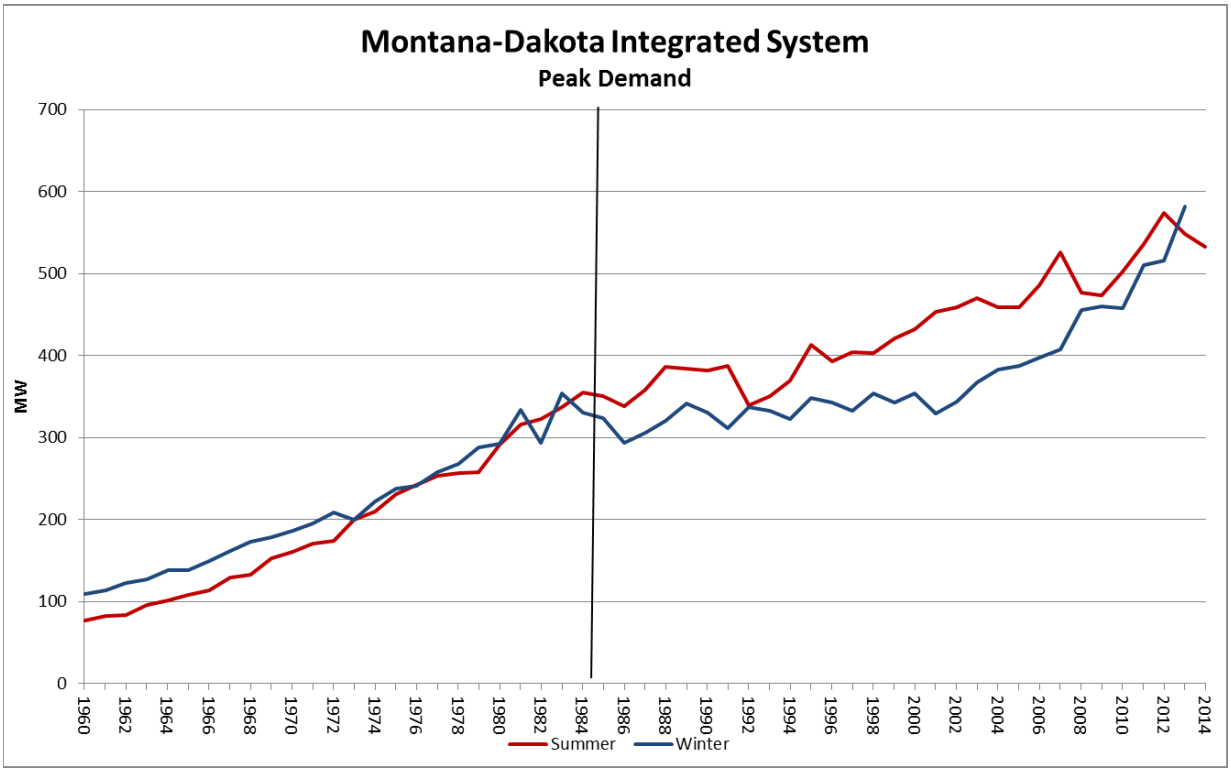
The miscellaneous sales sector is made up of sales for the following three end-uses:

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 2013 levels. The forecast for Other Public Sales was also held constant at the actual 2013 level for South Dakota, while the Other Public Sales forecast for both North Dakota and Montana were based on a linear regression on actual 1994-2013 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 is driving 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 the gap between winter and summer seasonal peaks has narrowed once more.

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 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 on the peak day.

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:

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

where:

ln	= natural logarithm;
$peak\_load_t$	= 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 (1984-2013), which serves as a time trend variable.

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

Montana-Dakota's Integrated System experienced a record-setting peak of 582.1 MW during the winter of 2013-2014 (November 2013 through April 2014). The weather at the time of this peak was extreme with a weighted average temperature of -15 degrees F while the weighted average temperature at the time of the winter peak averaged -9 degrees F for the prior ten years. Also the wind at the time of the winter peak and in the hours leading up to the peak ranged from 22 mph to as high as 40 mph.

At this time, the record-setting winter peak experienced in the winter of 2013-2014 is considered to be an outlier. From a forecasting standpoint, until more is known it will be assumed that Montana-Dakota will continue to peak during the summer. In order to maintain a summer peaking system, the winter peak demand forecast from last year's forecast was used again this year.

Last year's 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.

In last year's 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 is statistically significant.

The winter peak demand model is again as follows:

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

where:

$peak\_load_t$	= winter peak demand;
$peak\_temp_t$	= weighted average temp at time of winter peak;
$system\_kwh_t$	= annual energy requirements; and
ltg_expected_value	= expected value that Christmas Lighting will be "on" at the time of the winter peak.

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 2013 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 2014 through 2030

- Peak Demand savings
  - Demand Response programs of 28 MW by 2015
  - Energy Efficiency programs of 1.5 MW by 2015
  - Total DSM peak demand savings of 29.5 MW for 2015-2033

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 8.434%. 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.

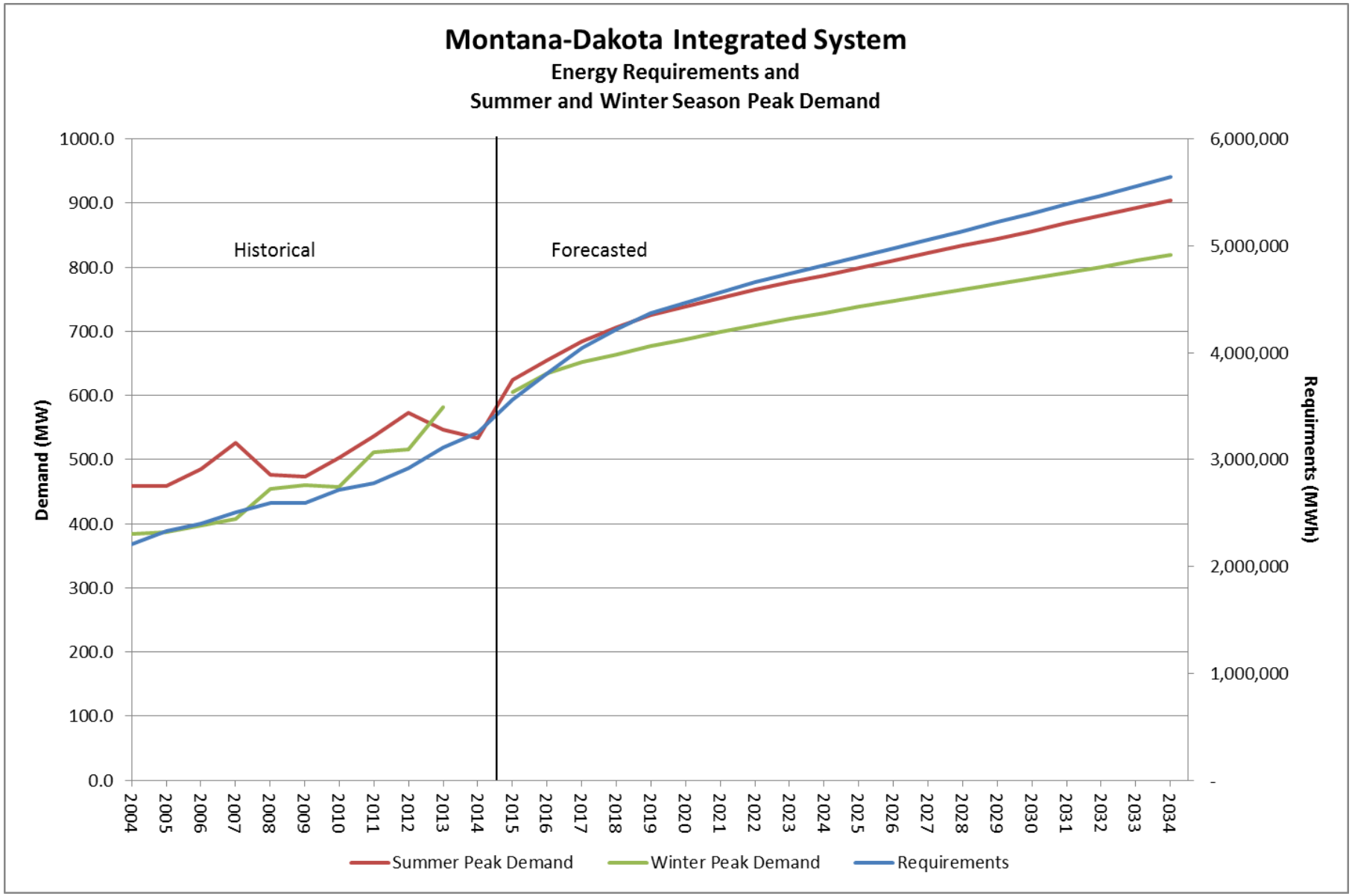
The final forecast results are presented on the following several pages. A table summarizing the Integrated System energy requirements and seasonal peak demand is given first, followed by a graph with historical and forecasted seasonal peak demand and energy requirements. A table summarizing historical 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 2013 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
2004	2,204,012				458.4				383.9			
2005	2,327,117	5.59%			459.1	0.15%			387.2	0.86%		
2006	2,397,793	3.04%			485.5	5.75%			397.2	2.58%		
2007	2,510,540	4.70%			525.6	8.26%			407.3	2.54%		
2008	2,596,990	3.44%			476.6	-9.32%			455.0	11.71%		
2009	2,593,368	-0.14%			473.8	-0.59%			459.6	1.01%		
2010	2,718,192	4.81%			502.5	6.06%			457.8	-0.39%		
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%			not yet available			
2015	3,563,732	9.63%	626.0	1.5	624.5	17.17%	605.2	1.5	603.7		13.4	10.0
2016	3,809,892	6.91%	656.2	1.5	654.7	4.84%	634.3	1.5	632.8	4.82%	15.4	12.5
2017	4,044,774	6.17%	685.2	1.5	683.7	4.43%	652.4	1.5	650.9	2.86%	15.4	15.0
2018	4,220,333	4.34%	707.4	1.5	705.9	3.25%	664.5	1.5	663.0	1.86%	15.4	15.0
2019	4,366,313	3.46%	726.3	1.5	724.8	2.68%	676.6	1.5	675.1	1.83%	15.4	15.0
2020	4,464,924	2.26%	739.8	1.5	738.3	1.86%	688.0	1.5	686.5	1.69%	15.4	15.0
2021	4,565,434	2.25%	753.5	1.5	752.0	1.86%	699.2	1.5	697.7	1.63%	15.4	15.0
2022	4,659,237	2.05%	766.4	1.5	764.9	1.72%	709.3	1.5	707.8	1.45%	15.4	15.0
2023	4,738,979	1.71%	777.8	1.5	776.3	1.49%	719.2	1.5	717.7	1.40%	15.4	15.0
2024	4,818,606	1.68%	789.1	1.5	787.6	1.46%	728.6	1.5	727.1	1.31%	15.4	15.0
2025	4,898,425	1.66%	800.5	1.5	799.0	1.45%	738.2	1.5	736.7	1.32%	15.4	15.0
2026	4,978,277	1.63%	811.9	1.5	810.4	1.43%	747.4	1.5	745.9	1.25%	15.4	15.0
2027	5,059,454	1.63%	823.4	1.5	821.9	1.42%	756.6	1.5	755.1	1.23%	15.4	15.0
2028	5,139,170	1.58%	834.8	1.5	833.3	1.39%	765.3	1.5	763.8	1.15%	15.4	15.0
2029	5,220,318	1.58%	846.3	1.5	844.8	1.38%	774.0	1.5	772.5	1.14%	15.4	15.0
2030	5,302,866	1.58%	858.0	1.5	856.5	1.38%	782.8	1.5	781.3	1.14%	15.4	15.0
2031	5,386,977	1.59%	869.8	1.5	868.3	1.38%	791.8	1.5	790.3	1.15%	15.4	15.0
2032	5,472,577	1.59%	881.9	1.5	880.4	1.39%	800.6	1.5	799.1	1.11%	15.4	15.0
2033	5,558,146	1.56%	893.9	1.5	892.4	1.36%	809.8	1.5	808.3	1.15%	15.4	15.0
2034	5,645,254	1.57%	906.1	1.5	904.6	1.37%	819.1	1.5	817.6	1.15%	15.4	15.0

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)
1000.0
900.0
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
-
2004
2005
2006
2007
2008
2009
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
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
2004	141,249		98,151		348,097		7,250		7,357		602,104	
2005	150,706	6.70%	102,046	3.97%	364,489	4.71%	7,232	-0.25%	7,131	-3.07%	631,604	4.90%
2006	157,206	4.31%	104,214	2.12%	368,666	1.15%	7,203	-0.40%	7,621	6.87%	644,910	2.11%
2007	162,186	3.17%	109,101	4.69%	385,230	4.49%	7,187	-0.22%	7,456	-2.17%	671,160	4.07%
2008	162,182	0.00%	108,595	-0.46%	408,686	6.09%	7,244	0.79%	7,637	2.43%	694,344	3.45%
2009	167,421	3.23%	110,380	1.64%	407,647	-0.25%	7,244	0.00%	7,701	0.84%	700,393	0.87%
2010	171,661	2.53%	109,188	-1.08%	415,946	2.04%	7,203	-0.57%	7,511	-2.47%	711,509	1.59%
2011	185,153	7.86%	119,643	9.58%	427,887	2.87%	7,089	-1.58%	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	-1.10%	7,742	-4.82%	776,598	2.72%
2014	200,088	2.66%	137,799	7.65%	451,687	2.91%	7,108	1.14%	7,900	2.04%	804,582	3.60%
2015	204,393	2.15%	141,520	2.70%	480,054	6.28%	7,028	-1.13%	7,752	-1.87%	840,747	4.49%
2016	208,942	2.23%	148,120	4.66%	511,687	6.59%	7,028	0.00%	7,762	0.13%	883,539	5.09%
2017	213,018	1.95%	154,231	4.13%	583,946	14.12%	7,028	0.00%	7,771	0.12%	965,994	9.33%
2018	217,146	1.94%	160,515	4.07%	637,786	9.22%	7,028	0.00%	7,780	0.12%	1,030,255	6.65%
2019	221,305	1.92%	166,984	4.03%	662,494	3.87%	7,028	0.00%	7,790	0.13%	1,065,601	3.43%
2020	225,494	1.89%	173,628	3.98%	669,911	1.12%	7,028	0.00%	7,799	0.12%	1,083,860	1.71%
2021	229,713	1.87%	180,455	3.93%	677,371	1.11%	7,028	0.00%	7,809	0.13%	1,102,376	1.71%
2022	232,815	1.35%	187,475	3.89%	684,876	1.11%	7,028	0.00%	7,818	0.12%	1,120,012	1.60%
2023	235,917	1.33%	194,676	3.84%	692,426	1.10%	7,028	0.00%	7,827	0.12%	1,137,874	1.59%
2024	238,502	1.10%	201,246	3.37%	700,023	1.10%	7,028	0.00%	7,837	0.13%	1,154,636	1.47%
2025	241,087	1.08%	207,978	3.35%	707,666	1.09%	7,028	0.00%	7,846	0.11%	1,171,605	1.47%
2026	243,155	0.86%	213,991	2.89%	715,356	1.09%	7,028	0.00%	7,856	0.13%	1,187,386	1.35%
2027	245,223	0.85%	220,140	2.87%	723,094	1.08%	7,028	0.00%	7,865	0.11%	1,203,350	1.34%
2028	246,257	0.42%	224,607	2.03%	730,882	1.08%	7,028	0.00%	7,874	0.11%	1,216,648	1.11%
2029	247,291	0.42%	229,155	2.02%	738,720	1.07%	7,028	0.00%	7,884	0.13%	1,230,078	1.10%
2030	248,325	0.42%	233,752	2.01%	746,608	1.07%	7,028	0.00%	7,893	0.11%	1,243,606	1.10%
2031	249,359	0.42%	238,432	2.00%	754,548	1.06%	7,028	0.00%	7,902	0.11%	1,257,269	1.10%
2032	250,393	0.41%	243,183	1.99%	762,552	1.06%	7,028	0.00%	7,912	0.13%	1,271,068	1.10%
2033	250,910	0.21%	247,026	1.58%	770,609	1.06%	7,028	0.00%	7,921	0.11%	1,283,494	0.98%
2034	251,427	0.21%	250,930	1.58%	778,721	1.05%	7,028	0.00%	7,931	0.13%	1,296,037	0.98%
2004-2014 Average Yearly Growth												
(10 Years History)		3.35%		3.25%		2.45%		-0.26%		0.87%		2.76%
2009-2014 Average Yearly Growth												
(5 Years History)		3.74%		4.95%		1.89%		-0.47%		0.75%		2.80%
2015-2020 Average Yearly Growth												
(5 Years)		1.97%		4.15%		7.49%		0.00%		0.12%		5.57%
2015-2025 Average Yearly Growth												
(10 Years)		1.68%		3.93%		3.58%		0.00%		0.12%		3.16%
2015-2034 Average Yearly Growth												
(19 Years)		1.07%		3.08%		1.93%		0.00%		0.12%		1.92%

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
2004	482,828		224,924		532,079		20,633		37,519		1,297,983	
2005	525,133	8.76%	250,022	11.16%	563,793	5.96%	20,484	-0.72%	39,346	4.87%	1,398,778	7.77%
2006	550,071	4.75%	274,728	9.88%	564,963	0.21%	20,772	1.41%	43,337	10.14%	1,453,871	3.94%
2007	568,710	3.39%	299,602	9.05%	570,170	0.92%	20,948	0.85%	43,819	1.11%	1,503,249	3.40%
2008	585,609	2.97%	320,093	6.84%	583,502	2.34%	21,201	1.21%	43,308	-1.17%	1,553,713	3.36%
2009	609,179	4.02%	340,496	6.37%	551,114	-5.55%	20,582	-2.92%	43,934	1.45%	1,565,305	0.75%
2010	632,068	3.76%	382,985	12.48%	530,341	-3.77%	20,373	-1.02%	43,216	-1.63%	1,608,983	2.79%
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	848,901	4.46%	676,022	11.00%	686,749	18.54%	19,895	-0.60%	48,147	-5.20%	2,279,714	10.03%
2016	886,395	4.42%	740,510	9.54%	764,461	11.32%	19,895	0.00%	48,518	0.77%	2,459,779	7.90%
2017	915,304	3.26%	794,928	7.35%	815,111	6.63%	19,895	0.00%	48,889	0.76%	2,594,127	5.46%
2018	944,540	3.19%	852,200	7.20%	824,058	1.10%	19,895	0.00%	49,259	0.76%	2,689,952	3.69%
2019	974,022	3.12%	912,403	7.06%	833,131	1.10%	19,895	0.00%	49,630	0.75%	2,789,081	3.69%
2020	992,441	1.89%	955,423	4.72%	842,307	1.10%	19,895	0.00%	50,001	0.75%	2,860,067	2.55%
2021	1,011,083	1.88%	999,992	4.66%	851,611	1.10%	19,895	0.00%	50,371	0.74%	2,932,952	2.55%
2022	1,024,724	1.35%	1,046,104	4.61%	859,412	0.92%	19,895	0.00%	50,742	0.74%	3,000,877	2.32%
2023	1,033,817	0.89%	1,082,759	3.50%	867,322	0.92%	19,895	0.00%	51,113	0.73%	3,054,906	1.80%
2024	1,042,911	0.88%	1,120,361	3.47%	875,355	0.93%	19,895	0.00%	51,483	0.72%	3,110,005	1.80%
2025	1,050,868	0.76%	1,158,941	3.44%	883,524	0.93%	19,895	0.00%	51,854	0.72%	3,165,082	1.77%
2026	1,058,825	0.76%	1,198,509	3.41%	891,796	0.94%	19,895	0.00%	52,225	0.72%	3,221,250	1.77%
2027	1,066,782	0.75%	1,239,083	3.39%	900,232	0.95%	19,895	0.00%	52,595	0.71%	3,278,587	1.78%
2028	1,074,738	0.75%	1,280,684	3.36%	908,774	0.95%	19,895	0.00%	52,966	0.71%	3,337,057	1.78%
2029	1,082,695	0.74%	1,323,333	3.33%	917,448	0.95%	19,895	0.00%	53,337	0.70%	3,396,708	1.79%
2030	1,090,652	0.73%	1,367,004	3.30%	926,245	0.96%	19,895	0.00%	53,707	0.69%	3,457,503	1.79%
2031	1,098,609	0.73%	1,411,782	3.28%	935,203	0.97%	19,895	0.00%	54,078	0.69%	3,519,567	1.80%
2032	1,106,566	0.72%	1,457,650	3.25%	944,335	0.98%	19,895	0.00%	54,449	0.69%	3,582,895	1.80%
2033	1,114,523	0.72%	1,504,625	3.22%	953,608	0.98%	19,895	0.00%	54,820	0.68%	3,647,471	1.80%
2034	1,122,480	0.71%	1,552,721	3.20%	963,023	0.99%	19,895	0.00%	55,190	0.67%	3,713,309	1.81%

Note: A reclassification of approximately 140 customers took place in the July/August 2011 time frame and subsequent years reflect this reclassification.

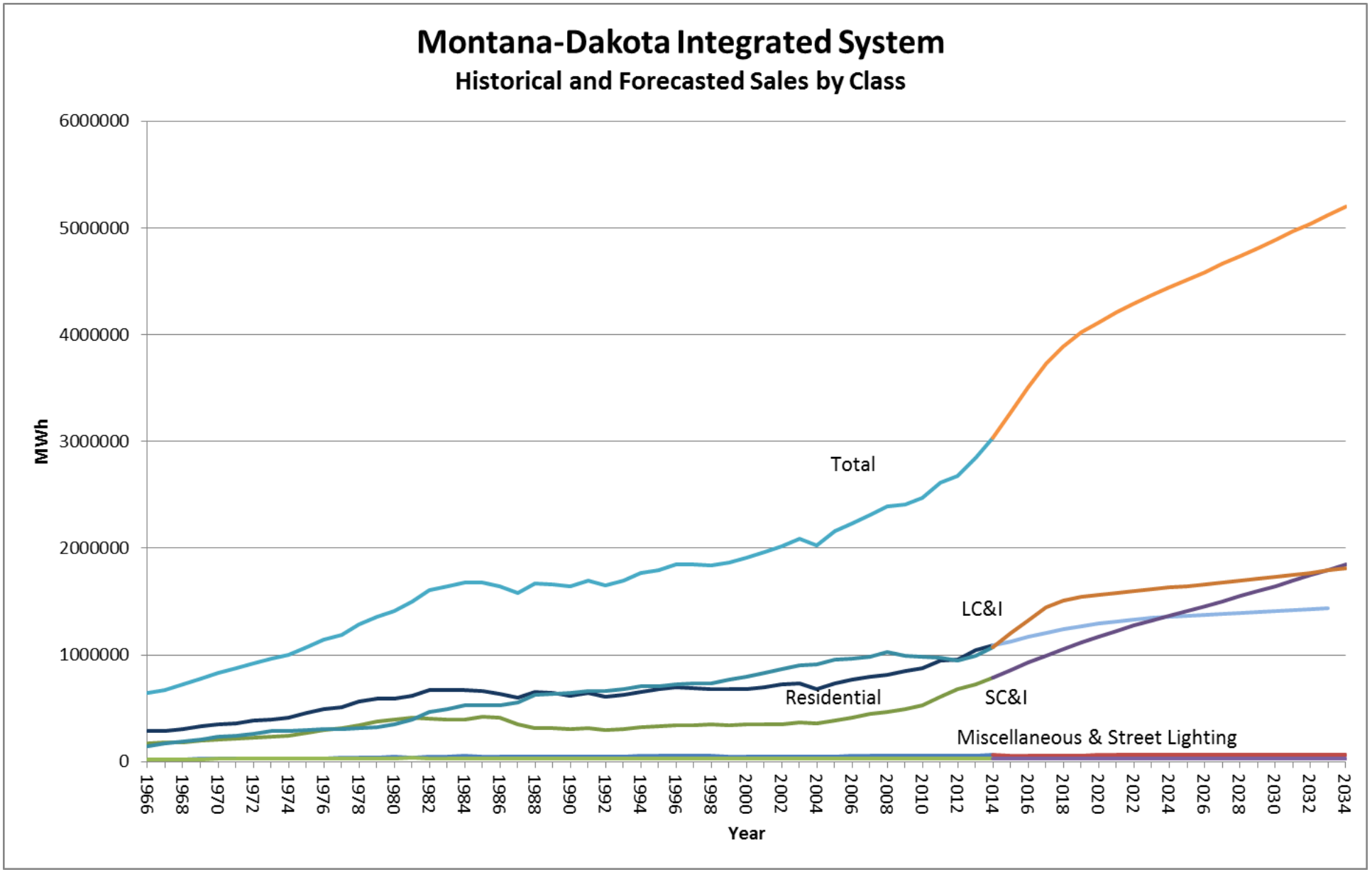
2004-2014 Average Yearly Growth						
(10 Years History)	4.97%	10.59%	-0.57%	-0.45%	2.49%	4.18%
2009-2014 Average Yearly Growth						
(5 Years History)	6.10%	12.67%	0.37%	-0.60%	3.05%	5.77%
2015-2020 Average Yearly Growth						
(5 Years)	3.18%	7.18%	3.75%	0.00%	0.76%	4.52%
2015-2025 Average Yearly Growth						
(10 Years)	2.10%	5.40%	1.92%	0.00%	0.74%	3.08%
2015-2034 Average Yearly Growth						
(19 Years)	1.27%	4.13%	1.27%	0.00%	0.72%	2.26%

Montana-Dakota Utilities Co.
Historical and Forecasted Annual Sales by Sector
South 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
2004	56,536		32,909		27,091		2,672		3,185		122,393	
2005	61,267	8.37%	34,679	5.38%	28,886	6.63%	2,660	-0.45%	2,851	-10.49%	130,343	6.50%
2006	61,676	0.67%	34,206	-1.36%	28,556	-1.14%	2,626	-1.28%	2,513	-11.86%	129,577	-0.59%
2007	63,018	2.18%	35,211	2.94%	29,271	2.50%	2,638	0.46%	2,678	6.57%	132,816	2.50%
2008	67,104	6.48%	36,966	4.98%	30,891	5.53%	2,636	-0.08%	2,761	3.10%	140,358	5.68%
2009	69,689	3.85%	39,395	6.57%	32,856	6.36%	2,607	-1.10%	2,047	-25.86%	146,594	4.44%
2010	70,868	1.69%	37,313	-5.28%	34,339	4.51%	2,639	1.23%	1,535	-25.01%	146,694	0.07%
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	75,877	0.55%	37,171	-2.30%	38,260	2.01%	2,661	0.38%	1,865	6.39%	155,834	0.27%
2016	75,912	0.05%	37,634	1.25%	44,796	17.08%	2,661	0.00%	1,865	0.00%	162,868	4.51%
2017	75,912	0.00%	38,103	1.25%	45,951	2.58%	2,661	0.00%	1,865	0.00%	164,492	1.00%
2018	75,912	0.00%	38,566	1.22%	47,154	2.62%	2,661	0.00%	1,865	0.00%	166,158	1.01%
2019	75,900	-0.02%	39,047	1.25%	48,234	2.29%	2,661	0.00%	1,865	0.00%	167,707	0.93%
2020	75,877	-0.03%	39,534	1.25%	49,354	2.32%	2,661	0.00%	1,865	0.00%	169,291	0.94%
2021	75,848	-0.04%	40,026	1.24%	50,502	2.33%	2,661	0.00%	1,865	0.00%	170,902	0.95%
2022	75,808	-0.05%	40,525	1.25%	51,668	2.31%	2,661	0.00%	1,865	0.00%	172,527	0.95%
2023	75,751	-0.08%	41,030	1.25%	52,877	2.34%	2,661	0.00%	1,865	0.00%	174,184	0.96%
2024	75,693	-0.08%	41,541	1.25%	53,995	2.11%	2,661	0.00%	1,865	0.00%	175,755	0.90%
2025	75,636	-0.08%	42,047	1.22%	55,126	2.09%	2,661	0.00%	1,865	0.00%	177,335	0.90%
2026	75,567	-0.09%	42,571	1.25%	56,296	2.12%	2,661	0.00%	1,865	0.00%	178,960	0.92%
2027	75,486	-0.11%	43,102	1.25%	57,483	2.11%	2,661	0.00%	1,865	0.00%	180,597	0.91%
2028	75,417	-0.09%	43,639	1.25%	58,709	2.13%	2,661	0.00%	1,865	0.00%	182,291	0.94%
2029	75,325	-0.12%	44,183	1.25%	59,951	2.12%	2,661	0.00%	1,865	0.00%	183,985	0.93%
2030	75,245	-0.11%	44,721	1.22%	61,234	2.14%	2,661	0.00%	1,865	0.00%	185,726	0.95%
2031	75,153	-0.12%	45,279	1.25%	62,548	2.15%	2,661	0.00%	1,865	0.00%	187,506	0.96%
2032	75,061	-0.12%	45,843	1.25%	63,893	2.15%	2,661	0.00%	1,865	0.00%	189,323	0.97%
2033	74,969	-0.12%	46,415	1.25%	65,268	2.15%	2,661	0.00%	1,865	0.00%	191,178	0.98%
2034	74,877	-0.12%	46,993	1.25%	66,677	2.16%	2,661	0.00%	1,865	0.00%	193,073	0.99%
2004-2014 Average Yearly Growth												
(10 Years History)		2.70%		1.03%		3.37%		-0.05%		-6.27%		2.22%
2009-2014 Average Yearly Growth												
(5 Years History)		1.35%		-0.71%		2.44%		0.30%		-0.41%		1.03%
2015-2020 Average Yearly Growth												
(5 Years)		0.00%		1.24%		4.44%		0.00%		0.00%		1.47%
2015-2025 Average Yearly Growth												
(10 Years)		-0.03%		1.24%		2.97%		0.00%		0.00%		1.11%
2015-2034 Average Yearly Growth												
(19 Years)		-0.07%		1.24%		2.42%		0.00%		0.00%		0.99%

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
2004	680,613		355,984		907,267		30,555		48,061		2,022,480		2,204,012	
2005	737,106	8.30%	386,747	8.64%	957,168	5.50%	30,376	-0.59%	49,328	2.64%	2,160,725	6.84%	2,327,117	5.59%
2006	768,953	4.32%	413,148	6.83%	962,185	0.52%	30,601	0.74%	53,471	8.40%	2,228,358	3.13%	2,397,793	3.04%
2007	793,914	3.25%	443,914	7.45%	984,671	2.34%	30,773	0.56%	53,953	0.90%	2,307,225	3.54%	2,510,540	4.70%
2008	814,895	2.64%	465,654	4.90%	1,023,079	3.90%	31,081	1.00%	53,706	-0.46%	2,388,415	3.52%	2,596,990	3.44%
2009	846,289	3.85%	490,271	5.29%	991,617	-3.08%	30,433	-2.08%	53,682	-0.04%	2,412,292	1.00%	2,593,368	-0.14%
2010	874,597	3.34%	529,486	8.00%	980,626	-1.11%	30,215	-0.72%	52,262	-2.65%	2,467,186	2.28%	2,718,192	4.81%
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%	60,443	6.01%	3,031,849	6.47%	3,250,683	4.35%
2015	1,129,171	3.76%	854,713	8.90%	1,205,063	12.78%	29,584	-0.64%	57,764	-4.43%	3,276,295	8.06%	3,552,618	9.29%
2016	1,171,249	3.73%	926,264	8.37%	1,320,944	9.62%	29,584	0.00%	58,145	0.66%	3,506,186	7.02%	3,801,897	7.02%
2017	1,204,234	2.82%	987,262	6.59%	1,445,007	9.39%	29,584	0.00%	58,525	0.65%	3,724,612	6.23%	4,038,746	6.23%
2018	1,237,598	2.77%	1,051,281	6.48%	1,508,997	4.43%	29,584	0.00%	58,904	0.65%	3,886,364	4.34%	4,214,140	4.34%
2019	1,271,227	2.72%	1,118,434	6.39%	1,543,858	2.31%	29,584	0.00%	59,285	0.65%	4,022,388	3.50%	4,361,637	3.50%
2020	1,293,812	1.78%	1,168,585	4.48%	1,561,571	1.15%	29,584	0.00%	59,665	0.64%	4,113,217	2.26%	4,460,126	2.26%
2021	1,316,644	1.76%	1,220,473	4.44%	1,579,483	1.15%	29,584	0.00%	60,045	0.64%	4,206,229	2.26%	4,560,983	2.26%
2022	1,333,347	1.27%	1,274,104	4.39%	1,595,955	1.04%	29,584	0.00%	60,425	0.63%	4,293,415	2.07%	4,655,522	2.07%
2023	1,345,485	0.91%	1,318,465	3.48%	1,612,624	1.04%	29,584	0.00%	60,805	0.63%	4,366,963	1.71%	4,735,273	1.71%
2024	1,357,106	0.86%	1,363,148	3.39%	1,629,372	1.04%	29,584	0.00%	61,185	0.62%	4,440,395	1.68%	4,814,898	1.68%
2025	1,367,591	0.77%	1,408,966	3.36%	1,646,315	1.04%	29,584	0.00%	61,565	0.62%	4,514,021	1.66%	4,894,734	1.66%
2026	1,377,547	0.73%	1,455,071	3.27%	1,663,447	1.04%	29,584	0.00%	61,946	0.62%	4,587,595	1.63%	4,974,513	1.63%
2027	1,387,491	0.72%	1,502,325	3.25%	1,680,808	1.04%	29,584	0.00%	62,325	0.61%	4,662,533	1.63%	5,055,771	1.63%
2028	1,396,412	0.64%	1,548,930	3.10%	1,698,364	1.04%	29,584	0.00%	62,705	0.61%	4,735,995	1.58%	5,135,429	1.58%
2029	1,405,311	0.64%	1,596,671	3.08%	1,716,118	1.05%	29,584	0.00%	63,086	0.61%	4,810,770	1.58%	5,216,511	1.58%
2030	1,414,222	0.63%	1,645,477	3.06%	1,734,086	1.05%	29,584	0.00%	63,465	0.60%	4,886,834	1.58%	5,298,990	1.58%
2031	1,423,121	0.63%	1,695,493	3.04%	1,752,298	1.05%	29,584	0.00%	63,845	0.60%	4,964,341	1.59%	5,383,034	1.59%
2032	1,432,020	0.63%	1,746,676	3.02%	1,770,779	1.05%	29,584	0.00%	64,226	0.60%	5,043,285	1.59%	5,468,636	1.59%
2033	1,440,402	0.59%	1,798,066	2.94%	1,789,484	1.06%	29,584	0.00%	64,606	0.59%	5,122,142	1.56%	5,554,144	1.56%
2034	1,448,784	0.58%	1,850,644	2.92%	1,808,420	1.06%	29,584	0.00%	64,986	0.59%	5,202,418	1.57%	5,641,190	1.57%
2004-2014 Average Yearly Growth (10 Years History)		4.48%		8.24%		0.79%		-0.37%		1.87%		3.66%		3.65%
2009-2014 Average Yearly Growth (5 Years History)		5.28%		10.23%		1.09%		-0.49%		2.61%		4.66%		4.64%
2015-2020 Average Yearly Growth (5 Years)		2.76%		6.46%		5.30%		0.00%		0.65%		4.65%		4.65%
2015-2025 Average Yearly Growth (10 Years)		1.89%		5.02%		2.64%		0.00%		0.64%		3.02%		3.02%
2015-2034 Average Yearly Growth (19 Years)		1.15%		3.88%		1.58%		0.00%		0.62%		2.12%		2.12%


Montana-Dakota Integrated System
Historical and Forecasted Sales by Class
MWh
6000000
5000000
4000000
3000000
2000000
1000000
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
Year

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

North Dakota

Year	Sales (MWh)	% Change	Avg Custs	Cust No Inc/(Dec)	Avg Use Per Cust (kWh/Yr)	% Change
2004	482,828		60,279		8,010	
2005	525,133	8.76%	60,641	362	8,660	8.11%
2006	550,071	4.75%	61,026	385	9,014	4.09%
2007	568,710	3.39%	61,451	425	9,255	2.67%
2008	585,609	2.97%	62,068	617	9,435	1.95%
2009	609,179	4.02%	62,631	563	9,726	3.09%
2010	632,068	3.76%	63,619	988	9,935	2.15%
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	848,901	4.46%	76,949	3,040	11,032	0.33%
2016	886,395	4.42%	79,949	3,000	11,087	0.50%
2017	915,304	3.26%	82,149	2,200	11,142	0.50%
2018	944,540	3.19%	84,349	2,200	11,198	0.50%
2019	974,022	3.12%	86,549	2,200	11,254	0.50%
2020	992,441	1.89%	87,749	1,200	11,310	0.50%
2021	1,011,083	1.88%	88,949	1,200	11,367	0.50%
2022	1,024,724	1.35%	90,149	1,200	11,367	0.00%
2023	1,033,817	0.89%	90,949	800	11,367	0.00%
2024	1,042,911	0.88%	91,749	800	11,367	0.00%
2025	1,050,868	0.76%	92,449	700	11,367	0.00%
2026	1,058,825	0.76%	93,149	700	11,367	0.00%
2027	1,066,782	0.75%	93,849	700	11,367	0.00%
2028	1,074,738	0.75%	94,549	700	11,367	0.00%
2029	1,082,695	0.74%	95,249	700	11,367	0.00%
2030	1,090,652	0.73%	95,949	700	11,367	0.00%
2031	1,098,609	0.73%	96,649	700	11,367	0.00%
2032	1,106,566	0.72%	97,349	700	11,367	0.00%
2033	1,114,523	0.72%	98,049	700	11,367	0.00%
2034	1,122,480	0.71%	98,749	700	11,367	0.00%

	Sales	Custs	Use/Cust
2004-2014 Average Yearly Growth (10 Years History)	4.97%	1.94%	2.98%
2009-2014 Average Yearly Growth (5 Years History)	6.10%	3.47%	2.53%
2015-2020 Average Yearly Growth (5 Years)	3.18%	2.67%	0.50%
2015-2025 Average Yearly Growth (10 Years)	2.10%	1.77%	0.32%
2015-2034 Average Yearly Growth (19 Years)	1.27%	1.14%	0.12%

South Dakota

Year	Sales (MWh)	% Change	Avg Custs	Cust No Inc/(Dec)	Avg Use Per Cust (kWh/Yr)	% Change
2004	56,536		6,681		8,462	
2005	61,267	8.37%	6,648	(33)	9,216	8.91%
2006	61,676	0.67%	6,620	(28)	9,317	1.09%
2007	63,018	2.18%	6,593	(27)	9,558	2.59%
2008	67,104	6.48%	6,612	19	10,149	6.18%
2009	69,689	3.85%	6,619	7	10,529	3.74%
2010	70,868	1.69%	6,609	(10)	10,723	1.85%
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	75,877	0.55%	6,598	18	11,500	0.28%
2016	75,912	0.05%	6,601	3	11,500	0.00%
2017	75,912	0.00%	6,601	-	11,500	0.00%
2018	75,912	0.00%	6,601	-	11,500	0.00%
2019	75,900	-0.02%	6,600	(1)	11,500	0.00%
2020	75,877	-0.03%	6,598	(2)	11,500	0.00%
2021	75,843	-0.04%	6,595	(3)	11,500	0.00%
2022	75,808	-0.05%	6,592	(3)	11,500	0.00%
2023	75,751	-0.08%	6,587	(5)	11,500	0.00%
2024	75,693	-0.08%	6,582	(5)	11,500	0.00%
2025	75,636	-0.08%	6,577	(5)	11,500	0.00%
2026	75,567	-0.09%	6,571	(6)	11,500	0.00%
2027	75,486	-0.11%	6,564	(7)	11,500	0.00%
2028	75,417	-0.09%	6,558	(6)	11,500	0.00%
2029	75,325	-0.12%	6,550	(8)	11,500	0.00%
2030	75,245	-0.11%	6,543	(7)	11,500	0.00%
2031	75,153	-0.12%	6,535	(8)	11,500	0.00%
2032	75,061	-0.12%	6,527	(8)	11,500	0.00%
2033	74,969	-0.12%	6,519	(8)	11,500	0.00%
2034	74,877	-0.12%	6,511	(8)	11,500	0.00%

	Sales	Custs	Use/Cust
2004-2014 Average Yearly Growth (10 Years History)	2.70%	-0.10%	2.80%
2009-2014 Average Yearly Growth (5 Years History)	1.35%	-0.10%	1.46%
2015-2020 Average Yearly Growth (5 Years)	0.00%	0.00%	0.00%
2015-2025 Average Yearly Growth (10 Years)	-0.03%	-0.03%	0.00%
2015-2034 Average Yearly Growth (19 Years)	-0.07%	-0.07%	0.00%

Montana

Year	Sales (MWh)	% Change	Avg Custs	Cust No Inc/(Dec)	Avg Use Per Cust (kWh/Yr)	% Change
2004	141,249		18,539		7,619	
2005	150,706	6.70%	18,502	(37)	8,145	6.91%
2006	157,206	4.31%	18,505	3	8,495	4.30%
2007	162,186	3.17%	18,531	26	8,752	3.02%
2008	162,182	0.00%	18,582	51	8,728	-0.28%
2009	167,421	3.23%	18,636	54	8,984	2.93%
2010	171,661	2.53%	18,716	80	9,172	2.09%
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	204,393	2.15%	20,366	448	10,036	-0.10%
2016	208,942	2.23%	20,716	350	10,086	0.50%
2017	213,018	1.95%	21,016	300	10,136	0.50%
2018	217,146	1.94%	21,316	300	10,187	0.50%
2019	221,305	1.92%	21,616	300	10,238	0.50%
2020	225,494	1.89%	21,916	300	10,289	0.50%
2021	229,713	1.87%	22,216	300	10,340	0.50%
2022	232,815	1.35%	22,516	300	10,340	0.00%
2023	235,917	1.33%	22,816	300	10,340	0.00%
2024	238,502	1.10%	23,066	250	10,340	0.00%
2025	241,087	1.08%	23,316	250	10,340	0.00%
2026	243,155	0.86%	23,516	200	10,340	0.00%
2027	245,223	0.85%	23,716	200	10,340	0.00%
2028	246,257	0.42%	23,816	100	10,340	0.00%
2029	247,291	0.42%	23,916	100	10,340	0.00%
2030	248,325	0.42%	24,016	100	10,340	0.00%
2031	249,359	0.42%	24,116	100	10,340	0.00%
2032	250,393	0.41%	24,216	100	10,340	0.00%
2033	250,910	0.21%	24,266	50	10,340	0.00%
2034	251,427	0.21%	24,316	50	10,340	0.00%

	Sales	Custs	Use/Cust
2004-2014 Average Yearly Growth (10 Years History)	3.35%	0.68%	2.65%
2009-2014 Average Yearly Growth (5 Years History)	3.74%	1.41%	2.30%
2015-2020 Average Yearly Growth (5 Years)	1.97%	1.46%	0.50%
2015-2025 Average Yearly Growth (10 Years)	1.68%	1.36%	0.32%
2015-2034 Average Yearly Growth (19 Years)	1.07%	0.95%	0.12%

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
2004	680,614		85,498		7,961	
2005	737,106	8.30%	85,791	293	8,592	7.93%
2006	768,952	4.32%	86,150	359	8,926	3.89%
2007	793,914	3.25%	86,575	425	9,170	2.74%
2008	814,895	2.64%	87,262	687	9,338	1.83%
2009	846,289	3.85%	87,887	625	9,629	3.11%
2010	874,598	3.35%	88,944	1,057	9,833	2.12%
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%	100,406	3,251	10,838	0.85%
2015	1,129,171	3.76%	103,913	3,507	10,867	0.26%
2016	1,171,249	3.73%	107,266	3,353	10,919	0.48%
2017	1,204,234	2.82%	109,766	2,500	10,971	0.47%
2018	1,237,598	2.77%	112,266	2,500	11,024	0.48%
2019	1,271,227	2.72%	114,765	2,499	11,077	0.48%
2020	1,293,812	1.78%	116,263	1,498	11,128	0.47%
2021	1,316,639	1.76%	117,760	1,497	11,181	0.47%
2022	1,333,347	1.27%	119,257	1,497	11,180	0.00%
2023	1,345,485	0.91%	120,352	1,095	11,180	-0.01%
2024	1,357,106	0.86%	121,397	1,045	11,179	0.00%
2025	1,367,591	0.77%	122,342	945	11,178	-0.01%
2026	1,377,547	0.73%	123,236	894	11,178	0.00%
2027	1,387,491	0.72%	124,129	893	11,178	0.00%
2028	1,396,412	0.64%	124,923	794	11,178	0.00%
2029	1,405,311	0.64%	125,715	792	11,179	0.00%
2030	1,414,222	0.63%	126,508	793	11,179	0.00%
2031	1,423,121	0.63%	127,300	792	11,179	0.00%
2032	1,432,020	0.63%	128,092	792	11,180	0.00%
2033	1,440,402	0.59%	128,834	742	11,180	0.01%
2034	1,448,784	0.58%	129,576	742	11,181	0.01%

	Sales	**Custs**	**Use/Cust**
2004-2014 Average Yearly Growth (10 Years History)	4.48%	1.53%	2.91%
2009-2014 Average Yearly Growth (5 Years History)	5.28%	2.79%	2.42%
2015-2020 Average Yearly Growth (5 Years)	2.76%	2.27%	0.48%
2015-2025 Average Yearly Growth (10 Years)	1.89%	1.59%	0.30%
2015-2034 Average Yearly Growth (19 Years)	1.15%	1.04%	0.12%

4. Forecast Uncertainty

Forecasting is a process permeated with uncertainty. The demand and energy projections produced by the econometric process described in the first four 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 July and August demands and corresponding temperatures at times when the temperatures equaled or exceeded 85°F on Mondays through Thursdays are analyzed. The 2013 study results indicated that each one degree increase in temperature at the time of summer peak would result in an increase of approximately 6.0 MW in summer peak demand.

Since Montana-Dakota does not have hourly load 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 1984 through 2014 (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%	96.5	0.0
75%	99.5	18.0
80%	100.2	22.2
85%	101.1	27.6
90%	102.1	33.6
95%	103.7	43.2
97%	104.8	49.8

As the table shows, there is a 90% probability that actual temperatures at the time of the system peak will not exceed 102.1°F. At this temperature, 33.6 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 probability of 90% 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 2014 90/10 forecasted demand is calculated to be the 2014 50/50 forecasted demand plus 33.6 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 (96.5 degrees F) 50/50 Forecast (MW)	Growth Rate	Alternate Forecast (102.1 degrees F) 90/10 Forecast (MW) */
2015	624.5		658.1
2016	654.7	4.84%	689.9
2017	683.7	4.43%	720.5
2018	705.9	3.25%	743.9
2019	724.8	2.68%	763.8
2020	738.3	1.86%	778.0
2021	752.0	1.86%	792.4
2022	764.9	1.72%	806.0
2023	776.3	1.49%	818.0
2024	787.6	1.46%	829.9
2025	799.0	1.45%	841.9
2026	810.4	1.43%	853.9
2027	821.9	1.42%	866.0
2028	833.3	1.39%	878.0
2029	844.8	1.38%	890.1
2030	856.5	1.38%	902.4
2031	868.3	1.38%	914.8
2032	880.4	1.39%	927.5
2033	892.4	1.36%	940.1
2034	904.6	1.37%	953.0

*/ 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.

However, as shown on the table on page 22, the growth now projected for the Integrated System in 2015, 2016, and 2017 is greater than 4.4%. It was decided that the high-growth scenario would be set to the growth projected for 2015, 2016, and 2017 and growth would then fall to 4.4% per year for 2018 to 2034. Forecasted growth for 2015, 2016, and 2017 is fairly well defined through work with Montana-Dakota's field personnel who have contact with and closely monitor the addition and connection of customers on the system. It is unlikely that additional growth opportunities will develop in the near term which will increase the forecasted growth above these levels. For the low-growth scenario, an average growth rate of 0.5% per year was assumed to occur during the 20-year forecast horizon.

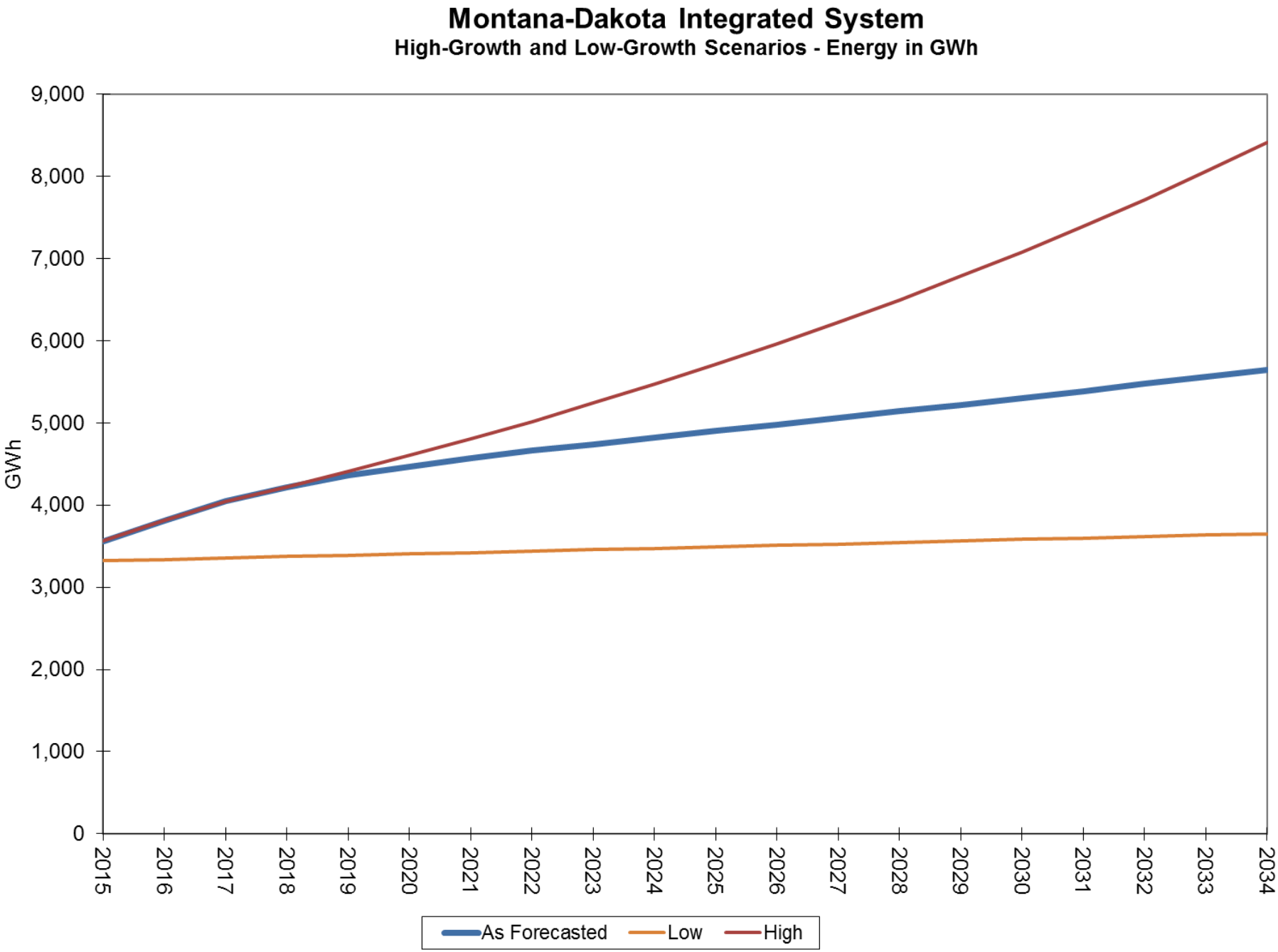
Demand for each scenario was derived by applying the load factors calculated from the base forecast to the high-growth and low-growth scenario forecasted energy.

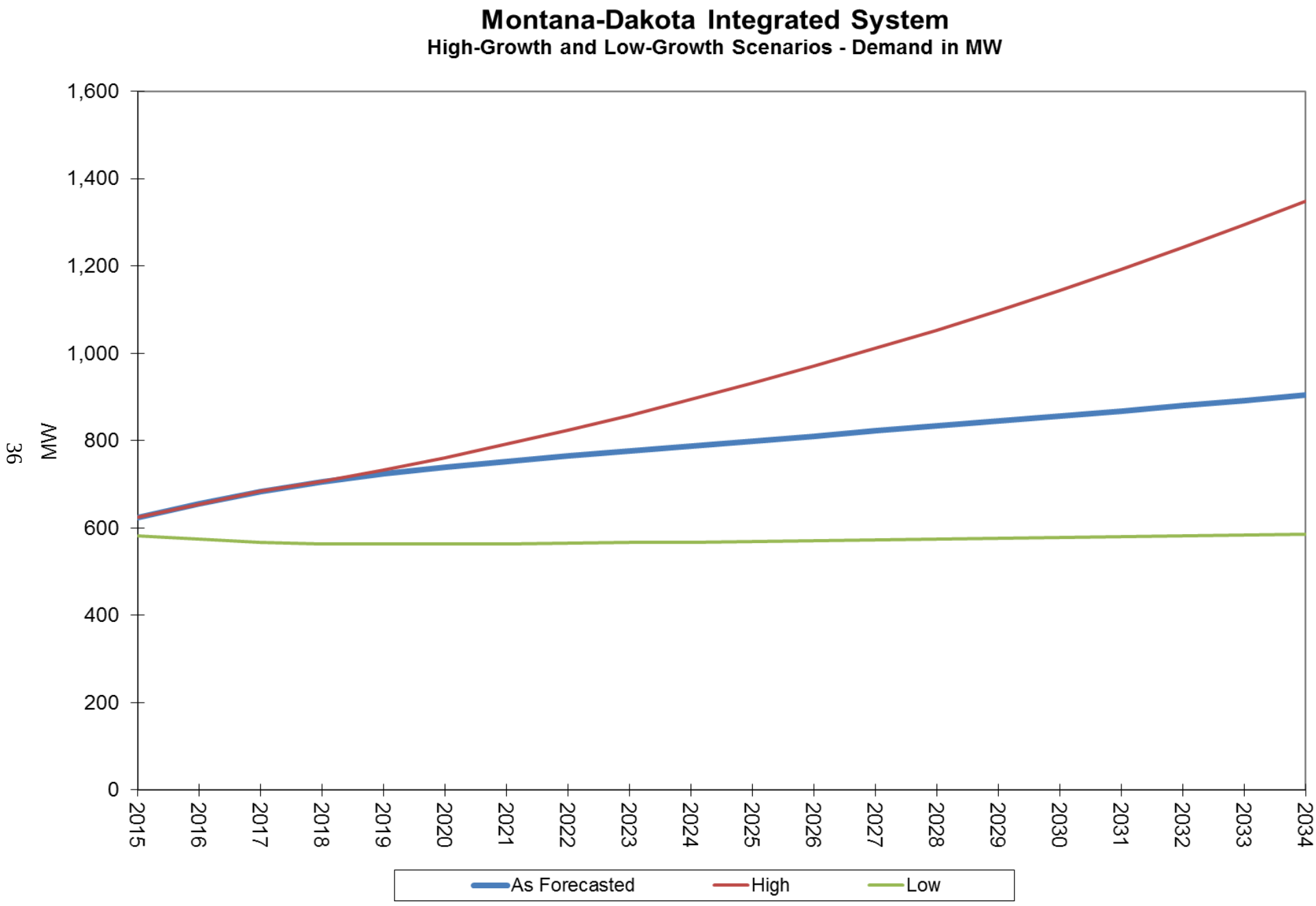
The results of the high-growth and low-growth scenarios for energy and demand are given below. The following two pages present the graphs of the numeric results.

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
2015	3563.7	3563.7	3321.6	624.5	624.5	582.1
2016	3809.9	3809.9	3338.2	654.7	654.7	573.6
2017	4044.8	4044.8	3354.9	683.7	683.7	567.1
2018	4220.3	4222.8	3371.7	705.9	706.3	564.0
2019	4366.3	4408.6	3388.6	724.8	731.8	562.5
2020	4464.9	4602.6	3405.5	738.3	761.1	563.1
2021	4565.4	4805.1	3422.5	752.0	791.5	563.7
2022	4659.2	5016.5	3439.6	764.9	823.6	564.7
2023	4739.0	5237.2	3456.8	776.3	857.9	566.3
2024	4818.6	5467.6	3474.1	787.6	893.7	567.8
2025	4898.4	5708.2	3491.5	799.0	931.1	569.5
2026	4978.3	5959.4	3509.0	810.4	970.1	571.2
2027	5059.5	6221.6	3526.5	821.9	1010.7	572.9
2028	5139.2	6495.4	3544.1	833.3	1053.2	574.7
2029	5220.3	6781.2	3561.8	844.8	1097.4	576.4
2030	5302.9	7079.6	3579.6	856.5	1143.5	578.2
2031	5387.0	7391.1	3597.5	868.3	1191.3	579.9
2032	5472.6	7716.3	3615.5	880.4	1241.4	581.6
2033	5558.1	8055.8	3633.6	892.4	1293.4	583.4
2034	5645.3	8410.3	3651.8	904.6	1347.7	585.2

1/ High forecast assumes no growth greater than that already forecasted for 2015, 2016, and 2017 with 4.4% growth per year (actual 77-85 growth) for the remainder of the forecast horizon 2018-2034.
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
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
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
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
As Forecasted
High
Low

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 15-year period 1999-2013. 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. The allocation factors for billing-cycle sales 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 1999 through April 2014. (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 December are the peak months for the summer and winter seasons, respectively, August and January have the second highest peaks for their respective seasons, etc. (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	(5) 0.6715	(6) 0.5951	(6) 0.6929
June	(3) 0.8819	(3) 0.8489	(3) 0.8852
July	(1) 0.9776	(1) 0.9501	(1) 0.9880
August	(2) 0.9533	(2) 0.9403	(2) 0.9498
September	(4) 0.8111	(4) 0.7738	(4) 0.8341
October	(6) 0.6692	(5) 0.6912	(5) 0.7115

Winter Season

	ND	SD	MT
November	(4) 0.8778	(2) 0.9043	(4) 0.9046
December	(2) 0.9593	(1) 0.9457	(1) 0.9763
January	(1) 0.9766	(3) 0.8799	(2) 0.9435
February	(3) 0.9272	(5) 0.8699	(3) 0.9096
March	(5) 0.8626	(4) 0.8746	(5) 0.8482
April	(6) 0.7844	(6) 0.7576	(6) 0.7611

3. For each season, the monthly ratios determined in Step 1 for the May 2009 through April 2014 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.

5-Year Average Monthly Ratios of Seasonal Peaks For North Dakota

January	0.9371 */	July	1.0000
February	0.9058	August	0.9373
March	0.8219	September	0.7891
April	0.7637	October	0.6736
May	0.7259	November	0.8605
June	0.9235	December	1.0000 */

5-Year Average Monthly Ratios of Seasonal Peaks For South Dakota

January	0.9124	July	1.0000
February	0.8147	August	0.9357
March	0.8714	September	0.7808
April	0.7022	October	0.7193
May	0.5772	November	0.9411
June	0.8878	December	1.0000

5-Year Average Monthly Ratios of Seasonal Peaks For Montana

January	0.9435	July	1.0000
February	0.9041	August	0.9545
March	0.8149	September	0.8272
April	0.7023	October	0.7168
May	0.6689	November	0.8585
June	0.9096	December	1.0000

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

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 2034 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 2015-2024, 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

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

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

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

Montana-Dakota Utilities Co.
Integrated System Seasonal Peaks and Peak Month Load Factors 1/
1960 through 2014

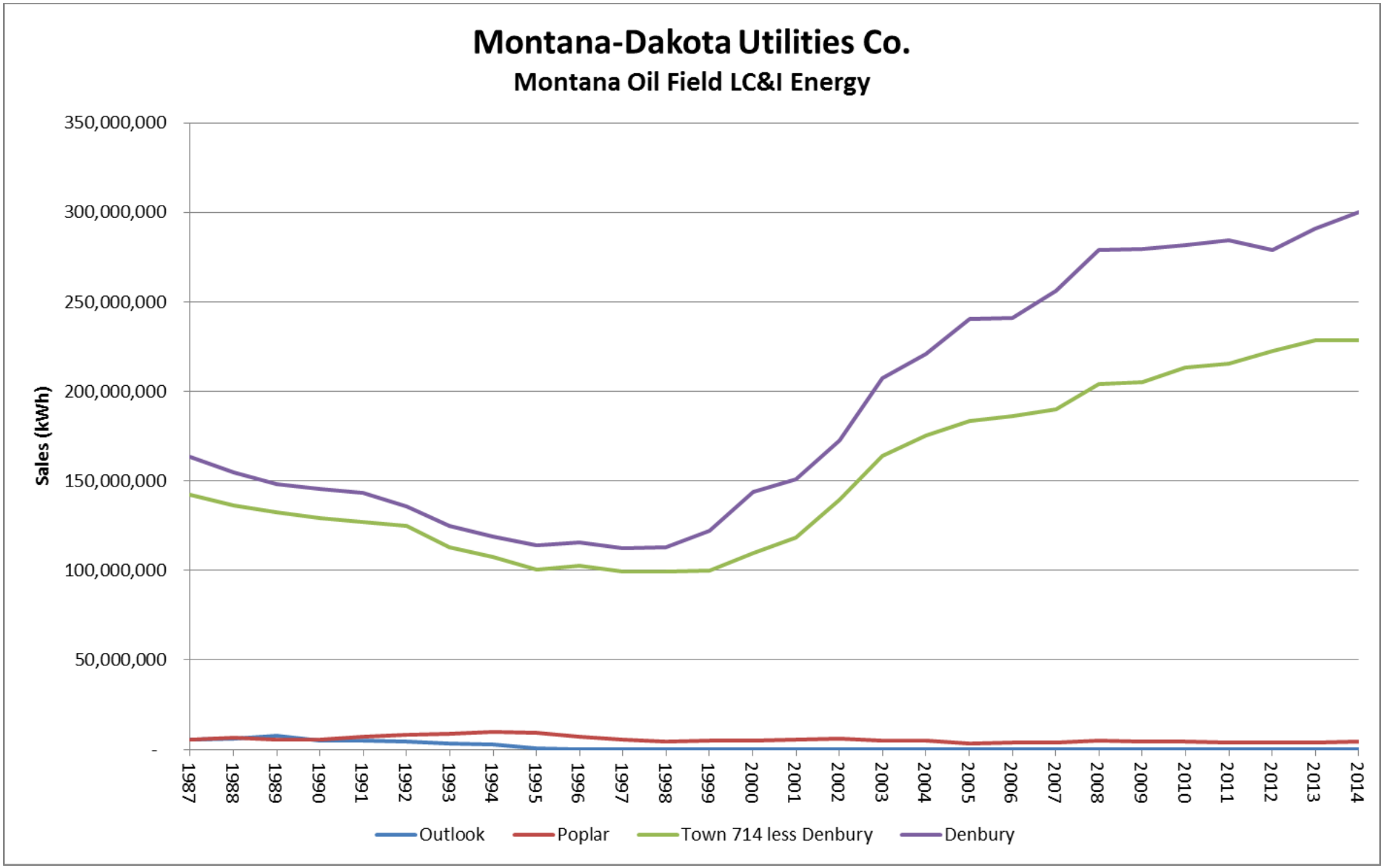
	SUMMER			WINTER			Annual
Year	MW	Month	Load Factor	MW	Month	Load Factor	load Factor
1960	76.7	AUG	70.7	109.3	DEC	58.8	50.9
1961	82.8	AUG	73.7	113.7	JAN	62.0	52.5
1962	83.8	AUG	76 4	123.2	JAN	65.4	53.7
1963	95.9	JUL	68.9	127.6	DEC	63.3	52.5
1964	101.8	AUG	68.2	138.2	DEC	64.2	51.8
1965	108.4	AUG	68.7	138.0	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	548.2	AUG	65.2	582.1	JAN	74.2	63.5
2014	533.0	AUG	66.6				

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.
3/ Ratio of winter peak to preceding summer peak.

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	377.9	47.1	123.2	548.2	437.7	29.9	114.5	582.1	*
2014	376.3	24.8	131.9	533.0					

* Winter peak is in the following year.


Montana-Dakota Utilities Co.
Montana Oil Field LC&I Energy
Sales (kWh)
350,000,000
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
-
1987
1988
1989
1990
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2002
2003
2004
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2006
2007
2008
2009
2010
2011
2012
2013
2014
Outlook
Poplar
Town 714 less Denbury
Denbury

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	0.109202	0.092019	0.091635	0.076212	0.066111	0.066625	0.085747	0.097095	0.079132	0.068935	0.071383	0.095904
Small C&I	0.095735	0.085680	0.087797	0.076192	0.072326	0.073412	0.083759	0.091641	0.083567	0.079759	0.077181	0.092951
Large C&I	0.088543	0.080045	0.082833	0.079254	0.076138	0.080812	0.088595	0.093141	0.086853	0.084519	0.075961	0.083307
Street Lighting	0.096119	0.087027	0.086518	0.081726	0.078168	0.075900	0.074769	0.077938	0.079414	0.084659	0.085758	0.092003
Other Public Sales	0.083401	0.076126	0.084006	0.071167	0.077202	0.084534	0.099740	0.105470	0.091300	0.079311	0.069364	0.078379
Interdepartmental	0.107132	0.092581	0.094972	0.086098	0.082946	0.073392	0.072319	0.073070	0.070943	0.076163	0.075717	0.094666
Company Use	0.091915	0.079705	0.081789	0.079137	0.077308	0.085386	0.087472	0.095730	0.084560	0.078405	0.076636	0.081957
Tesoro Refinery	0.083800	0.068343	0.085007	0.084629	0.077702	0.086932	0.083975	0.091991	0.088812	0.089369	0.078691	0.080748
Westmoreland Coal	0.102831	0.095820	0.091010	0.088900	0.073023	0.074048	0.072624	0.073409	0.073019	0.079041	0.081471	0.094804
Customers												
Residential	0.987295	0.989551	0.991322	0.992467	0.994183	0.997157	0.999767	1.002716	1.006011	1.010096	1.013202	1.016233
Small C&I	0.985380	0.984927	0.986755	0.990901	0.996648	1.002564	1.003789	1.008481	1.010271	1.008613	1.009724	1.011948
Large C&I	1.017292	1.018825	1.019744	1.020664	1.020051	1.011162	1.012694	0.973155	0.974688	0.974688	0.974994	0.982044
Street Lighting	1.051080	0.992665	0.988718	0.989508	0.990297	0.990692	0.992270	0.995823	0.998191	1.000559	1.003322	1.006874
Other Public Sales	0.999856	0.999279	1.000433	1.004760	1.007356	1.004760	1.003894	1.003894	1.002741	0.998125	0.989182	0.985720
Peak Demand	0.9371	0.9058	0.8219	0.7637	0.7259	0.9235	1.0000	0.9373	0.7891	0.6736	0.8605	1.0000

South Dakota

Sales	January	February	March	April	May	June	July	August	September	October	November	December
Residential	0.112002	0.094933	0.095604	0.078759	0.067102	0.065108	0.081962	0.095769	0.076587	0.066532	0.070978	0.094664
Small C&I	0.100679	0.088416	0.090271	0.077262	0.069451	0.070986	0.083962	0.097061	0.082922	0.074174	0.073053	0.091763
Large C&I	0.087605	0.077841	0.081927	0.075885	0.075855	0.075576	0.080083	0.093178	0.087342	0.088891	0.083654	0.092161
Street Lighting	0.084979	0.082258	0.083939	0.083358	0.083021	0.082383	0.082823	0.082737	0.082519	0.084002	0.082489	0.085493
Other Public Sales	0.085042	0.075726	0.080008	0.076092	0.074044	0.090964	0.102961	0.110277	0.082546	0.084246	0.066192	0.071902
Interdepartmental	0.150745	0.119974	0.105246	0.071022	0.055884	0.051093	0.049826	0.054323	0.058287	0.061873	0.086461	0.135267
Company Use	0.166150	0.159141	0.149961	0.099725	0.053790	0.059962	0.019555	0.047220	0.040081	0.037017	0.057921	0.109476
Customers												
Residential	0.998020	0.997566	0.997505	0.998050	0.999321	1.000381	1.002590	1.002530	1.003135	1.002197	1.000684	0.998020
Small C&I	0.986864	0.985003	0.985331	0.991242	1.007334	1.016968	1.017734	1.014340	1.010071	1.001204	0.992337	0.991571
Large C&I	0.956701	0.960825	0.956701	1.006186	1.014433	1.002062	1.014433	1.014433	1.016495	1.018557	1.018557	1.020619
Street Lighting	1.182933	0.976949	0.976949	0.976949	0.976949	0.971064	0.971064	0.971064	0.971064	0.994605	1.006376	1.024031
Other Public Sales	0.973379	0.958346	0.954588	0.992170	1.056060	1.063577	1.059818	1.041027	1.022236	0.984654	0.954588	0.939555
Peak Demand	0.9124	0.8147	0.8714	0.7022	0.5772	0.8878	1.0000	0.9357	0.7808	0.7193	0.9411	1.0000

Montana

Sales	January	February	March	April	May	June	July	August	September	October	November	December
Residential	0.106968	0.089827	0.088928	0.074421	0.066072	0.067184	0.086250	0.106518	0.083683	0.069186	0.069812	0.091150
Small C&I	0.093921	0.086016	0.086546	0.076910	0.072590	0.072282	0.087217	0.101802	0.086741	0.077298	0.072561	0.086115
Large C&I	0.095875	0.081165	0.080631	0.082887	0.092852	0.059139	0.081879	0.079421	0.084360	0.085804	0.078881	0.097107
Street Lighting	0.087521	0.085256	0.083747	0.083140	0.082601	0.081943	0.082044	0.082317	0.081990	0.083212	0.082372	0.083856
Other Public Sales	0.078586	0.071958	0.070374	0.068778	0.073012	0.086143	0.107458	0.125190	0.101505	0.081676	0.064480	0.070842
Interdepartmental	0.109455	0.092325	0.094049	0.080054	0.075154	0.071372	0.074431	0.081586	0.074564	0.075860	0.075559	0.095593
Company Use	0.100836	0.094569	0.093283	0.080634	0.085087	0.067563	0.081678	0.094772	0.078533	0.069003	0.066992	0.087051
Oil Fields	0.090924	0.077222	0.083433	0.082833	0.079685	0.080952	0.082709	0.082405	0.082472	0.086327	0.083523	0.087516
Westmoreland Coal	0.120409	0.106691	0.105880	0.090478	0.073330	0.062792	0.061857	0.059363	0.057492	0.071086	0.082185	0.108437
Customers												
Residential	0.995716	0.996094	0.997589	0.996673	0.997084	0.998672	0.999988	1.000640	1.001745	1.003607	1.005365	1.006827
Small C&I	0.987913	0.986208	0.986857	0.993757	0.999398	1.006866	1.009422	1.011249	1.009828	1.004187	1.001995	1.002320
Large C&I	1.004301	0.992503	0.994715	1.007251	1.012412	0.996190	1.002827	0.999877	1.000614	0.998402	0.995453	0.995453
Street Lighting	1.162801	0.991112	1.006720	0.993713	0.980707	0.978105	0.978105	0.978105	0.978105	0.978105	0.978105	0.996315
Other Public Sales	0.989474	0.987560	0.987560	1.002871	1.010526	1.008612	1.018182	1.018182	1.008612	0.999043	0.983732	0.985646
Peak Demand	0.9435	0.9041	0.8149	0.7023	0.6689	0.9096	1.0000	0.9545	0.8272	0.7168	0.8585	1.0000

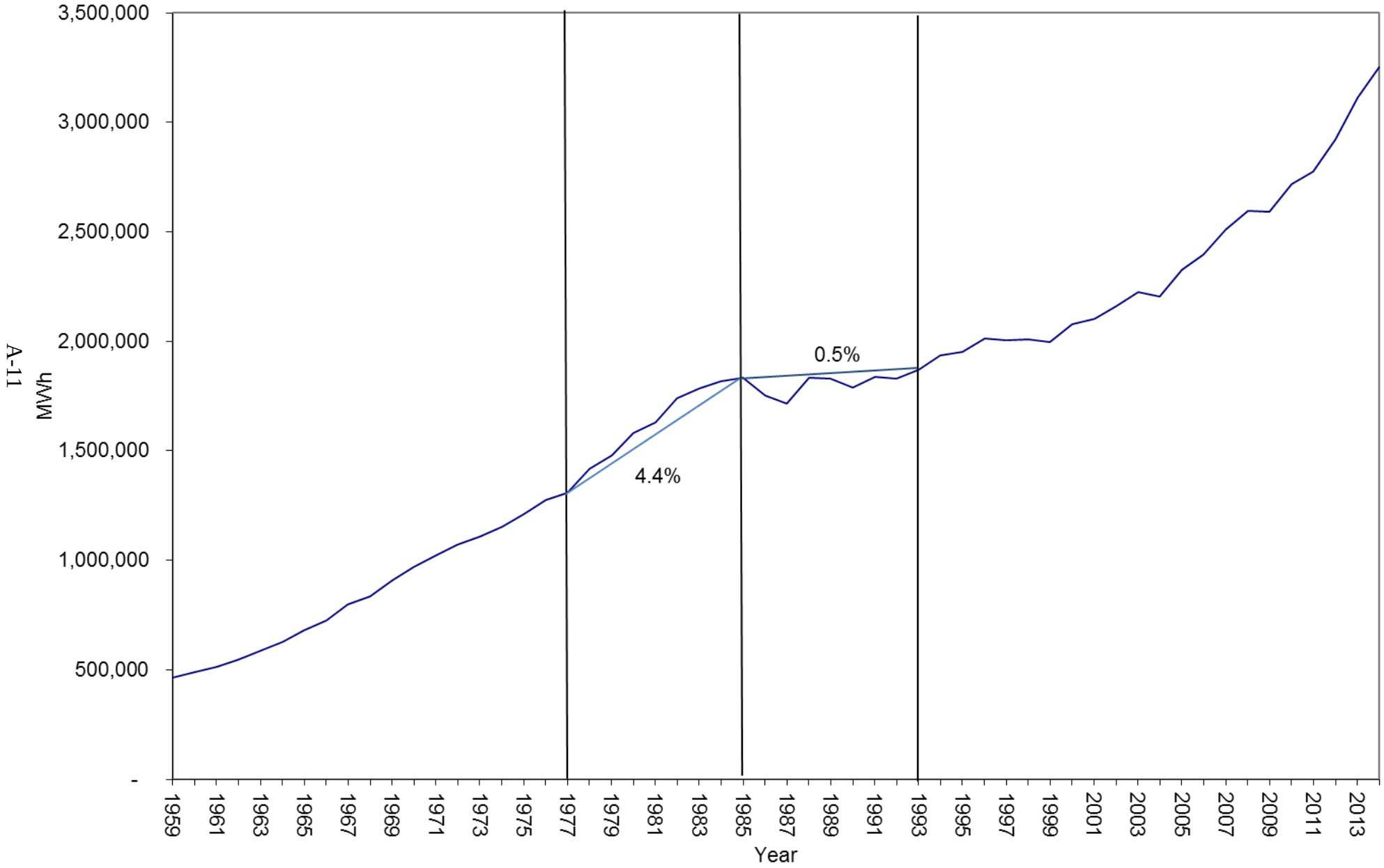
Montana-Dakota Utilities Co.
Billing-Month to Calendar-Month Allocation Factors

Residential	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
North Dakota	50.4%	48.9%	52.2%	50.3%	50.2%	53.2%	47.5%	53.2%	49.7%	51.0%	49.0%	52.1%
South Dakota	55.0%	54.9%	58.1%	56.0%	55.6%	59.2%	52.9%	58.4%	51.5%	56.2%	54.6%	56.4%
Montana	53.3%	51.6%	57.4%	54.4%	53.4%	57.8%	50.7%	59.3%	51.4%	55.5%	50.9%	54.9%
Small Commercial & Industrial												
North Dakota	49.1%	48.0%	49.9%	48.7%	48.9%	52.2%	46.7%	49.9%	47.7%	48.9%	49.0%	52.1%
South Dakota	54.4%	52.9%	58.9%	53.6%	53.5%	57.0%	50.9%	58.9%	48.5%	56.0%	53.0%	56.5%
Montana	49.7%	48.9%	52.9%	49.6%	47.7%	54.8%	47.2%	54.2%	46.7%	50.6%	47.7%	50.5%
Large Commercial & Industrial												
North Dakota	47.4%	46.0%	48.6%	46.7%	48.3%	50.2%	45.3%	48.5%	45.6%	47.1%	47.6%	51.1%
South Dakota	58.7%	50.5%	64.9%	60.0%	54.7%	60.9%	53.5%	65.5%	46.6%	61.7%	54.0%	58.5%
Montana	37.9%	32.2%	32.6%	28.6%	27.5%	26.5%	31.2%	33.0%	28.4%	29.8%	33.2%	34.2%
Street Lighting												
North Dakota	43.1%	43.1%	41.2%	40.9%	41.3%	43.4%	39.7%	41.0%	40.9%	40.8%	42.8%	45.7%
South Dakota	49.3%	52.4%	48.3%	49.0%	50.1%	51.6%	49.2%	49.3%	50.2%	49.0%	52.8%	53.3%
Montana	46.2%	48.7%	44.0%	44.8%	45.7%	47.4%	44.0%	44.9%	45.5%	44.5%	48.5%	49.1%
Other Public Sales												
North Dakota	50.4%	50.0%	48.0%	48.5%	48.5%	50.6%	47.9%	49.0%	48.5%	48.1%	51.5%	52.8%
South Dakota	57.4%	40.4%	70.9%	59.1%	52.5%	58.1%	51.2%	65.7%	36.8%	68.0%	40.9%	53.0%
Montana	50.9%	43.5%	56.5%	50.6%	48.7%	51.3%	43.4%	53.0%	42.8%	52.7%	45.6%	50.2%
Interdepartmental												
North Dakota	54.8%	50.6%	55.8%	53.6%	53.6%	56.3%	49.5%	56.7%	51.6%	55.5%	51.7%	54.9%
South Dakota	18.7%	18.2%	16.0%	15.4%	14.6%	19.9%	17.1%	15.8%	17.7%	17.0%	36.9%	18.7%
Montana	41.9%	38.0%	50.2%	45.0%	45.2%	51.0%	43.6%	55.5%	41.0%	50.2%	40.3%	44.9%
Company Use												
North Dakota	42.7%	43.9%	40.6%	40.2%	41.4%	43.4%	39.7%	39.6%	40.5%	39.1%	43.9%	45.7%
South Dakota	71.7%	77.0%	70.0%	72.7%	72.7%	72.8%	71.2%	71.3%	73.1%	71.0%	76.3%	75.6%
Montana	59.6%	61.5%	60.6%	61.7%	58.2%	60.6%	56.4%	59.7%	56.0%	58.7%	60.3%	62.7%

Montana-Dakota Utilties Co.
Integrated System
Historical Energy Requirements

Year	Total Energy Requirements MWh	%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%

Montana-Dakota Integrated System
Total Energy Requirements



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
1989	7.442	6.938	9.077	6.219	7.862	8.618	4.763	5.834	6.410
1990	7.445	6.949	9.106	6.177	7.883	8.620	4.753	5.747	6.338
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

SOURCE:
1989-2013: 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
1989	4.40	4.06
1990	4.46	4.07
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

SOURCE:
1989-2013: CSBEPFL Rate Reporting Class Report
Gas Year-to-Date Report for Year-end

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

	HDD		CDD	
	MT & ND	SD	MT & ND	SD
1989	9,086	9,007	672	706
1990	8,061	7,652	611	610
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
NORMAL	8,558	8,534	520	525

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

Year	Montana	North Dakota	South Dakota
1989	1,417,583	4,432,999	665,338
1990	1,366,290	4,566,013	685,719
1991	1,431,607	4,489,701	654,245
1992	1,495,383	4,862,233	707,167
1993	1,526,848	4,937,656	717,347
1994	1,486,791	5,019,503	654,441
1995	1,459,493	4,943,982	663,046
1996	1,471,725	5,379,892	749,362
1997	1,476,249	5,154,838	719,045
1998	1,557,048	5,690,963	792,349
1999	1,585,344	5,698,819	820,523
2000	1,586,185	6,068,897	883,884
2001	1,656,100	6,279,940	911,031
2002	1,600,427	6,136,793	767,686
2003	1,718,727	6,688,712	928,319
2004	1,730,981	6,784,168	933,945
2005	1,757,160	7,114,807	946,155
2006	1,761,023	7,252,494	749,478
2007	1,906,987	7,845,718	950,040
2008	2,030,622	8,440,532	1,153,752
2009	1,995,615	8,667,953	995,077
2010	2,119,618	9,564,301	995,878
2011	2,208,354	11,116,501	1,277,054
2012	2,197,045	11,064,204	1,304,551
2013	2,224,851	11,298,089	1,308,463

SOURCES:
1989-2011 U.S. Dept. of Commerce
2012 & 2013 Woods & Poole Economics

Integrated System
Personal Consumption Expediture Deflator

Year	Personal Consumption Expenditure Deflator (2009 = 100)	Inflation Rate
1989	64.64	
1990	67.44	4.3%
1991	69.65	3.3%
1992	71.49	2.6%
1993	73.28	2.5%
1994	74.80	2.1%
1995	76.35	2.1%
1996	77.98	2.1%
1997	79.33	1.7%
1998	79.93	0.8%
1999	81.11	1.5%
2000	83.13	2.5%
2001	84.73	1.9%
2002	85.87	1.3%
2003	87.57	2.0%
2004	89.70	2.4%
2005	92.26	2.9%
2006	94.73	2.7%
2007	97.10	2.5%
2008	100.06	3.0%
2009	100.00	-0.1%
2010	101.65	1.7%
2011	104.09	2.4%
2012	106.01	1.8%
2013	107.27	1.2%
2014	109.37	2.0%
2015	111.69	2.1%
2016	114.31	2.3%
2017	117.18	2.5%
2018	120.43	2.8%
2019	123.97	2.9%
2020	127.98	3.2%
2021	132.19	3.3%
2022	136.61	3.3%
2023	141.24	3.4%
2024	146.10	3.4%
2025	151.20	3.5%
2026	156.49	3.5%
2027	161.98	3.5%
2028	167.70	3.5%
2029	173.62	3.5%
2030	179.77	3.5%
2031	186.15	3.5%
2032	192.77	3.6%
2033	199.66	3.6%
2034	206.80	3.6%

SOURCES:
1989-2012 U.S. Department of Commerce
2013-2034 Woods & Poole Economics, Inc.

Montana-Dakota Utilities Co.
Integrated System
Residential Sector
Households and Customers
for Service Territory Counties

	Montana		North Dakota		South Dakota	
Year	Number of Households	Average Customers	Number of Households	Average Customers	Number of Households	Average Customers
1989	25,283	18,895	77,948	56,829	12,305	6,996
1990	24,505	18,747	76,942	56,592	12,052	6,922
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	24,941	18,883	94,260	65,196	10,832	6,602
2012	24,786	19,191	94,390	67,888	10,722	6,616
2013	24,987	19,616	95,865	70,949	10,763	6,590
2014	25,174	20,016	97,304	73,949	10,800	6,595
2015	25,347	20,366	98,699	76,949	10,828	6,598
2016	25,494	20,716	100,012	79,949	10,847	6,601
2017	25,615	21,016	101,240	82,149	10,854	6,601
2018	25,712	21,316	102,383	84,349	10,851	6,601
2019	25,792	21,616	103,472	86,549	10,842	6,600
2020	25,859	21,916	104,526	87,749	10,825	6,598
2021	25,918	22,216	105,549	88,949	10,806	6,595
2022	25,954	22,516	106,493	90,149	10,777	6,592
2023	25,973	22,816	107,383	90,949	10,741	6,587
2024	25,981	23,066	108,226	91,749	10,703	6,582
2025	25,979	23,316	109,040	92,449	10,658	6,577
2026	25,969	23,516	109,826	93,149	10,612	6,571
2027	25,950	23,716	110,586	93,849	10,559	6,564
2028	25,926	23,816	111,318	94,549	10,509	6,558
2029	25,892	23,916	112,025	95,249	10,451	6,550
2030	25,850	24,016	112,702	95,949	10,393	6,543
2031	25,802	24,116	113,362	96,649	10,336	6,535
2032	25,753	24,216	114,006	97,349	10,273	6,527
2033	25,698	24,266	114,639	98,049	10,212	6,519
2034	25,640	24,316	115,263	98,749	10,148	6,511

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

SOURCES:
Households
1985, 1990, 2000, 2010: U.S. Department of Commerce
All other years: Estimated and projected by Woods & Poole
Customers
1989-2013: Actuals from Montana-Dakota Utilities Co. Customer Information System Active Customers Report
2014-2034: 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	Adjusted Employment	Growth Rate
1989	28,291				95,989				11,304			
1990	28,308	0.06%			97,876	1.97%			11,516	1.88%		
1991	28,793	1.71%			100,284	2.46%			11,312	-1.77%		
1992	28,556	-0.82%			101,468	1.18%			11,308	-0.04%		
1993	29,094	1.88%			104,357	2.85%			11,369	0.54%		
1994	30,470	4.73%			109,282	4.72%			12,272	7.94%		
1995	30,234	-0.77%			109,763	0.44%			11,993	-2.27%		
1996	30,123	-0.37%			111,863	1.91%			12,229	1.97%		
1997	30,502	1.26%			113,752	1.69%			12,126	-0.84%		
1998	30,957	1.49%			116,627	2.53%			12,379	2.09%		
1999	30,782	-0.57%			118,383	1.51%			12,381	0.02%		
2000	30,848	0.21%			120,478	1.77%			12,542	1.30%		
2001	30,327	-1.69%			120,357	-0.10%			12,508	-0.27%		
2002	30,483	0.51%			122,122	1.47%			12,342	-1.33%		
2003	30,911	1.40%			123,837	1.40%			12,175	-1.35%		
2004	30,957	0.15%			126,450	2.11%			12,345	1.40%		
2005	30,899	-0.19%			129,279	2.24%			12,509	1.33%		
2006	31,210	1.01%			133,460	3.23%			12,614	0.84%		
2007	32,070	2.76%			135,946	1.86%			12,585	-0.23%		
2008	32,978	2.83%			139,350	2.50%			12,820	1.87%		
2009	33,206	0.69%			141,886	1.82%			12,958	1.08%		
2010	33,795	1.77%			146,772	3.44%			13,469	3.94%		
2011	34,838	3.09%			156,906	6.90%			13,440	-0.22%		
2012	35,175	0.97%			159,725	1.80%			13,502	0.46%		
2013	35,527	1.00%			162,575	1.78%			13,569	0.50%		
2014	35,875	0.98%	36,655	3.18%	165,500	1.80%	171,505	5.49%	13,637	0.50%	13,777	1.53%
2015	36,217	0.95%	37,556	2.46%	168,446	1.78%	180,601	5.30%	13,712	0.55%	13,988	1.53%
2016	36,569	0.97%	38,467	2.43%	171,457	1.79%	189,864	5.13%	13,763	0.37%	14,202	1.53%
2017	36,921	0.96%	39,292	2.14%	174,502	1.78%	197,372	3.95%	13,830	0.49%	14,419	1.53%
2018	37,276	0.96%	40,126	2.12%	177,608	1.78%	205,002	3.87%	13,893	0.46%	14,640	1.53%
2019	37,643	0.98%	40,967	2.10%	180,756	1.77%	212,754	3.78%	13,961	0.49%	14,771	0.89%
2020	38,012	0.98%	41,815	2.07%	183,967	1.78%	218,142	2.53%	14,015	0.39%	14,903	0.89%
2021	38,366	0.93%	42,672	2.05%	187,234	1.78%	223,598	2.50%	14,079	0.46%	15,036	0.89%
2022	38,725	0.94%	43,536	2.02%	190,539	1.77%	229,120	2.47%	14,140	0.43%	15,170	0.89%
2023	39,105	0.98%	44,408	2.00%	193,891	1.76%	233,424	1.88%	14,198	0.41%	15,305	0.89%
2024	39,464	0.92%	45,189	1.76%	197,337	1.78%	237,767	1.86%	14,260	0.44%	15,370	0.42%
2025	39,835	0.94%	45,977	1.74%	200,792	1.75%	242,148	1.84%	14,302	0.29%	15,435	0.42%
2026	40,207	0.93%	46,672	1.51%	204,337	1.77%	246,569	1.83%	14,368	0.46%	15,500	0.42%
2027	40,583	0.94%	47,372	1.50%	207,914	1.75%	251,029	1.81%	14,428	0.42%	15,566	0.43%
2028	40,966	0.94%	47,876	1.06%	211,579	1.76%	255,527	1.79%	14,481	0.37%	15,632	0.42%
2029	41,343	0.92%	48,383	1.06%	215,280	1.75%	260,065	1.78%	14,533	0.36%	15,698	0.42%
2030	41,727	0.93%	48,892	1.05%	219,047	1.75%	264,641	1.76%	14,586	0.36%	15,764	0.42%
2031	42,115	0.93%	49,404	1.05%	222,861	1.74%	269,257	1.74%	14,635	0.34%	15,831	0.43%
2032	42,498	0.91%	49,919	1.04%	226,762	1.75%	273,911	1.73%	14,693	0.40%	15,898	0.42%
2033	42,886	0.91%	50,332	0.83%	230,704	1.74%	278,604	1.71%	14,744	0.35%	15,965	0.42%
2034	43,278	0.91%	50,746	0.82%	234,726	1.74%	283,336	1.70%	14,790	0.31%	16,033	0.43%

SOURCES:

Number of Employees:

1989-2011: U.S. Department of Commerce

2012-2034: Woods & Poole Economics Inc.

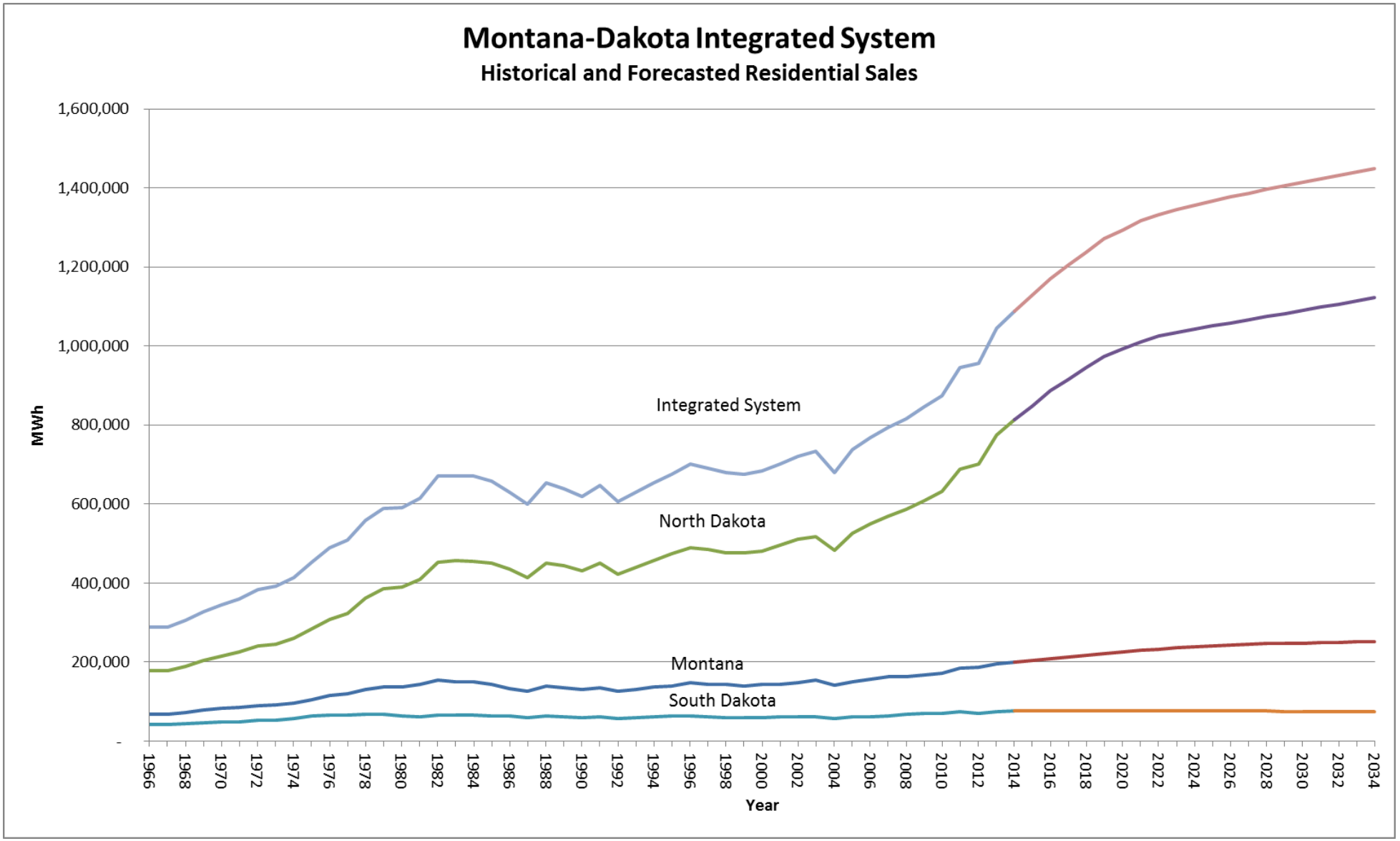
Adjusted Employment:

2014-2034: Employment was tied to the growth in residential customers by running a regression on the historical (1989-2013) 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 an adjusted forecast of number of employees.

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
MWh
1,600,000
1,400,000
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
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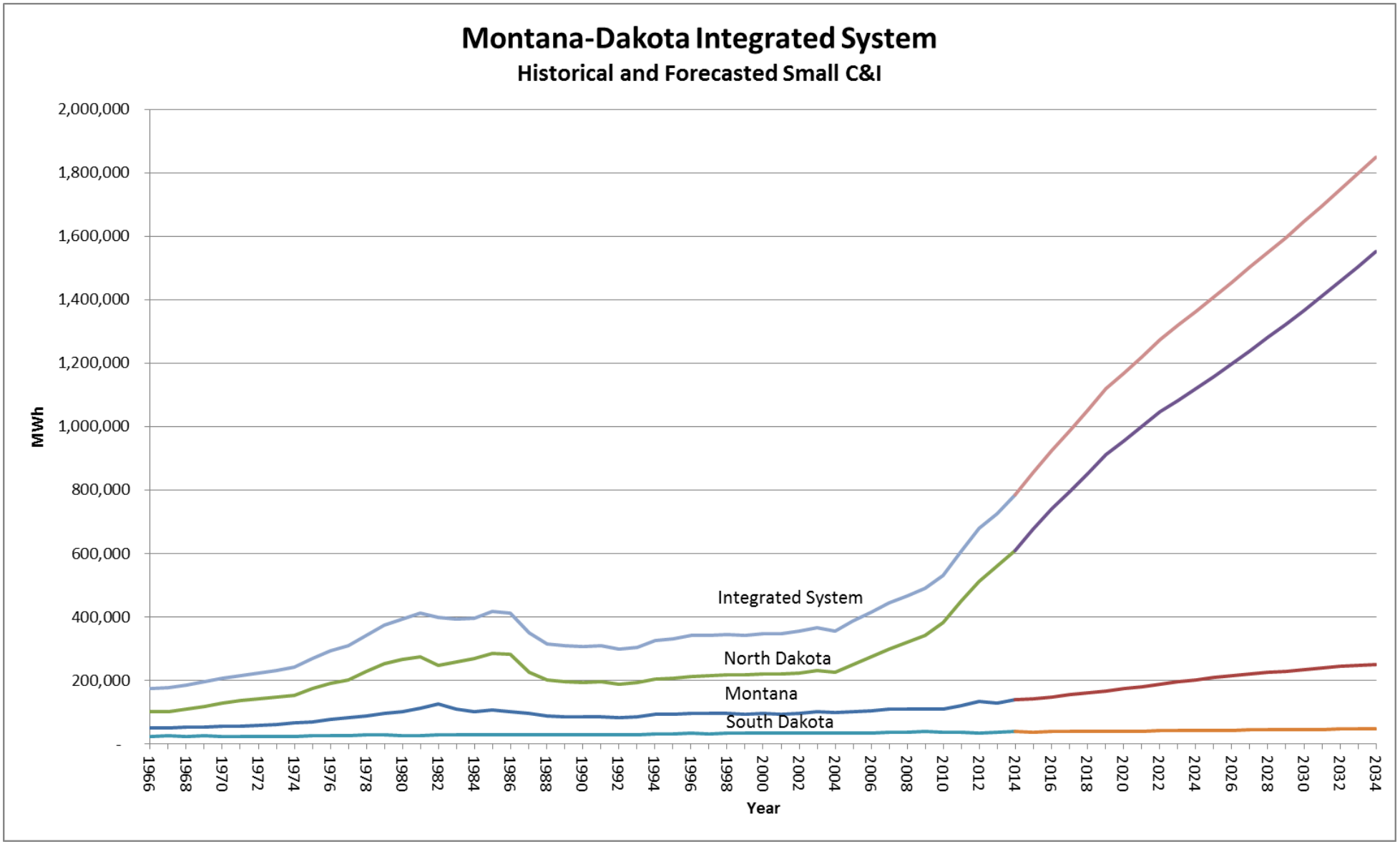
2022
2024
2026
2028
2030
2032
2034
Year


Montana-Dakota Integrated System
Historical and Forecasted Small C&I
MWh
2,000,000
1,800,000
1,600,000
1,400,000
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
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2022
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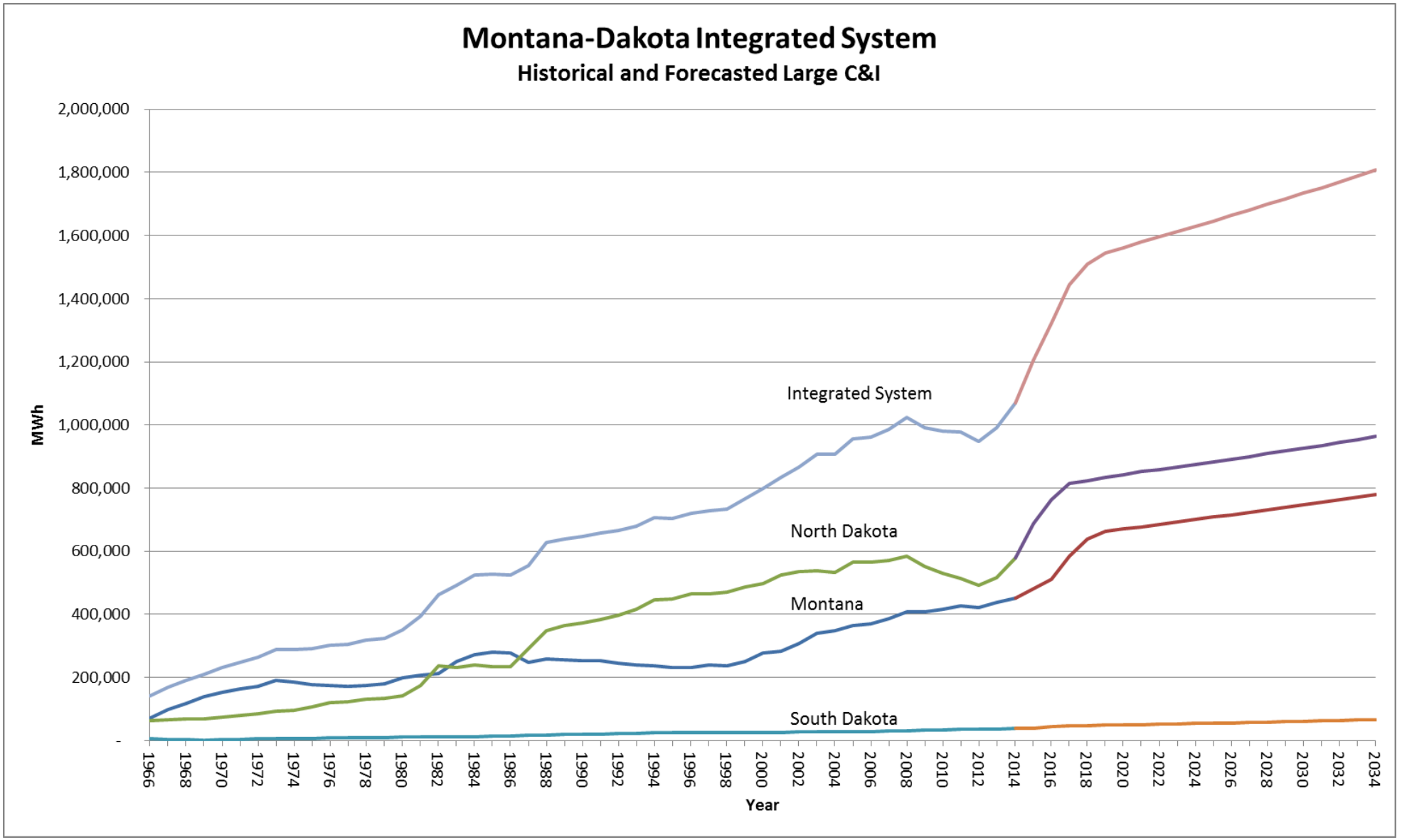
2026
2028
2030
2032
2034
Year


Montana-Dakota Integrated System
Historical and Forecasted Large C&I
MWh
2,000,000
1,800,000
1,600,000
1,400,000
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
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1994
1996
1998
2000
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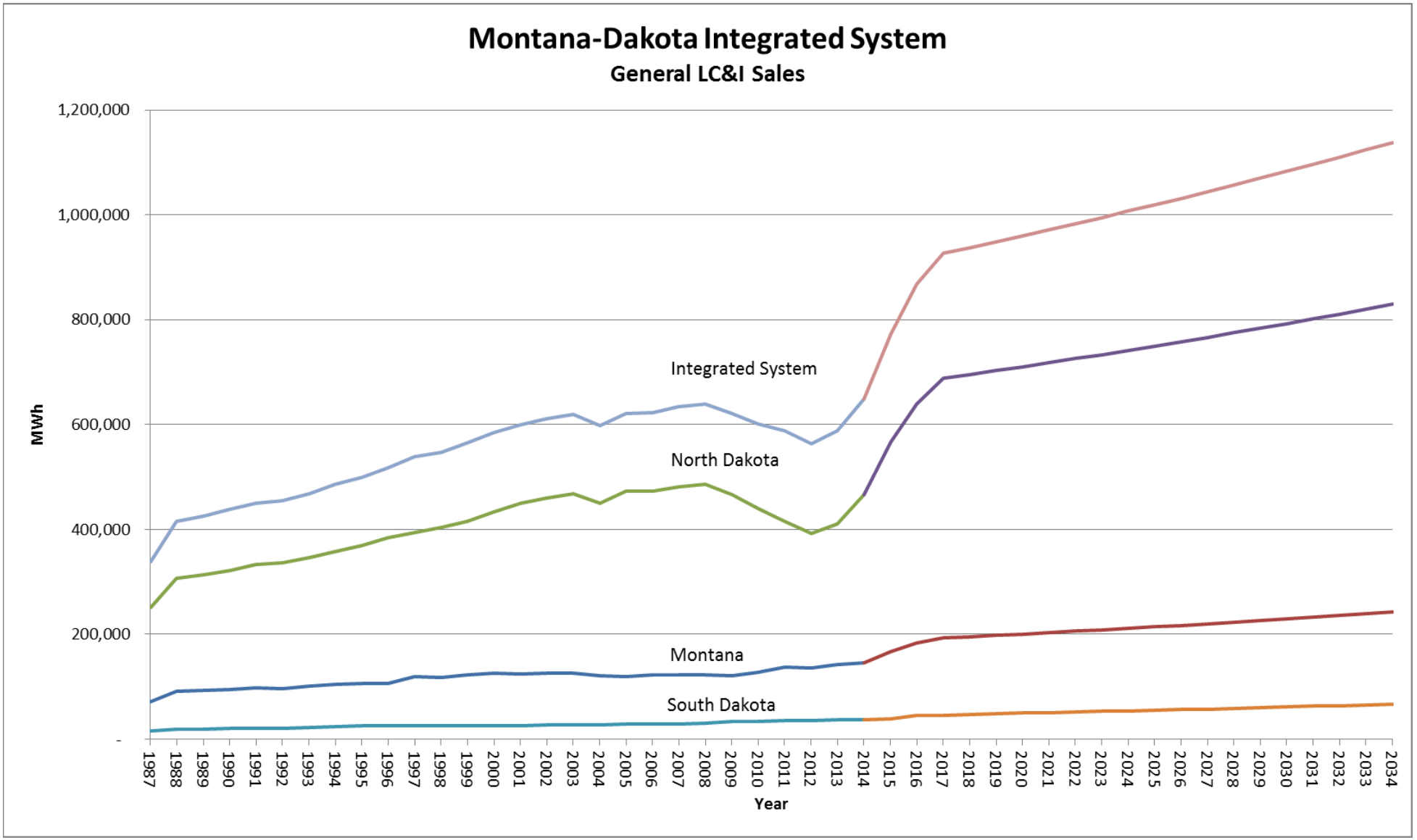
2018
2020
2022
2024
2026
2028
2030
2032
2034
Year


Montana-Dakota Integrated System
General LC&I Sales
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
MWh
Integrated System
North Dakota
Montana
South Dakota
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
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1998
1999
2000
2001
2002
2003
2004
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2007
2008
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2012
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2016
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2018
2019
2020
2021
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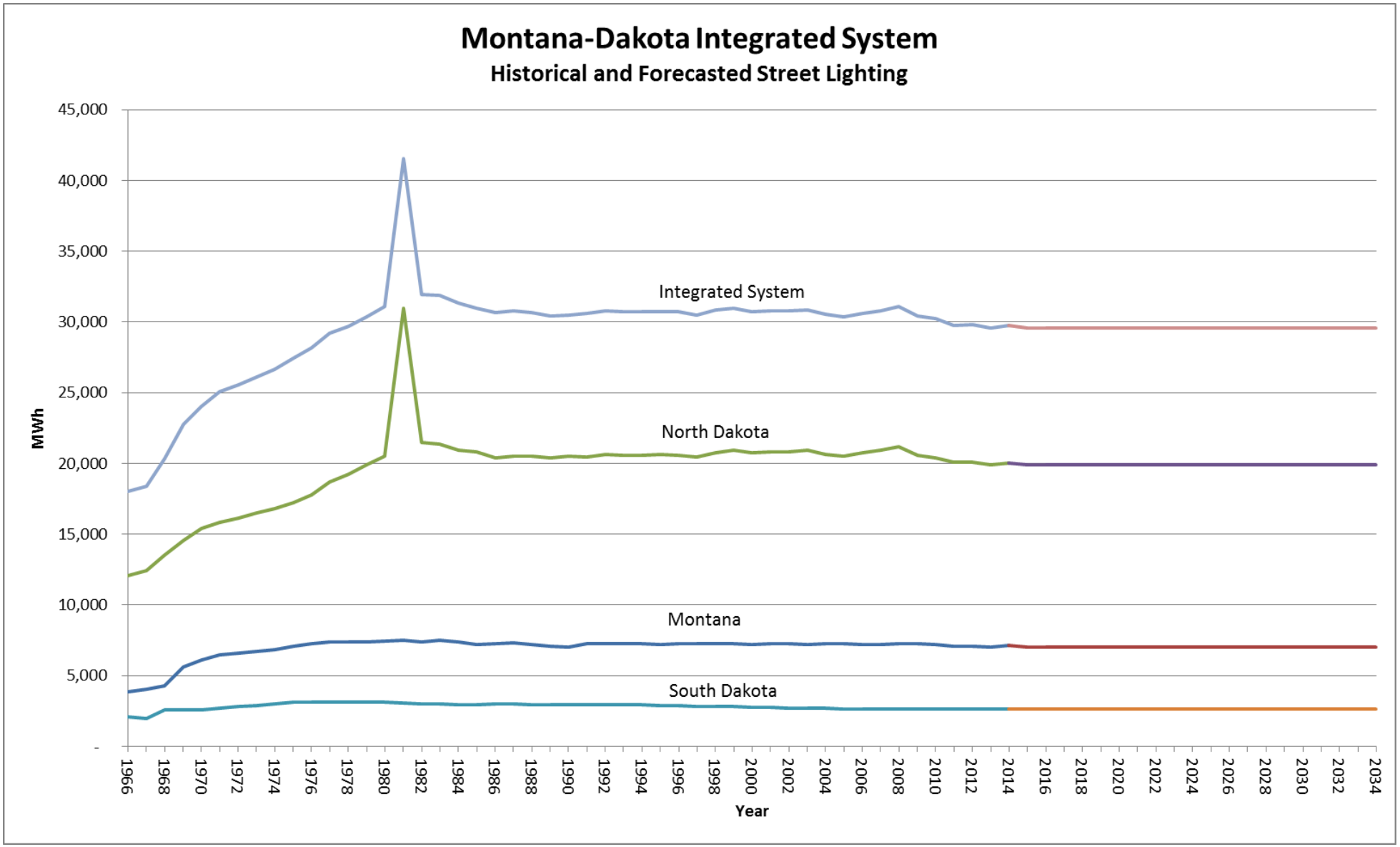
2028
2029
2030
2031
2032
2033
2034
Year


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
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1982
1984
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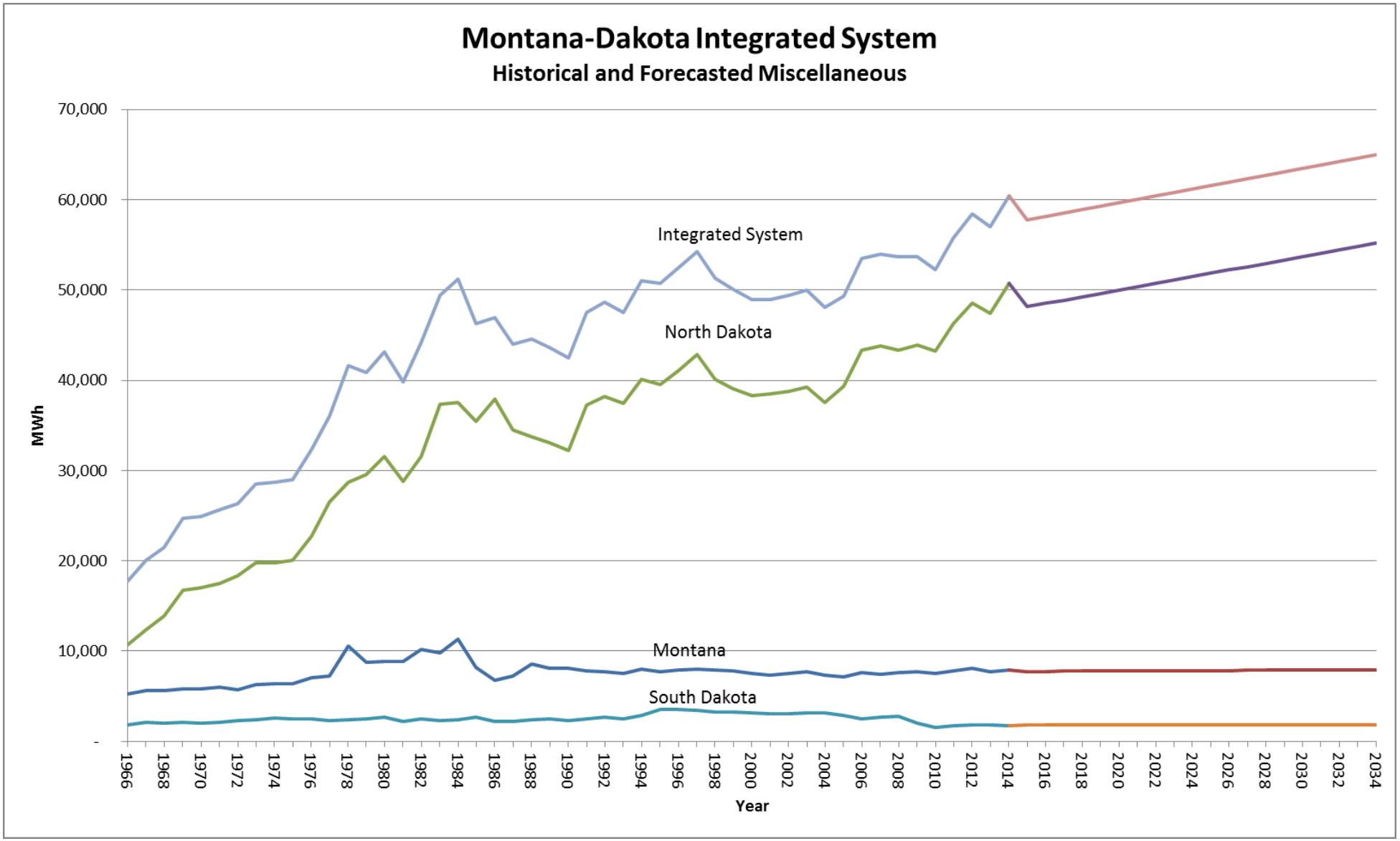
2026
2028
2030
2032
2034
Year


Montana-Dakota Integrated System
Historical and Forecasted Miscellaneous
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
MWh
Integrated System
North Dakota
Montana
South Dakota
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
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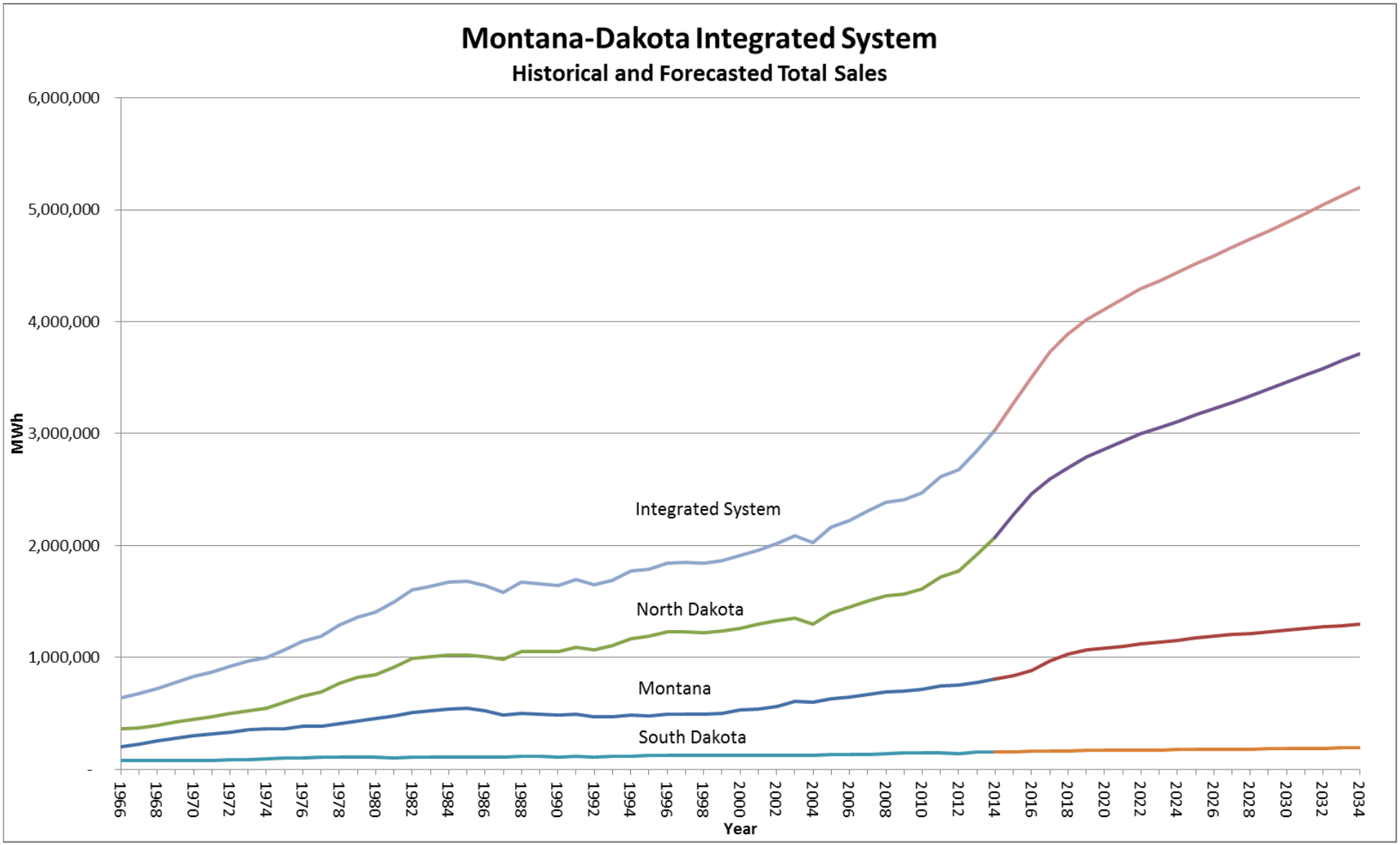
2030
2032
2034
Year


Montana-Dakota Integrated System
Historical and Forecasted Total Sales
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
-
MWh
Integrated System
North Dakota
Montana
South Dakota
1966
1968
1970
1972
1974
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1978
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1982
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2020
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2030
2032
2034
Year

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 (%)
2015	160.1		154.7		913.5		65.13%
2016	164.9	3.00%	159.3	2.97%	959.2	5.00%	66.40%
2017	177.2	7.46%	168.7	5.90%	1,048.3	9.29%	67.53%
2018	187.0	5.53%	175.6	4.09%	1,118.0	6.65%	68.25%
2019	191.9	2.62%	178.8	1.82%	1,156.4	3.43%	68.79%
2020	194.5	1.35%	180.8	1.12%	1,176.2	1.71%	69.03%
2021	197.0	1.29%	182.8	1.11%	1,196.2	1.70%	69.32%
2022	199.5	1.27%	184.6	0.98%	1,215.3	1.60%	69.54%
2023	202.2	1.35%	187.0	1.30%	1,234.6	1.59%	69.70%
2024	204.8	1.29%	189.0	1.07%	1,252.8	1.47%	69.83%
2025	207.3	1.22%	191.2	1.16%	1,271.1	1.46%	70.00%
2026	209.7	1.16%	193.0	0.94%	1,288.3	1.35%	70.13%
2027	212.1	1.14%	194.8	0.93%	1,305.4	1.33%	70.26%
2028	214.0	0.90%	196.1	0.67%	1,319.9	1.11%	70.41%
2029	215.9	0.89%	197.5	0.71%	1,334.4	1.10%	70.56%
2030	217.9	0.93%	198.8	0.66%	1,349.1	1.10%	70.68%
2031	219.9	0.92%	200.1	0.65%	1,363.9	1.10%	70.80%
2032	221.8	0.86%	201.3	0.60%	1,378.8	1.09%	70.96%
2033	223.5	0.77%	202.5	0.60%	1,392.3	0.98%	71.11%
2034	225.2	0.76%	203.6	0.54%	1,405.9	0.98%	71.27%

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 (%)
2015	434.7		420.2		2,480.9		65.15%
2016	459.5	5.71%	444.2	5.71%	2,674.1	7.79%	66.43%
2017	476.3	3.66%	453.5	2.09%	2,818.0	5.38%	67.54%
2018	488.8	2.62%	459.1	1.23%	2,922.1	3.69%	68.24%
2019	502.6	2.82%	468.2	1.98%	3,028.0	3.62%	68.77%
2020	513.4	2.15%	477.4	1.96%	3,105.1	2.55%	69.04%
2021	524.4	2.14%	486.6	1.93%	3,183.8	2.53%	69.31%
2022	534.7	1.96%	494.8	1.69%	3,256.8	2.29%	69.53%
2023	543.1	1.57%	502.1	1.48%	3,315.4	1.80%	69.69%
2024	551.6	1.57%	509.3	1.43%	3,375.1	1.80%	69.85%
2025	560.3	1.58%	516.6	1.43%	3,434.9	1.77%	69.98%
2026	569.1	1.57%	523.8	1.39%	3,495.9	1.78%	70.12%
2027	578.0	1.56%	531.1	1.39%	3,558.1	1.78%	70.27%
2028	587.2	1.59%	538.2	1.34%	3,621.6	1.78%	70.41%
2029	596.5	1.58%	545.5	1.36%	3,686.3	1.79%	70.55%
2030	606.1	1.61%	552.8	1.34%	3,752.3	1.79%	70.67%
2031	615.7	1.58%	560.4	1.37%	3,819.6	1.79%	70.82%
2032	625.5	1.59%	567.8	1.32%	3,888.4	1.80%	70.96%
2033	635.6	1.61%	575.7	1.39%	3,958.5	1.80%	71.10%
2034	645.8	1.60%	583.7	1.39%	4,029.9	1.80%	71.23%

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

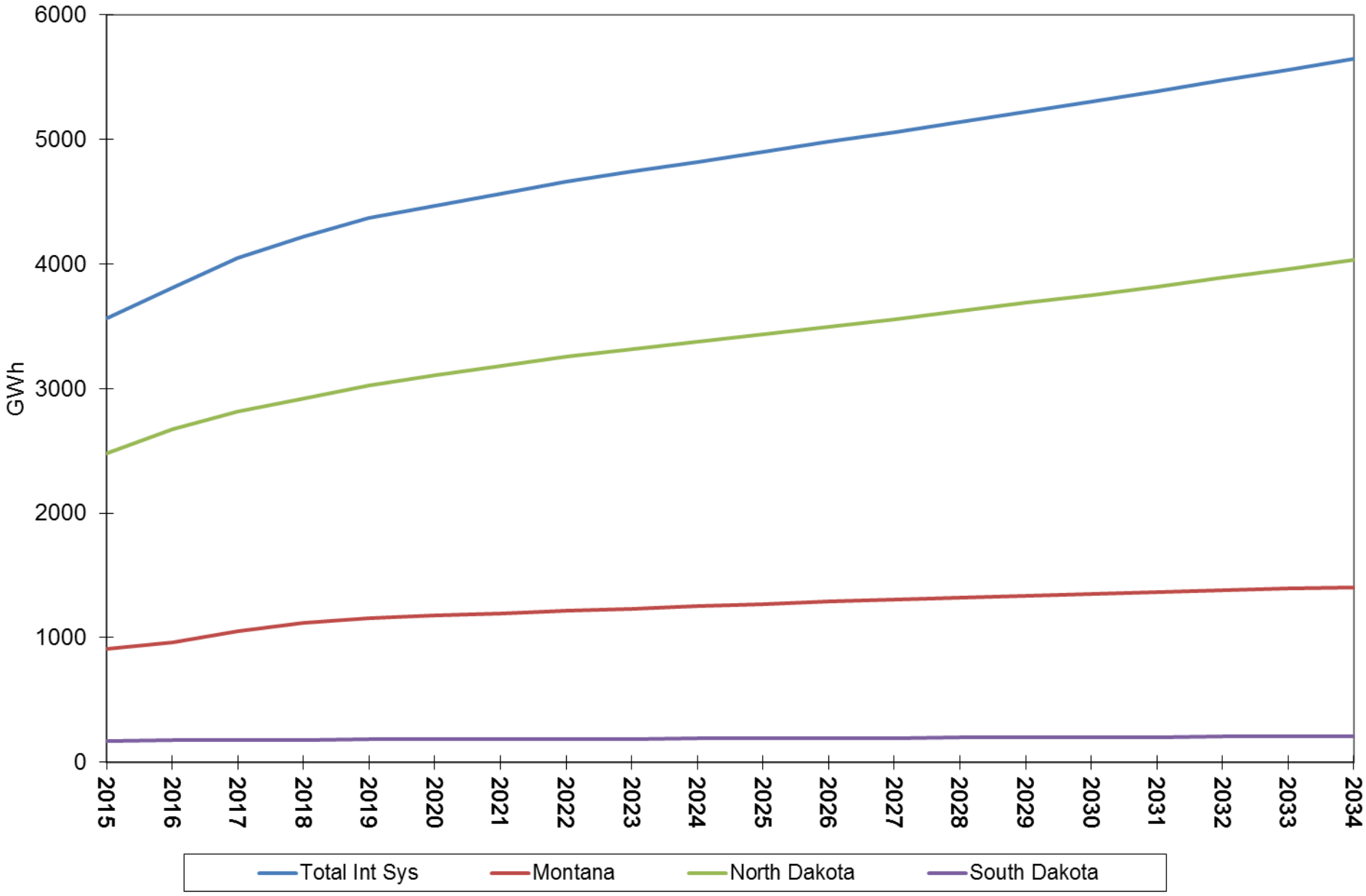
Year	Summer Peak net of Energy Efficiency Programs (MW)	% Chg	Winter Peak net of Energy Efficiency Programs (MW)	% Chg	Annual Energy Requirments (GWh)	% Chg	Load Factor (%)
2015	29.7		28.7		169.4		65.11%
2016	30.4	2.36%	29.4	2.44%	176.7	4.31%	66.35%
2017	30.2	-0.66%	28.7	-2.38%	178.5	1.02%	67.47%
2018	30.1	-0.33%	28.3	-1.39%	180.3	1.01%	68.38%
2019	30.2	0.33%	28.2	-0.35%	181.9	0.89%	68.76%
2020	30.3	0.33%	28.2	0.00%	183.7	0.99%	69.21%
2021	30.5	0.66%	28.3	0.35%	185.4	0.93%	69.39%
2022	30.7	0.66%	28.5	0.71%	187.2	0.97%	69.61%
2023	31.0	0.98%	28.6	0.35%	189.0	0.96%	69.60%
2024	31.2	0.65%	28.8	0.70%	190.7	0.90%	69.77%
2025	31.4	0.64%	29.0	0.69%	192.4	0.89%	69.95%
2026	31.6	0.64%	29.1	0.34%	194.1	0.88%	70.12%
2027	31.8	0.63%	29.2	0.34%	195.9	0.93%	70.32%
2028	32.1	0.94%	29.4	0.68%	197.8	0.97%	70.34%
2029	32.3	0.62%	29.5	0.34%	199.6	0.91%	70.54%
2030	32.5	0.62%	29.7	0.68%	201.5	0.95%	70.78%
2031	32.8	0.92%	29.9	0.67%	203.4	0.94%	70.79%
2032	33.0	0.61%	30.0	0.33%	205.4	0.98%	71.05%
2033	33.3	0.91%	30.1	0.33%	207.4	0.97%	71.10%
2034	33.6	0.90%	30.3	0.66%	209.5	1.01%	71.18%

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 (%)
2015	624.5		603.6		3,563.8		65.14%
2016	654.8	4.85%	632.9	4.85%	3,810.0	6.91%	66.42%
2017	683.7	4.41%	650.9	2.84%	4,044.8	6.16%	67.53%
2018	705.9	3.25%	663.0	1.86%	4,220.4	4.34%	68.25%
2019	724.7	2.66%	675.2	1.84%	4,366.3	3.46%	68.78%
2020	738.2	1.86%	686.4	1.66%	4,465.0	2.26%	69.05%
2021	751.9	1.86%	697.7	1.65%	4,565.4	2.25%	69.31%
2022	764.9	1.73%	707.9	1.46%	4,659.3	2.06%	69.54%
2023	776.3	1.49%	717.7	1.38%	4,739.0	1.71%	69.69%
2024	787.6	1.46%	727.1	1.31%	4,818.6	1.68%	69.84%
2025	799.0	1.45%	736.8	1.33%	4,898.4	1.66%	69.98%
2026	810.4	1.43%	745.9	1.24%	4,978.3	1.63%	70.13%
2027	821.9	1.42%	755.1	1.23%	5,059.4	1.63%	70.27%
2028	833.3	1.39%	763.7	1.14%	5,139.3	1.58%	70.40%
2029	844.7	1.37%	772.5	1.15%	5,220.3	1.58%	70.55%
2030	856.5	1.40%	781.3	1.14%	5,302.9	1.58%	70.68%
2031	868.4	1.39%	790.4	1.16%	5,386.9	1.58%	70.81%
2032	880.3	1.37%	799.1	1.10%	5,472.6	1.59%	70.97%
2033	892.4	1.37%	808.3	1.15%	5,558.2	1.56%	71.10%
2034	904.6	1.37%	817.6	1.15%	5,645.3	1.57%	71.24%

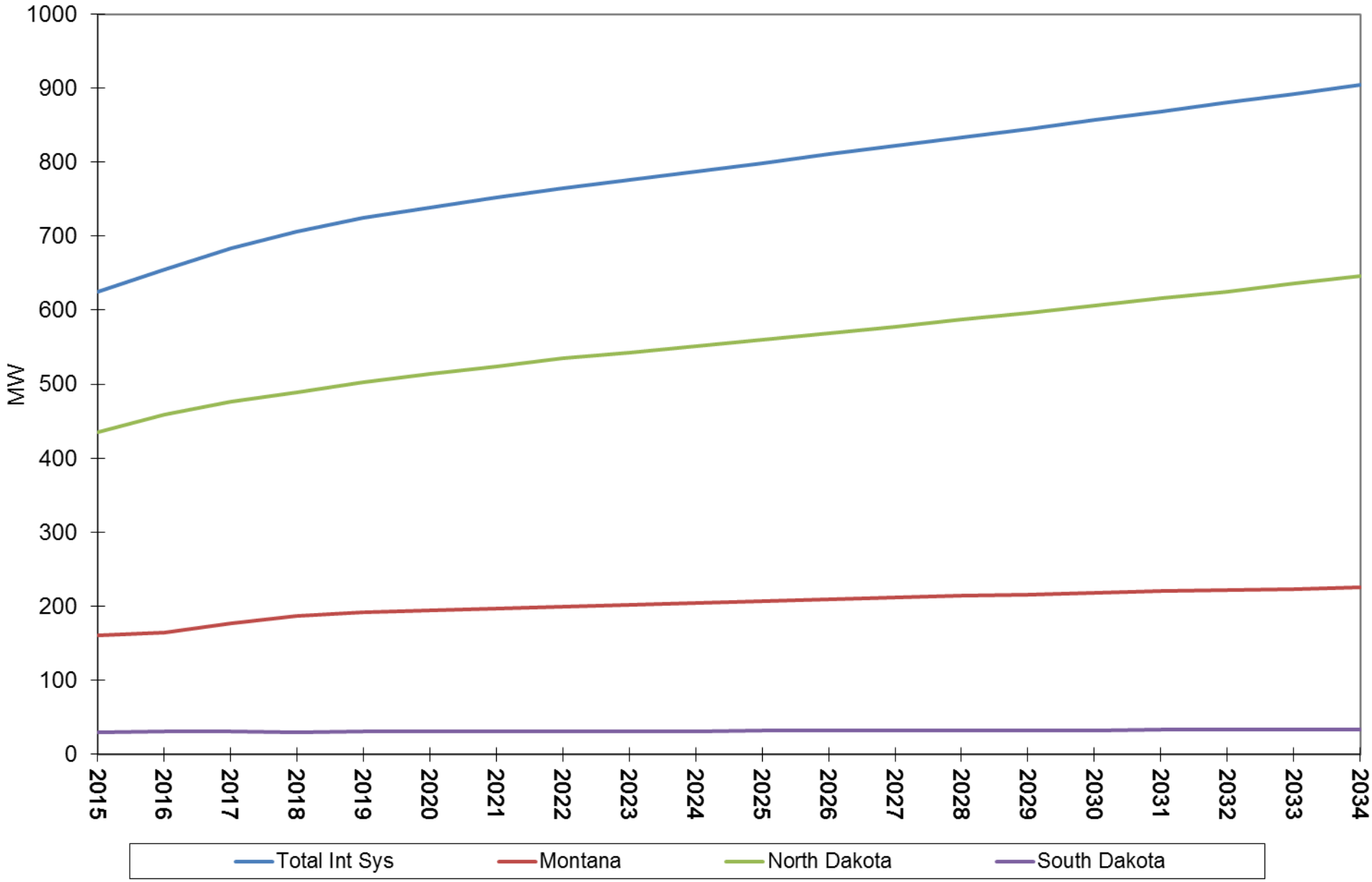
Montana-Dakota Integrated System

Forecast of Annual Energy by State



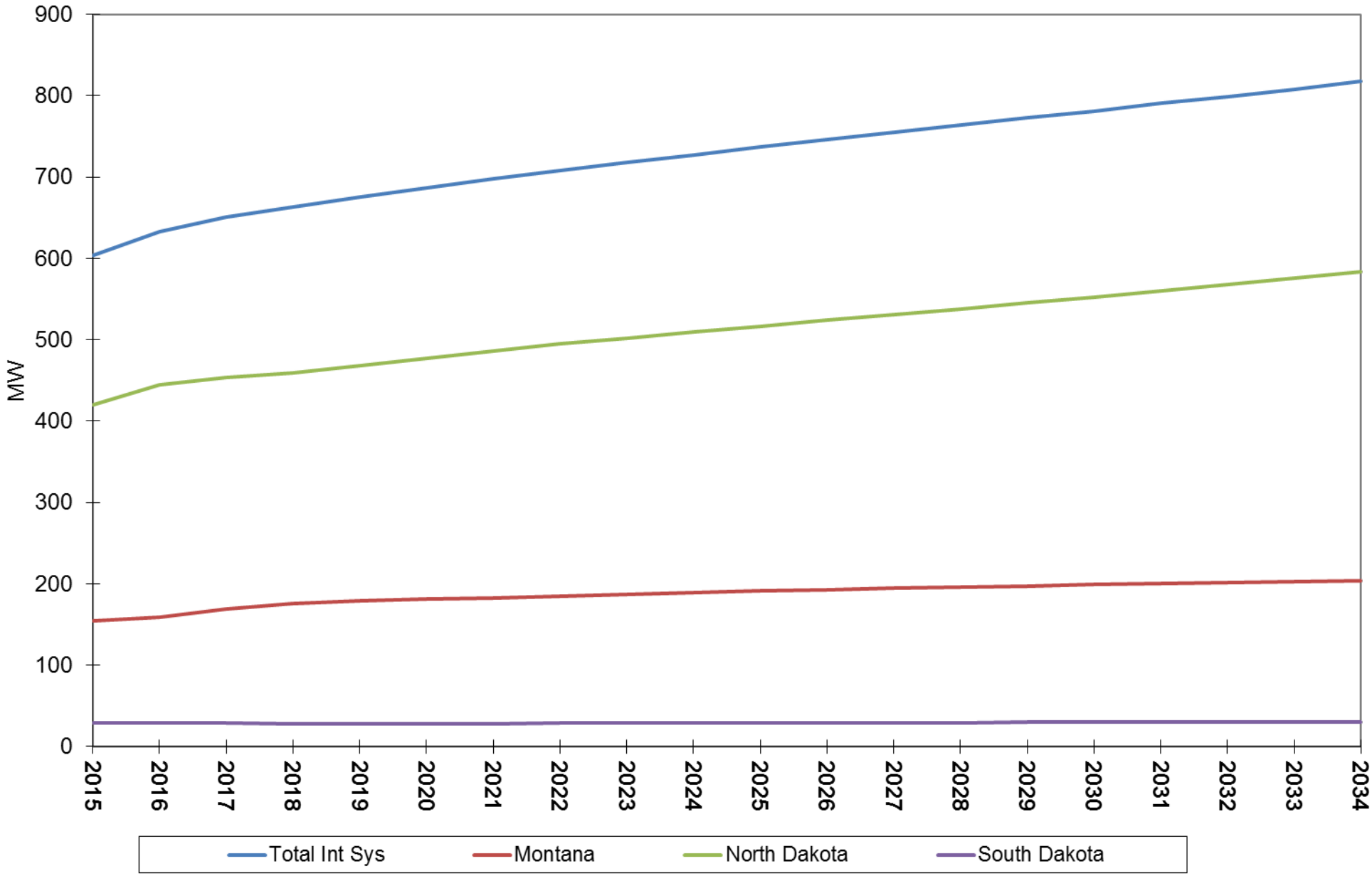
Montana-Dakota Integrated System

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
(2015-2024)

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

MONTANA YEAR 2015

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	970.7	952.3	788.4	697.0	700.7	724.4	1,060.7	866.2	792.1	663.2	841.7	990.7	10,048.8
# of Residential Customers	20,279	20,286	20,317	20,298	20,307	20,339	20,366	20,379	20,402	20,439	20,475	20,505	20,366
Total Residential Sales - MWh	19,684	19,319	16,018	14,148	14,230	14,733	21,602	17,653	16,161	13,556	17,234	20,315	204,653
Use per Small Comm & Ind Customer - kWh	2,415.5	2,431.6	2,136.8	1,973.4	2,074.1	1,959.7	2,679.8	2,302.3	2,258.4	1,937.2	2,171.7	2,439.1	26,780.0
# of Small Comm & Ind Customers	5,232	5,223	5,226	5,263	5,293	5,332	5,346	5,356	5,348	5,318	5,307	5,308	5,296
Total Small Comm & Ind Sales - MWh	12,638	12,700	11,167	10,386	10,978	10,449	14,326	12,331	12,078	10,302	11,525	12,947	141,827
Large Comm & Ind Sales	40,124	38,659	37,958	39,784	38,904	37,059	39,962	37,360	40,936	41,931	41,206	47,293	481,176
Total Sales (Residential, SC&I and LC&I)	72,446	70,678	65,143	64,318	64,112	62,241	75,890	67,344	69,175	65,789	69,965	80,555	827,656
Other Public Sales	505	581	472	502	589	640	918	739	730	492	510	544	7,222
Street & Highway Lighting Sales	623	566	591	588	589	557	583	581	574	605	587	584	7,028
Interdepartmental Sales	17	18	14	14	13	12	15	12	14	12	15	17	173
Total Billed Sales - MWh	73,591	71,843	66,220	65,422	65,303	63,450	77,406	68,676	70,493	66,898	71,077	81,700	842,079
Company Use	35	33	31	29	28	26	33	29	27	25	29	33	358
Total Energy	73,626	71,876	66,251	65,451	65,331	63,476	77,439	68,705	70,520	66,923	71,106	81,733	842,437
Total Requirements (Energy + Losses)	79,836	77,938	71,839	70,971	70,841	68,830	83,970	74,500	76,468	72,567	77,103	88,626	913,489
# of Large Comm & Ind Customers	261	258	259	262	263	259	261	260	260	260	259	259	260
# of Other Public Customers	101	101	101	102	103	103	104	104	103	102	100	101	102
# of Street & Highway Lighting Customers	35	35	35	35	35	35	35	35	35	35	35	35	35
Peak Demand Net of Energy Efficiency Progs	138.3	132.6	119.5	103.0	107.1	145.6	160.1	152.8	132.4	114.7	132.8	154.7	160.1

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

MONTANA YEAR 2016

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	975.5	957.1	792.4	700.5	704.3	728.0	1,065.9	870.5	796.1	666.5	845.9	994.1	10,097.4
# of Residential Customers	20,627	20,635	20,666	20,647	20,656	20,688	20,716	20,729	20,752	20,791	20,827	20,857	20,716
Total Residential Sales - MWh	20,122	19,750	16,375	14,463	14,547	15,061	22,082	18,045	16,521	13,858	17,618	20,734	209,176
Use per Small Comm & Ind Customer - kWh	2,468.8	2,485.0	2,183.4	2,016.7	2,119.5	2,002.7	2,738.6	2,353.0	2,308.0	1,979.6	2,219.3	2,485.4	27,360.6
# of Small Comm & Ind Customers	5,358	5,349	5,353	5,390	5,421	5,461	5,475	5,485	5,477	5,447	5,435	5,437	5,424
Total Small Comm & Ind Sales - MWh	13,228	13,292	11,688	10,870	11,490	10,937	14,994	12,906	12,641	10,783	12,062	13,513	148,404
Large Comm & Ind Sales	42,771	41,206	40,454	42,411	41,475	39,477	42,595	39,822	43,639	44,693	43,921	49,713	512,177
Total Sales (Residential, SC&I and LC&I)	76,121	74,248	68,517	67,744	67,512	65,475	79,671	70,773	72,801	69,334	73,601	83,960	869,757
Other Public Sales	505	581	473	503	590	641	919	740	731	492	511	545	7,231
Street & Highway Lighting Sales	623	566	591	588	589	557	583	581	574	605	587	584	7,028
Interdepartmental Sales	17	18	14	14	13	12	15	12	14	12	15	17	173
Total Billed Sales - MWh	77,266	75,413	69,595	68,849	68,704	66,685	81,188	72,106	74,120	70,443	74,714	85,106	884,189
Company Use	35	33	31	29	28	26	33	29	27	25	29	33	358
Total Energy	77,301	75,446	69,626	68,878	68,732	66,711	81,221	72,135	74,147	70,468	74,743	85,139	884,547
Total Requirements (Energy + Losses)	83,821	81,809	75,498	74,687	74,529	72,337	88,071	78,219	80,401	76,411	81,047	92,320	959,150
# of Large Comm & Ind Customers	269	266	267	270	271	267	269	268	268	268	267	267	268
# of Other Public Customers	101	101	101	102	103	103	104	104	103	102	100	101	102
# of Street & Highway Lighting Customers	35	35	35	35	35	35	35	35	35	35	35	35	35
Peak Demand Net of Energy Efficiency Progs	146.0	139.9	126.1	108.7	110.3	150.0	164.9	157.4	136.4	118.2	136.8	159.3	164.9

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

MONTANA YEAR 2017

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	980.4	961.8	796.3	704.0	707.8	731.6	1,071.2	874.8	800.0	669.8	850.1	999.0	10,147.3
# of Residential Customers	20,926	20,934	20,965	20,946	20,955	20,988	21,016	21,029	21,053	21,092	21,129	21,159	21,016
Total Residential Sales - MWh	20,515	20,135	16,694	14,745	14,831	15,354	22,513	18,397	16,843	14,128	17,962	21,138	213,255
Use per Small Comm & Ind Customer - kWh	2,516.3	2,532.5	2,225.7	2,055.8	2,160.5	2,041.2	2,791.5	2,398.5	2,352.6	2,018.0	2,262.2	2,532.8	27,888.2
# of Small Comm & Ind Customers	5,474	5,465	5,468	5,506	5,538	5,579	5,593	5,603	5,595	5,564	5,552	5,554	5,541
Total Small Comm & Ind Sales - MWh	13,774	13,840	12,170	11,319	11,965	11,388	15,613	13,439	13,163	11,228	12,560	14,067	154,526
Large Comm & Ind Sales	46,403	44,551	44,011	45,954	45,074	42,900	51,160	48,312	51,999	53,313	52,285	58,241	584,203
Total Sales (Residential, SC&I and LC&I)	80,692	78,526	72,875	72,018	71,870	69,642	89,286	80,148	82,005	78,669	82,807	93,446	951,984
Other Public Sales	506	582	473	504	591	642	921	740	732	492	512	546	7,241
Street & Highway Lighting Sales	623	566	591	588	589	557	583	581	574	605	587	584	7,028
Interdepartmental Sales	17	18	14	14	13	12	15	12	14	12	15	17	173
Total Billed Sales - MWh	81,838	79,692	73,953	73,124	73,063	70,853	90,805	81,481	83,325	79,778	83,921	94,593	966,426
Company Use	35	33	31	29	28	26	33	29	27	25	29	33	358
Total Energy	81,873	79,725	73,984	73,153	73,091	70,879	90,838	81,510	83,352	79,803	83,950	94,626	966,784
Total Requirements (Energy + Losses)	88,778	86,449	80,224	79,323	79,255	76,857	98,499	88,385	90,382	86,534	91,030	102,607	1,048,323
# of Large Comm & Ind Customers	275	272	273	276	277	273	275	274	274	274	273	273	274
# of Other Public Customers	101	101	101	102	103	103	104	104	103	102	100	101	102
# of Street & Highway Lighting Customers	35	35	35	35	35	35	35	35	35	35	35	35	35
Peak Demand Net of Energy Efficiency Progs	150.3	144.1	129.8	111.9	118.5	161.2	177.2	169.2	146.6	127.0	144.8	168.7	177.2

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

MONTANA YEAR 2018

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	985.3	966.7	800.2	707.5	711.3	735.2	1,076.6	879.2	804.1	673.2	854.4	1,003.8	10,197.9
# of Residential Customers	21,225	21,233	21,265	21,245	21,254	21,288	21,316	21,330	21,353	21,393	21,430	21,462	21,316
Total Residential Sales - MWh	20,913	20,525	17,017	15,030	15,118	15,652	22,949	18,754	17,169	14,401	18,309	21,544	217,381
Use per Small Comm & Ind Customer - kWh	2,564.4	2,581.4	2,268.3	2,095.0	2,201.9	2,080.4	2,845.2	2,444.3	2,397.4	2,056.5	2,305.9	2,581.0	28,422.1
# of Small Comm & Ind Customers	5,590	5,580	5,584	5,623	5,655	5,697	5,711	5,722	5,714	5,682	5,669	5,671	5,658
Total Small Comm & Ind Sales - MWh	14,335	14,404	12,666	11,780	12,452	11,852	16,249	13,986	13,699	11,685	13,072	14,637	160,817
Large Comm & Ind Sales	51,958	49,608	49,540	51,345	50,611	48,272	54,741	51,854	55,496	56,925	55,788	61,908	638,046
Total Sales (Residential, SC&I and LC&I)	87,206	84,537	79,223	78,155	78,181	75,776	93,939	84,594	86,364	83,011	87,169	98,089	1,016,244
Other Public Sales	507	583	474	504	591	642	922	741	733	493	512	546	7,248
Street & Highway Lighting Sales	623	566	591	588	589	557	583	581	574	605	587	584	7,028
Interdepartmental Sales	17	18	14	14	13	12	15	12	14	12	15	17	173
Total Billed Sales - MWh	88,353	85,704	80,302	79,261	79,374	76,987	95,459	85,928	87,685	84,121	88,283	99,236	1,030,693
Company Use	35	33	31	29	28	26	33	29	27	25	29	33	358
Total Energy	88,388	85,737	80,333	79,290	79,402	77,013	95,492	85,957	87,712	84,146	88,312	99,269	1,031,051
Total Requirements (Energy + Losses)	95,843	92,968	87,108	85,977	86,099	83,508	103,546	93,207	95,110	91,243	95,760	107,641	1,118,010
# of Large Comm & Ind Customers	282	279	280	283	284	280	282	281	281	281	280	280	281
# of Other Public Customers	101	101	101	102	103	103	104	104	103	102	100	101	102
# of Street & Highway Lighting Customers	35	35	35	35	35	35	35	35	35	35	35	35	35
Peak Demand Net of Energy Efficiency Progs	159.2	152.5	137.5	118.5	125.1	170.1	187.0	178.5	154.7	134.0	150.8	175.6	187.0

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

MONTANA YEAR 2019

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	990.2	971.5	804.3	711.0	714.9	739.0	1,082.0	883.6	808.1	676.5	858.6	1,008.7	10,249.0
# of Residential Customers	21,523	21,532	21,564	21,544	21,553	21,587	21,616	21,630	21,654	21,694	21,732	21,764	21,616
Total Residential Sales - MWh	21,313	20,918	17,343	15,318	15,408	15,952	23,389	19,113	17,498	14,677	18,660	21,954	221,543
Use per Small Comm & Ind Customer - kWh	2,612.9	2,630.3	2,311.3	2,134.6	2,243.5	2,119.6	2,898.8	2,490.6	2,442.7	2,095.5	2,349.1	2,629.2	28,958.8
# of Small Comm & Ind Customers	5,707	5,697	5,701	5,741	5,774	5,817	5,831	5,842	5,834	5,801	5,789	5,790	5,777
Total Small Comm & Ind Sales - MWh	14,912	14,985	13,177	12,255	12,954	12,330	16,903	14,550	14,251	12,156	13,599	15,223	167,295
Large Comm & Ind Sales	55,537	52,879	53,093	54,826	54,174	51,732	55,358	52,429	56,124	57,571	56,420	62,609	662,752
Total Sales (Residential, SC&I and LC&I)	91,762	88,782	83,613	82,399	82,536	80,014	95,650	86,092	87,873	84,404	88,679	99,786	1,051,590
Other Public Sales	507	584	475	505	593	643	923	743	734	494	513	547	7,261
Street & Highway Lighting Sales	623	566	591	588	589	557	583	581	574	605	587	584	7,028
Interdepartmental Sales	17	18	14	14	13	12	15	12	14	12	15	17	173
Total Billed Sales - MWh	92,909	89,950	84,693	83,506	83,731	81,226	97,171	87,428	89,195	85,515	89,794	100,934	1,066,052
Company Use	35	33	31	29	28	26	33	29	27	25	29	33	358
Total Energy	92,944	89,983	84,724	83,535	83,759	81,252	97,204	87,457	89,222	85,540	89,823	100,967	1,066,410
Total Requirements (Energy + Losses)	100,783	97,572	91,870	90,580	90,823	88,105	105,402	94,833	96,747	92,754	97,399	109,483	1,156,351
# of Large Comm & Ind Customers	289	286	286	290	292	287	289	288	288	288	287	287	288
# of Other Public Customers	101	101	101	102	103	103	104	104	103	102	100	101	102
# of Street & Highway Lighting Customers	35	35	35	35	35	35	35	35	35	35	35	35	35
Peak Demand Net of Energy Efficiency Progs	165.7	158.8	143.1	123.3	128.4	174.6	191.9	183.2	158.8	137.6	153.5	178.8	191.9

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

MONTANA YEAR 2020

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	995.1	976.4	808.3	714.6	718.5	742.6	1,087.4	888.1	812.1	679.9	862.9	1,013.6	10,300.0
# of Residential Customers	21,822	21,830	21,863	21,843	21,852	21,887	21,916	21,930	21,954	21,995	22,034	22,066	21,916
Total Residential Sales - MWh	21,716	21,314	17,671	15,608	15,700	16,254	23,832	19,475	17,829	14,955	19,013	22,367	225,734
Use per Small Comm & Ind Customer - kWh	2,662.0	2,679.4	2,354.5	2,174.9	2,286.0	2,159.7	2,953.0	2,537.6	2,488.9	2,134.8	2,393.4	2,677.7	29,502.5
# of Small Comm & Ind Customers	5,825	5,815	5,819	5,859	5,892	5,936	5,952	5,962	5,954	5,921	5,908	5,910	5,896
Total Small Comm & Ind Sales - MWh	15,506	15,581	13,701	12,743	13,469	12,820	17,576	15,129	14,819	12,640	14,140	15,825	173,949
Large Comm & Ind Sales	56,153	53,475	53,681	55,437	54,771	52,322	55,977	53,010	56,756	58,221	57,057	63,315	670,175
Total Sales (Residential, SC&I and LC&I)	93,375	90,370	85,053	83,788	83,940	81,396	97,385	87,614	89,404	85,816	90,210	101,507	1,069,858
Other Public Sales	508	584	475	506	594	644	924	744	735	495	514	548	7,271
Street & Highway Lighting Sales	623	566	591	588	589	557	583	581	574	605	587	584	7,028
Interdepartmental Sales	17	18	14	14	13	12	15	12	14	12	15	17	173
Total Billed Sales - MWh	94,523	91,538	86,133	84,896	85,136	82,609	98,907	88,951	90,727	86,928	91,326	102,656	1,084,330
Company Use	35	33	31	29	28	26	33	29	27	25	29	33	358
Total Energy	94,558	91,571	86,164	84,925	85,164	82,635	98,940	88,980	90,754	86,953	91,355	102,689	1,084,688
Total Requirements (Energy + Losses)	102,533	99,294	93,431	92,088	92,347	89,604	107,285	96,485	98,408	94,287	99,060	111,350	1,176,172
# of Large Comm & Ind Customers	296	293	293	297	299	294	296	295	295	295	294	294	295
# of Other Public Customers	101	101	101	102	103	103	104	104	103	102	100	101	102
# of Street & Highway Lighting Customers	35	35	35	35	35	35	35	35	35	35	35	35	35
Peak Demand Net of Energy Efficiency Progs	168.7	161.6	145.7	125.5	130.1	176.9	194.5	185.6	160.9	139.4	155.2	180.8	194.5

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	1,000.0	981.2	812.3	718.1	722.0	746.3	1,092.8	892.5	816.1	683.3	867.2	1,015.6	10,348.0
# of Residential Customers	22,121	22,129	22,162	22,142	22,151	22,186	22,216	22,230	22,255	22,296	22,335	22,368	22,216
Total Residential Sales - MWh	22,122	21,713	18,002	15,900	15,993	16,558	24,278	19,840	18,163	15,235	19,369	22,717	229,890
Use per Small Comm & Ind Customer - kWh	2,711.3	2,729.0	2,398.1	2,214.9	2,328.1	2,199.6	3,007.4	2,584.1	2,534.7	2,174.3	2,437.6	2,726.4	30,046.1
# of Small Comm & Ind Customers	5,944	5,934	5,938	5,979	6,013	6,058	6,074	6,085	6,076	6,042	6,029	6,031	6,017
Total Small Comm & Ind Sales - MWh	16,116	16,194	14,240	13,243	13,999	13,325	18,267	15,724	15,401	13,137	14,696	16,443	180,785
Large Comm & Ind Sales	56,771	54,073	54,271	56,051	55,373	52,916	56,601	53,592	57,392	58,875	57,696	64,025	677,636
Total Sales (Residential, SC&I and LC&I)	95,009	91,980	86,513	85,194	85,365	82,799	99,146	89,156	90,956	87,247	91,761	103,185	1,088,311
Other Public Sales	509	585	476	506	594	645	925	744	736	495	514	549	7,278
Street & Highway Lighting Sales	623	566	591	588	589	557	583	581	574	605	587	584	7,028
Interdepartmental Sales	17	18	14	14	13	12	15	12	14	12	15	17	173
Total Billed Sales - MWh	96,158	93,149	87,594	86,302	86,561	84,013	100,669	90,493	92,280	88,359	92,877	104,335	1,102,790
Company Use	35	33	31	29	28	26	33	29	27	25	29	33	358
Total Energy	96,193	93,182	87,625	86,331	86,589	84,039	100,702	90,522	92,307	88,384	92,906	104,368	1,103,148
Total Requirements (Energy + Losses)	104,306	101,041	95,015	93,612	93,892	91,127	109,195	98,157	100,092	95,838	100,742	113,170	1,196,187
# of Large Comm & Ind Customers	302	299	299	303	305	300	302	301	301	301	300	300	301
# of Other Public Customers	101	101	101	102	103	103	104	104	103	102	100	101	102
# of Street & Highway Lighting Customers	35	35	35	35	35	35	35	35	35	35	35	35	35
Peak Demand Net of Energy Efficiency Progs	170.6	163.5	147.4	127.0	131.8	179.2	197.0	188.1	163.0	141.2	156.9	182.8	197.0

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	1,000.0	981.2	812.3	718.1	722.0	746.3	1,092.8	892.5	816.2	683.3	867.2	1,015.5	10,347.8
# of Residential Customers	22,420	22,428	22,462	22,441	22,450	22,486	22,516	22,530	22,555	22,597	22,637	22,670	22,516
Total Residential Sales - MWh	22,421	22,006	18,245	16,115	16,209	16,781	24,605	20,107	18,409	15,441	19,631	23,021	232,991
Use per Small Comm & Ind Customer - kWh	2,760.4	2,778.8	2,442.1	2,255.2	2,370.5	2,239.6	3,062.3	2,631.3	2,581.1	2,213.6	2,482.0	2,775.6	30,593.0
# of Small Comm & Ind Customers	6,065	6,054	6,058	6,101	6,135	6,181	6,197	6,208	6,199	6,165	6,151	6,153	6,139
Total Small Comm & Ind Sales - MWh	16,742	16,823	14,794	13,759	14,543	13,843	18,977	16,335	16,000	13,647	15,267	17,078	187,808
Large Comm & Ind Sales	57,393	54,674	54,867	56,669	55,977	53,512	57,227	54,179	58,031	59,533	58,339	64,740	685,141
Total Sales (Residential, SC&I and LC&I)	96,556	93,503	87,906	86,543	86,729	84,136	100,809	90,621	92,440	88,621	93,237	104,839	1,105,940
Other Public Sales	509	586	477	507	595	646	927	745	737	496	515	549	7,289
Street & Highway Lighting Sales	623	566	591	588	589	557	583	581	574	605	587	584	7,028
Interdepartmental Sales	17	18	14	14	13	12	15	12	14	12	15	17	173
Total Billed Sales - MWh	97,705	94,673	88,988	87,652	87,926	85,351	102,334	91,959	93,765	89,734	94,354	105,989	1,120,430
Company Use	35	33	31	29	28	26	33	29	27	25	29	33	358
Total Energy	97,740	94,706	89,019	87,681	87,954	85,377	102,367	91,988	93,792	89,759	94,383	106,022	1,120,788
Total Requirements (Energy + Losses)	105,983	102,694	96,527	95,076	95,372	92,578	111,001	99,746	101,702	97,329	102,343	114,964	1,215,315
# of Large Comm & Ind Customers	309	306	306	310	312	307	309	308	308	308	307	307	308
# of Other Public Customers	101	101	101	102	103	103	104	104	103	102	100	101	102
# of Street & Highway Lighting Customers	35	35	35	35	35	35	35	35	35	35	35	35	35
Peak Demand Net of Energy Efficiency Progs	172.5	165.3	149.0	128.4	133.4	181.5	199.5	190.4	165.0	143.0	158.5	184.6	199.5

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	1,000.1	981.2	812.3	718.1	722.0	746.3	1,092.8	892.4	816.1	683.3	867.2	1,014.1	10,346.4
# of Residential Customers	22,718	22,727	22,761	22,740	22,749	22,786	22,816	22,831	22,856	22,898	22,938	22,972	22,816
Total Residential Sales - MWh	22,720	22,299	18,488	16,330	16,425	17,005	24,933	20,375	18,653	15,647	19,892	23,296	236,063
Use per Small Comm & Ind Customer - kWh	2,810.4	2,828.5	2,485.8	2,295.8	2,413.2	2,279.9	3,117.5	2,678.8	2,627.3	2,253.8	2,526.9	2,818.5	31,137.2
# of Small Comm & Ind Customers	6,186	6,176	6,180	6,223	6,258	6,305	6,321	6,332	6,324	6,288	6,274	6,277	6,262
Total Small Comm & Ind Sales - MWh	17,385	17,469	15,362	14,287	15,102	14,375	19,706	16,962	16,615	14,172	15,854	17,692	194,981
Large Comm & Ind Sales	58,019	55,281	55,466	57,291	56,586	54,111	57,857	54,768	58,675	60,194	58,988	65,458	692,694
Total Sales (Residential, SC&I and LC&I)	98,124	95,049	89,316	87,908	88,113	85,491	102,496	92,105	93,943	90,013	94,734	106,446	1,123,738
Other Public Sales	510	586	477	508	596	646	928	746	737	496	515	550	7,295
Street & Highway Lighting Sales	623	566	591	588	589	557	583	581	574	605	587	584	7,028
Interdepartmental Sales	17	18	14	14	13	12	15	12	14	12	15	17	173
Total Billed Sales - MWh	99,274	96,219	90,398	89,018	89,311	86,706	104,022	93,444	95,268	91,126	95,851	107,597	1,138,234
Company Use	35	33	31	29	28	26	33	29	27	25	29	33	358
Total Energy	99,309	96,252	90,429	89,047	89,339	86,732	104,055	93,473	95,295	91,151	95,880	107,630	1,138,592
Total Requirements (Energy + Losses)	107,685	104,370	98,056	96,557	96,874	94,047	112,831	101,357	103,332	98,839	103,967	116,708	1,234,623
# of Large Comm & Ind Customers	316	313	313	317	319	314	316	315	315	314	314	314	315
# of Other Public Customers	101	101	101	102	103	103	104	104	103	102	100	101	102
# of Street & Highway Lighting Customers	35	35	35	35	35	35	35	35	35	35	35	35	35
Peak Demand Net of Energy Efficiency Progs	174.2	166.9	150.4	129.6	135.3	183.9	202.2	193.0	167.3	145.0	160.5	187.0	202.2

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	1,000.1	981.2	812.3	718.1	722.0	746.3	1,092.8	892.5	816.2	683.3	867.2	1,014.1	10,346.5
# of Residential Customers	22,967	22,976	23,010	22,989	22,999	23,035	23,066	23,081	23,106	23,149	23,190	23,223	23,066
Total Residential Sales - MWh	22,969	22,544	18,691	16,509	16,605	17,192	25,207	20,599	18,858	15,818	20,110	23,550	238,652
Use per Small Comm & Ind Customer - kWh	2,855.0	2,873.8	2,525.4	2,332.4	2,451.5	2,315.9	3,167.1	2,721.1	2,669.0	2,289.4	2,566.8	2,863.2	31,631.3
# of Small Comm & Ind Customers	6,295	6,284	6,288	6,332	6,368	6,416	6,432	6,444	6,435	6,399	6,385	6,387	6,372
Total Small Comm & Ind Sales - MWh	17,972	18,059	15,880	14,769	15,611	14,859	20,371	17,535	17,175	14,650	16,389	18,287	201,557
Large Comm & Ind Sales	58,648	55,890	56,068	57,917	57,198	54,714	58,492	55,361	59,322	60,860	59,639	66,183	700,292
Total Sales (Residential, SC&I and LC&I)	99,589	96,493	90,639	89,195	89,414	86,765	104,070	93,495	95,355	91,328	96,138	108,020	1,140,501
Other Public Sales	511	588	478	508	596	647	929	747	738	497	516	551	7,306
Street & Highway Lighting Sales	623	566	591	588	589	557	583	581	574	605	587	584	7,028
Interdepartmental Sales	17	18	14	14	13	12	15	12	14	12	15	17	173
Total Billed Sales - MWh	100,740	97,665	91,722	90,305	90,612	87,981	105,597	94,835	96,681	92,442	97,256	109,172	1,155,008
Company Use	35	33	31	29	28	26	33	29	27	25	29	33	358
Total Energy	100,775	97,698	91,753	90,334	90,640	88,007	105,630	94,864	96,708	92,467	97,285	109,205	1,155,366
Total Requirements (Energy + Losses)	109,274	105,938	99,491	97,953	98,285	95,430	114,539	102,865	104,864	100,266	105,490	118,415	1,252,810
# of Large Comm & Ind Customers	323	320	320	324	326	321	323	322	322	321	321	321	322
# of Other Public Customers	101	101	101	102	103	103	104	104	103	102	100	101	102
# of Street & Highway Lighting Customers	35	35	35	35	35	35	35	35	35	35	35	35	35
Peak Demand Net of Energy Efficiency Progs	176.4	169.0	152.4	131.3	137.0	186.3	204.8	195.5	169.4	146.8	162.3	189.0	204.8

APPENDIX E

Monthly Forecasts - North Dakota
(2015-2024)

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

NORTH DAKOTA YEAR 2015

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,108.0	1,057.5	914.1	789.9	758.7	795.6	1,066.7	932.6	822.0	750.9	940.4	1,122.6	11,058.8
# of Residential Customers	75,971	76,145	76,281	76,369	76,501	76,730	76,931	77,158	77,412	77,726	77,965	78,198	76,949
Total Residential Sales - MWh	84,178	80,523	69,725	60,327	58,038	61,045	82,065	71,960	63,634	58,367	73,321	87,782	850,965
Use per Small Comm & Ind Customer - kWh	5,130.9	5,047.9	4,623.8	4,227.4	4,249.8	4,164.5	5,065.4	4,785.4	4,606.4	4,383.5	4,891.9	5,338.2	56,516.9
# of Small Comm & Ind Customers	11,839	11,834	11,856	11,906	11,975	12,046	12,061	12,117	12,138	12,118	12,132	12,159	12,015
Total Small Comm & Ind Sales - MWh	60,745	59,737	54,820	50,332	50,891	50,165	61,094	57,985	55,912	53,119	59,348	64,907	679,055
Large Comm & Ind Sales	57,039	57,056	55,242	54,689	55,189	55,079	63,472	59,741	59,704	55,912	56,768	59,950	689,841
Total Sales (Residential, SC&I and LC&I)	201,962	197,316	179,787	165,348	164,118	166,289	206,631	189,686	179,250	167,398	189,437	212,639	2,219,861
Other Public Sales	3,368	3,324	3,315	3,141	3,499	3,796	4,395	4,158	3,611	3,260	3,181	3,366	42,414
Street & Highway Lighting Sales	1,834	1,694	1,677	1,603	1,568	1,445	1,533	1,561	1,621	1,727	1,812	1,818	19,893
Interdepartmental Sales	20	21	18	17	16	14	16	14	16	15	19	21	207
Total Billed Sales - MWh	207,184	202,355	184,797	170,109	169,201	171,544	212,575	195,419	184,498	172,400	194,449	217,844	2,282,375
Company Use	486	432	445	439	456	460	502	510	449	451	446	464	5,540
Total Energy	207,670	202,787	185,242	170,548	169,657	172,004	213,077	195,929	184,947	172,851	194,895	218,308	2,287,915
Total Requirements (Energy + Losses)	225,185	219,890	200,865	184,932	183,966	186,511	231,048	212,454	200,545	187,429	211,332	236,720	2,480,877
# of Large Comm & Ind Customers	838	840	840	841	841	833	834	802	803	803	803	809	824
# of Other Public Customers	666	666	666	669	671	669	669	669	668	665	659	656	666
# of Street & Highway Lighting Customers	433	433	433	433	433	433	433	433	433	433	433	433	433
Peak Demand Net of Energy Efficiency Progs	357.8	345.8	313.8	291.6	315.5	401.4	434.7	407.4	343.0	292.8	361.6	420.2	434.7

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

NORTH DAKOTA YEAR 2016

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,113.6	1,062.8	918.6	793.9	762.4	799.5	1,072.1	937.3	826.1	754.7	945.1	1,121.2	11,106.9
# of Residential Customers	78,933	79,114	79,255	79,347	79,484	79,722	79,930	80,166	80,430	80,756	81,004	81,247	79,949
Total Residential Sales - MWh	87,896	84,079	72,805	62,992	60,601	63,741	85,690	75,139	66,444	60,945	76,559	91,096	887,987
Use per Small Comm & Ind Customer - kWh	5,397.4	5,310.4	4,864.3	4,447.4	4,470.7	4,380.9	5,329.0	5,034.2	4,845.4	4,611.0	5,146.0	5,555.8	59,393.5
# of Small Comm & Ind Customers	12,328	12,322	12,345	12,397	12,469	12,543	12,558	12,617	12,640	12,619	12,633	12,660	12,511
Total Small Comm & Ind Sales - MWh	66,539	65,435	60,050	55,134	55,745	54,950	66,921	63,516	61,246	58,186	65,009	70,336	743,067
Large Comm & Ind Sales	63,513	63,509	61,454	60,848	61,426	61,334	70,708	66,536	66,456	62,219	63,169	65,412	766,584
Total Sales (Residential, SC&I and LC&I)	217,948	213,023	194,309	178,974	177,772	180,025	223,319	205,191	194,146	181,350	204,737	226,844	2,397,638
Other Public Sales	3,397	3,353	3,345	3,169	3,530	3,829	4,433	4,195	3,643	3,288	3,209	3,396	42,787
Street & Highway Lighting Sales	1,834	1,694	1,677	1,603	1,568	1,445	1,533	1,561	1,621	1,727	1,812	1,818	19,893
Interdepartmental Sales	20	21	18	17	16	14	16	14	16	15	19	21	207
Total Billed Sales - MWh	223,199	218,091	199,349	183,763	182,886	185,313	229,301	210,961	199,426	186,380	209,777	232,079	2,460,525
Company Use	486	432	445	439	456	460	502	510	449	451	446	464	5,540
Total Energy	223,685	218,523	199,794	184,202	183,342	185,773	229,803	211,471	199,875	186,831	210,223	232,543	2,466,065
Total Requirements (Energy + Losses)	242,551	236,953	216,645	199,738	198,805	201,441	249,185	229,306	216,732	202,588	227,953	252,156	2,674,053
# of Large Comm & Ind Customers	881	882	883	884	883	876	877	843	844	844	844	850	866
# of Other Public Customers	666	666	666	669	671	669	669	669	668	665	659	656	666
# of Street & Highway Lighting Customers	433	433	433	433	433	433	433	433	433	433	433	433	433
Peak Demand Net of Energy Efficiency Progs	393.8	380.6	345.4	320.9	333.6	424.3	459.5	430.7	362.6	309.5	382.2	444.2	459.5

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

NORTH DAKOTA YEAR 2017

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,119.1	1,068.0	923.2	797.8	766.2	803.5	1,077.4	941.9	830.2	758.4	949.8	1,126.4	11,161.6
# of Residential Customers	81,105	81,291	81,436	81,530	81,671	81,915	82,130	82,372	82,643	82,978	83,234	83,483	82,149
Total Residential Sales - MWh	90,763	86,821	75,180	65,046	62,577	65,820	88,484	77,589	68,611	62,932	79,056	94,033	916,912
Use per Small Comm & Ind Customer - kWh	5,625.6	5,534.9	5,070.2	4,635.4	4,659.9	4,566.3	5,554.3	5,247.3	5,050.9	4,806.2	5,364.0	5,786.6	61,902.8
# of Small Comm & Ind Customers	12,697	12,691	12,714	12,768	12,842	12,918	12,934	12,994	13,017	12,996	13,010	13,039	12,885
Total Small Comm & Ind Sales - MWh	71,428	70,243	64,462	59,185	59,842	58,988	71,839	68,184	65,747	62,462	69,786	75,451	797,617
Large Comm & Ind Sales	67,725	67,729	65,491	64,856	65,481	65,406	75,446	70,972	70,871	66,322	67,342	67,845	815,486
Total Sales (Residential, SC&I and LC&I)	229,916	224,793	205,133	189,087	187,900	190,214	235,769	216,745	205,229	191,716	216,184	237,329	2,530,015
Other Public Sales	3,427	3,382	3,373	3,196	3,560	3,863	4,471	4,231	3,674	3,316	3,236	3,425	43,154
Street & Highway Lighting Sales	1,834	1,694	1,677	1,603	1,568	1,445	1,533	1,561	1,621	1,727	1,812	1,818	19,893
Interdepartmental Sales	20	21	18	17	16	14	16	14	16	15	19	21	207
Total Billed Sales - MWh	235,197	229,890	210,201	193,903	193,044	195,536	241,789	222,551	210,540	196,774	221,251	242,593	2,593,269
Company Use	486	432	445	439	456	460	502	510	449	451	446	464	5,540
Total Energy	235,683	230,322	210,646	194,342	193,500	195,996	242,291	223,061	210,989	197,225	221,697	243,057	2,598,809
Total Requirements (Energy + Losses)	255,561	249,747	228,412	210,733	209,820	212,526	262,726	241,874	228,784	213,859	240,395	263,556	2,817,993
# of Large Comm & Ind Customers	917	918	919	920	919	911	912	877	878	878	878	885	901
# of Other Public Customers	666	666	666	669	671	669	669	669	668	665	659	656	666
# of Street & Highway Lighting Customers	433	433	433	433	433	433	433	433	433	433	433	433	433
Peak Demand Net of Energy Efficiency Progs	416.3	402.4	365.1	339.2	345.7	439.9	476.3	446.4	375.8	320.8	390.2	453.5	476.3

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

NORTH DAKOTA YEAR 2018

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,124.7	1,073.4	927.8	801.8	770.1	807.5	1,082.8	946.7	834.4	762.2	954.6	1,131.6	11,217.2
# of Residential Customers	83,277	83,468	83,617	83,714	83,858	84,109	84,329	84,578	84,856	85,201	85,463	85,718	84,349
Total Residential Sales - MWh	93,662	89,595	77,581	67,123	64,576	67,922	91,310	80,068	70,803	64,943	81,581	96,998	946,162
Use per Small Comm & Ind Customer - kWh	5,861.0	5,766.4	5,282.2	4,829.5	4,854.6	4,757.3	5,786.7	5,466.8	5,262.0	5,007.3	5,588.2	6,024.5	64,487.6
# of Small Comm & Ind Customers	13,065	13,059	13,083	13,138	13,215	13,293	13,309	13,371	13,395	13,373	13,388	13,417	13,259
Total Small Comm & Ind Sales - MWh	76,574	75,304	69,107	63,450	64,153	63,239	77,015	73,096	70,484	66,962	74,815	80,831	855,030
Large Comm & Ind Sales	68,458	68,467	66,208	65,569	66,201	66,128	76,279	71,755	71,655	67,051	68,078	68,584	824,433
Total Sales (Residential, SC&I and LC&I)	238,694	233,366	212,896	196,142	194,930	197,289	244,604	224,919	212,942	198,956	224,474	246,413	2,625,625
Other Public Sales	3,456	3,410	3,402	3,224	3,591	3,896	4,510	4,267	3,706	3,345	3,264	3,454	43,525
Street & Highway Lighting Sales	1,834	1,694	1,677	1,603	1,568	1,445	1,533	1,561	1,621	1,727	1,812	1,818	19,893
Interdepartmental Sales	20	21	18	17	16	14	16	14	16	15	19	21	207
Total Billed Sales - MWh	244,004	238,491	217,993	200,986	200,105	202,644	250,663	230,761	218,285	204,043	229,569	251,706	2,689,250
Company Use	486	432	445	439	456	460	502	510	449	451	446	464	5,540
Total Energy	244,490	238,923	218,438	201,425	200,561	203,104	251,165	231,271	218,734	204,494	230,015	252,170	2,694,790
Total Requirements (Energy + Losses)	265,110	259,074	236,861	218,413	217,476	220,234	272,348	250,776	237,182	221,741	249,414	273,438	2,922,067
# of Large Comm & Ind Customers	951	953	953	954	954	945	947	910	911	911	912	918	935
# of Other Public Customers	666	666	666	669	671	669	669	669	668	665	659	656	666
# of Street & Highway Lighting Customers	433	433	433	433	433	433	433	433	433	433	433	433	433
Peak Demand Net of Energy Efficiency Progs	425.0	410.8	372.7	346.3	354.8	451.4	488.8	458.2	385.7	329.3	395.1	459.1	488.8

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

NORTH DAKOTA YEAR 2019

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,130.3	1,078.8	932.5	805.8	773.9	811.6	1,088.2	951.4	838.6	766.0	959.4	1,129.8	11,265.7
# of Residential Customers	85,449	85,645	85,798	85,897	86,046	86,303	86,529	86,784	87,069	87,423	87,692	87,954	86,549
Total Residential Sales - MWh	96,586	92,392	80,003	69,219	66,592	70,042	94,160	82,567	73,013	66,970	84,128	99,367	975,039
Use per Small Comm & Ind Customer - kWh	6,101.9	6,003.7	5,499.3	5,027.9	5,054.5	4,952.9	6,024.4	5,691.2	5,478.3	5,213.2	5,817.8	6,199.0	67,064.5
# of Small Comm & Ind Customers	13,436	13,429	13,454	13,511	13,589	13,670	13,687	13,751	13,775	13,752	13,768	13,798	13,635
Total Small Comm & Ind Sales - MWh	81,985	80,624	73,988	67,932	68,685	67,706	82,456	78,260	75,463	71,692	80,100	85,534	914,425
Large Comm & Ind Sales	69,201	69,215	66,936	66,291	66,932	66,859	77,123	72,550	72,450	67,791	68,826	69,334	833,508
Total Sales (Residential, SC&I and LC&I)	247,772	242,231	220,927	203,442	202,209	204,607	253,739	233,377	220,926	206,453	233,054	254,235	2,722,972
Other Public Sales	3,485	3,439	3,431	3,252	3,622	3,929	4,548	4,303	3,737	3,374	3,292	3,483	43,895
Street & Highway Lighting Sales	1,834	1,694	1,677	1,603	1,568	1,445	1,533	1,561	1,621	1,727	1,812	1,818	19,893
Interdepartmental Sales	20	21	18	17	16	14	16	14	16	15	19	21	207
Total Billed Sales - MWh	253,111	247,385	226,053	208,314	207,415	209,995	259,836	239,255	226,300	211,569	238,177	259,557	2,786,967
Company Use	486	432	445	439	456	460	502	510	449	451	446	464	5,540
Total Energy	253,597	247,817	226,498	208,753	207,871	210,455	260,338	239,765	226,749	212,020	238,623	260,021	2,792,507
Total Requirements (Energy + Losses)	274,985	268,718	245,601	226,359	225,403	228,205	282,295	259,987	245,873	229,902	258,748	281,951	3,028,027
# of Large Comm & Ind Customers	988	989	990	991	990	982	983	945	946	946	947	954	971
# of Other Public Customers	666	666	666	669	671	669	669	669	668	665	659	656	666
# of Street & Highway Lighting Customers	433	433	433	433	433	433	433	433	433	433	433	433	433
Peak Demand Net of Energy Efficiency Progs	430.2	415.9	377.3	350.6	364.8	464.2	502.6	471.1	396.6	338.6	402.9	468.2	502.6

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

NORTH DAKOTA YEAR 2020

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,136.0	1,084.1	937.1	809.8	777.8	815.6	1,093.6	956.1	842.7	769.9	964.1	1,135.3	11,321.7
# of Residential Customers	86,634	86,832	86,988	87,088	87,239	87,500	87,729	87,987	88,276	88,635	88,907	89,173	87,749
Total Residential Sales - MWh	98,412	94,138	81,515	70,528	67,851	71,367	95,941	84,128	74,394	68,236	85,718	101,238	993,466
Use per Small Comm & Ind Customer - kWh	6,288.0	6,186.3	5,666.8	5,181.0	5,208.1	5,103.6	6,207.8	5,864.5	5,645.2	5,371.9	5,995.1	6,386.0	69,104.6
# of Small Comm & Ind Customers	13,653	13,647	13,672	13,730	13,810	13,892	13,909	13,974	13,998	13,975	13,991	14,022	13,856
Total Small Comm & Ind Sales - MWh	85,850	84,425	77,477	71,135	71,924	70,899	86,344	81,950	79,021	75,073	83,877	89,544	957,519
Large Comm & Ind Sales	69,954	69,972	67,672	67,023	67,673	67,597	77,978	73,355	73,255	68,539	69,582	70,092	842,692
Total Sales (Residential, SC&I and LC&I)	254,216	248,535	226,664	208,686	207,448	209,863	260,263	239,433	226,670	211,848	239,177	260,874	2,793,677
Other Public Sales	3,515	3,469	3,460	3,278	3,652	3,962	4,587	4,340	3,769	3,402	3,320	3,513	44,267
Street & Highway Lighting Sales	1,834	1,694	1,677	1,603	1,568	1,445	1,533	1,561	1,621	1,727	1,812	1,818	19,893
Interdepartmental Sales	20	21	18	17	16	14	16	14	16	15	19	21	207
Total Billed Sales - MWh	259,585	253,719	231,819	213,584	212,684	215,284	266,399	245,348	232,076	216,992	244,328	266,226	2,858,044
Company Use	486	432	445	439	456	460	502	510	449	451	446	464	5,540
Total Energy	260,071	254,151	232,264	214,023	213,140	215,744	266,901	245,858	232,525	217,443	244,774	266,690	2,863,584
Total Requirements (Energy + Losses)	282,005	275,586	251,853	232,074	231,116	233,940	289,411	266,594	252,136	235,782	265,418	289,183	3,105,098
# of Large Comm & Ind Customers	1,012	1,014	1,015	1,016	1,015	1,006	1,008	968	970	970	970	977	995
# of Other Public Customers	666	666	666	669	671	669	669	669	668	665	659	656	666
# of Street & Highway Lighting Customers	433	433	433	433	433	433	433	433	433	433	433	433	433
Peak Demand Net of Energy Efficiency Progs	438.8	424.1	384.8	357.6	372.7	474.1	513.4	481.2	405.1	345.8	410.8	477.4	513.4

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	1,141.7	1,089.6	941.8	813.9	781.7	819.7	1,099.1	961.0	847.0	773.7	969.0	1,137.8	11,375.4
# of Residential Customers	87,819	88,020	88,177	88,279	88,432	88,696	88,928	89,191	89,484	89,847	90,123	90,393	88,949
Total Residential Sales - MWh	100,260	95,907	83,047	71,853	69,125	72,707	97,743	85,709	75,791	69,518	87,329	102,846	1,011,835
Use per Small Comm & Ind Customer - kWh	6,477.9	6,373.1	5,837.7	5,337.5	5,365.6	5,257.9	6,395.7	6,042.1	5,815.4	5,534.2	6,176.2	6,577.5	71,191.1
# of Small Comm & Ind Customers	13,871	13,865	13,891	13,949	14,030	14,113	14,130	14,196	14,222	14,198	14,214	14,245	14,077
Total Small Comm & Ind Sales - MWh	89,855	88,363	81,091	74,453	75,279	74,205	90,371	85,773	82,707	78,575	87,789	93,696	1,002,157
Large Comm & Ind Sales	70,716	70,741	68,419	67,764	68,423	68,346	78,844	74,170	74,070	69,298	70,348	70,796	851,935
Total Sales (Residential, SC&I and LC&I)	260,831	255,011	232,557	214,070	212,827	215,258	266,958	245,652	232,568	217,391	245,466	267,338	2,865,927
Other Public Sales	3,545	3,498	3,490	3,306	3,683	3,995	4,625	4,376	3,800	3,431	3,347	3,542	44,638
Street & Highway Lighting Sales	1,834	1,694	1,677	1,603	1,568	1,445	1,533	1,561	1,621	1,727	1,812	1,818	19,893
Interdepartmental Sales	20	21	18	17	16	14	16	14	16	15	19	21	207
Total Billed Sales - MWh	266,230	260,224	237,742	218,996	218,094	220,712	273,132	251,603	238,005	222,564	250,644	272,719	2,930,665
Company Use	486	432	445	439	456	460	502	510	449	451	446	464	5,540
Total Energy	266,716	260,656	238,187	219,435	218,550	221,172	273,634	252,113	238,454	223,015	251,090	273,183	2,936,205
Total Requirements (Energy + Losses)	289,211	282,640	258,276	237,942	236,983	239,826	296,712	273,376	258,565	241,824	272,267	296,223	3,183,845
# of Large Comm & Ind Customers	1,038	1,039	1,040	1,041	1,040	1,031	1,033	993	994	994	994	1,002	1,020
# of Other Public Customers	666	666	666	669	671	669	669	669	668	665	659	656	666
# of Street & Highway Lighting Customers	433	433	433	433	433	433	433	433	433	433	433	433	433
Peak Demand Net of Energy Efficiency Progs	447.4	432.4	392.4	364.6	380.7	484.3	524.4	491.5	413.8	353.2	418.7	486.6	524.4

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	1,141.7	1,089.6	941.8	813.9	781.7	819.7	1,099.1	961.0	847.0	773.7	969.0	1,134.9	11,372.6
# of Residential Customers	89,004	89,207	89,367	89,470	89,625	89,893	90,128	90,394	90,691	91,059	91,339	91,612	90,149
Total Residential Sales - MWh	101,613	97,201	84,167	72,822	70,058	73,688	99,062	86,865	76,813	70,456	88,507	103,973	1,025,225
Use per Small Comm & Ind Customer - kWh	6,671.7	6,564.3	6,012.5	5,497.4	5,526.4	5,415.3	6,587.2	6,222.9	5,989.7	5,699.9	6,361.2	6,736.6	73,284.9
# of Small Comm & Ind Customers	14,089	14,082	14,109	14,168	14,250	14,335	14,352	14,419	14,445	14,421	14,437	14,469	14,298
Total Small Comm & Ind Sales - MWh	93,998	92,438	84,831	77,887	78,751	77,628	94,539	89,728	86,521	82,198	91,837	97,472	1,047,828
Large Comm & Ind Sales	71,367	71,393	69,040	68,380	69,046	68,973	79,575	74,853	74,750	69,929	70,991	71,446	859,743
Total Sales (Residential, SC&I and LC&I)	266,978	261,032	238,038	219,089	217,855	220,289	273,176	251,446	238,084	222,583	251,335	272,891	2,932,796
Other Public Sales	3,573	3,527	3,519	3,334	3,713	4,028	4,663	4,412	3,832	3,459	3,376	3,571	45,007
Street & Highway Lighting Sales	1,834	1,694	1,677	1,603	1,568	1,445	1,533	1,561	1,621	1,727	1,812	1,818	19,893
Interdepartmental Sales	20	21	18	17	16	14	16	14	16	15	19	21	207
Total Billed Sales - MWh	272,405	266,274	243,252	224,043	223,152	225,776	279,388	257,433	243,553	227,784	256,542	278,301	2,997,903
Company Use	486	432	445	439	456	460	502	510	449	451	446	464	5,540
Total Energy	272,891	266,706	243,697	224,482	223,608	226,236	279,890	257,943	244,002	228,235	256,988	278,765	3,003,443
Total Requirements (Energy + Losses)	295,907	289,200	264,250	243,415	242,467	245,317	303,496	279,698	264,581	247,484	278,662	302,276	3,256,753
# of Large Comm & Ind Customers	1,064	1,066	1,067	1,068	1,067	1,058	1,059	1,018	1,020	1,020	1,020	1,027	1,046
# of Other Public Customers	666	666	666	669	671	669	669	669	668	665	659	656	666
# of Street & Highway Lighting Customers	433	433	433	433	433	433	433	433	433	433	433	433	433
Peak Demand Net of Energy Efficiency Progs	456.0	440.8	399.9	371.6	388.1	493.8	534.7	501.2	421.9	360.2	425.8	494.8	534.7

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	1,141.7	1,089.6	941.8	813.9	781.7	819.7	1,099.1	961.0	847.0	773.7	969.0	1,134.9	11,372.5
# of Residential Customers	89,793	89,999	90,160	90,264	90,420	90,690	90,928	91,196	91,496	91,867	92,150	92,425	90,949
Total Residential Sales - MWh	102,515	98,063	84,914	73,468	70,680	74,342	99,941	87,635	77,495	71,081	89,292	104,891	1,034,317
Use per Small Comm & Ind Customer - kWh	6,837.1	6,726.9	6,161.6	5,633.5	5,663.2	5,549.7	6,750.3	6,377.3	6,138.4	5,841.3	6,519.1	6,902.4	75,100.6
# of Small Comm & Ind Customers	14,230	14,223	14,250	14,310	14,393	14,478	14,496	14,563	14,589	14,565	14,581	14,614	14,441
Total Small Comm & Ind Sales - MWh	97,292	95,677	87,803	80,616	81,510	80,348	97,852	92,872	89,553	85,078	95,055	100,872	1,084,528
Large Comm & Ind Sales	72,027	72,053	69,669	69,005	69,680	69,609	80,315	75,546	75,438	70,569	71,643	72,105	867,659
Total Sales (Residential, SC&I and LC&I)	271,834	265,793	242,386	223,089	221,870	224,299	278,108	256,053	242,486	226,728	255,990	277,868	2,986,504
Other Public Sales	3,603	3,556	3,547	3,361	3,744	4,062	4,702	4,449	3,864	3,488	3,404	3,601	45,381
Street & Highway Lighting Sales	1,834	1,694	1,677	1,603	1,568	1,445	1,533	1,561	1,621	1,727	1,812	1,818	19,893
Interdepartmental Sales	20	21	18	17	16	14	16	14	16	15	19	21	207
Total Billed Sales - MWh	277,291	271,064	247,628	228,070	227,198	229,820	284,359	262,077	247,987	231,958	261,225	283,308	3,051,985
Company Use	486	432	445	439	456	460	502	510	449	451	446	464	5,540
Total Energy	277,777	271,496	248,073	228,509	227,654	230,280	284,861	262,587	248,436	232,409	261,671	283,772	3,057,525
Total Requirements (Energy + Losses)	301,205	294,394	268,995	247,781	246,854	249,702	308,886	284,734	269,389	252,010	283,740	307,705	3,315,395
# of Large Comm & Ind Customers	1,083	1,085	1,086	1,087	1,086	1,077	1,079	1,036	1,038	1,038	1,038	1,046	1,065
# of Other Public Customers	666	666	666	669	671	669	669	669	668	665	659	656	666
# of Street & Highway Lighting Customers	433	433	433	433	433	433	433	433	433	433	433	433	433
Peak Demand Net of Energy Efficiency Progs	463.7	448.2	406.7	377.9	394.2	501.6	543.1	509.0	428.6	365.8	432.1	502.1	543.1

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	1,141.7	1,089.6	941.8	813.9	781.7	819.7	1,099.1	961.0	847.0	773.7	969.0	1,134.2	11,371.8
# of Residential Customers	90,583	90,790	90,953	91,058	91,215	91,488	91,728	91,998	92,301	92,675	92,960	93,238	91,749
Total Residential Sales - MWh	103,417	98,926	85,660	74,114	71,302	74,996	100,820	88,407	78,177	71,706	90,077	105,747	1,043,349
Use per Small Comm & Ind Customer - kWh	7,005.1	6,892.2	6,313.1	5,772.3	5,802.5	5,686.2	6,916.5	6,533.7	6,289.0	5,984.6	6,679.1	7,071.4	76,945.6
# of Small Comm & Ind Customers	14,371	14,364	14,391	14,451	14,535	14,621	14,639	14,708	14,734	14,710	14,726	14,758	14,584
Total Small Comm & Ind Sales - MWh	100,671	99,000	90,852	83,415	84,340	83,138	101,250	96,097	92,662	88,033	98,357	104,360	1,122,175
Large Comm & Ind Sales	72,697	72,723	70,308	69,640	70,321	70,255	81,067	76,250	76,138	71,218	72,304	72,775	875,696
Total Sales (Residential, SC&I and LC&I)	276,785	270,649	246,820	227,169	225,963	228,389	283,137	260,754	246,977	230,957	260,738	282,882	3,041,220
Other Public Sales	3,633	3,585	3,577	3,389	3,775	4,095	4,741	4,486	3,895	3,516	3,431	3,630	45,753
Street & Highway Lighting Sales	1,834	1,694	1,677	1,603	1,568	1,445	1,533	1,561	1,621	1,727	1,812	1,818	19,893
Interdepartmental Sales	20	21	18	17	16	14	16	14	16	15	19	21	207
Total Billed Sales - MWh	282,272	275,949	252,092	232,178	231,322	233,943	289,427	266,815	252,509	236,215	266,000	288,351	3,107,073
Company Use	486	432	445	439	456	460	502	510	449	451	446	464	5,540
Total Energy	282,758	276,381	252,537	232,617	231,778	234,403	289,929	267,325	252,958	236,666	266,446	288,815	3,112,613
Total Requirements (Energy + Losses)	306,606	299,691	273,836	252,236	251,326	254,173	314,382	289,871	274,292	256,626	288,918	313,174	3,375,131
# of Large Comm & Ind Customers	1,104	1,105	1,106	1,107	1,107	1,097	1,099	1,056	1,058	1,058	1,058	1,066	1,085
# of Other Public Customers	666	666	666	669	671	669	669	669	668	665	659	656	666
# of Street & Highway Lighting Customers	433	433	433	433	433	433	433	433	433	433	433	433	433
Peak Demand Net of Energy Efficiency Progs	470.5	454.8	412.7	383.5	400.4	509.4	551.6	517.0	435.3	371.6	438.3	509.3	551.6

APPENDIX F

Monthly Forecasts – South Dakota
(2015-2024)

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

SOUTH DAKOTA YEAR 2015

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,181.3	1,133.8	970.2	829.2	786.3	803.7	1,084.4	909.4	854.4	779.2	983.8	1,185.7	11,499.9
# of Residential Customers	6,585	6,582	6,582	6,585	6,594	6,601	6,615	6,615	6,619	6,612	6,603	6,585	6,598
Total Residential Sales - MWh	7,779	7,463	6,386	5,460	5,185	5,305	7,173	6,016	5,655	5,152	6,496	7,808	75,878
Use per Small Comm & Ind Customer - kWh	1,887.7	1,935.2	1,601.5	1,480.6	1,452.0	1,448.4	1,943.7	1,587.4	1,676.1	1,432.7	1,745.5	1,934.0	20,115.9
# of Small Comm & Ind Customers	1,825	1,821	1,822	1,833	1,863	1,880	1,882	1,876	1,868	1,851	1,835	1,833	1,849
Total Small Comm & Ind Sales - MWh	3,445	3,524	2,918	2,714	2,705	2,723	3,658	2,978	3,131	2,652	3,203	3,545	37,196
Large Comm & Ind Sales	2,888	3,509	2,842	2,749	3,076	2,770	3,760	2,787	3,883	3,031	3,535	3,767	38,597
Total Sales (Residential, SC&I and LC&I)	14,112	14,496	12,146	10,923	10,966	10,798	14,591	11,781	12,669	10,835	13,234	15,120	151,671
Other Public Sales	101	154	103	106	133	137	185	103	165	82	116	124	1,509
Street & Highway Lighting Sales	229	212	224	224	223	214	220	222	219	230	225	217	2,659
Interdepartmental Sales	1	-	-	-	-	-	-	-	-	-	-	1	2
Total Billed Sales - MWh	14,443	14,862	12,473	11,253	11,322	11,149	14,996	12,106	13,053	11,147	13,575	15,462	155,841
Company Use	60	50	41	23	20	11	14	15	13	19	34	52	352
Total Energy	14,503	14,912	12,514	11,276	11,342	11,160	15,010	12,121	13,066	11,166	13,609	15,514	156,193
Total Requirements (Energy + Losses)	15,726	16,170	13,569	12,227	12,299	12,101	16,276	13,143	14,168	12,108	14,757	16,822	169,366
# of Large Comm & Ind Customers	101	102	101	107	108	106	108	108	108	108	108	108	106
# of Other Public Customers	48	47	47	49	52	52	52	51	50	48	47	46	49
# of Street & Highway Lighting Customers	12	12	12	12	12	12	12	12	12	12	12	12	12
Peak Demand Net of Energy Efficiency Progs	25.7	23.0	24.6	19.8	17.1	26.4	29.7	27.8	23.2	21.4	27.0	28.7	29.7

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

SOUTH DAKOTA YEAR 2016

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,181.4	1,133.9	970.2	829.2	786.3	803.8	1,084.3	909.5	854.4	779.0	983.8	1,185.3	11,499.6
# of Residential Customers	6,588	6,585	6,585	6,588	6,597	6,604	6,618	6,618	6,622	6,616	6,606	6,588	6,601
Total Residential Sales - MWh	7,783	7,467	6,389	5,463	5,187	5,308	7,176	6,019	5,658	5,154	6,499	7,809	75,912
Use per Small Comm & Ind Customer - kWh	1,903.9	1,951.9	1,615.6	1,493.5	1,464.2	1,461.0	1,960.3	1,601.2	1,690.7	1,445.1	1,760.6	1,950.5	20,289.5
# of Small Comm & Ind Customers	1,832	1,828	1,829	1,840	1,870	1,887	1,889	1,883	1,875	1,858	1,842	1,840	1,856
Total Small Comm & Ind Sales - MWh	3,488	3,568	2,955	2,748	2,738	2,757	3,703	3,015	3,170	2,685	3,243	3,589	37,659
Large Comm & Ind Sales	3,382	4,108	3,328	3,218	3,601	3,243	4,402	3,263	4,546	3,548	4,139	4,076	44,854
Total Sales (Residential, SC&I and LC&I)	14,653	15,143	12,672	11,429	11,526	11,308	15,281	12,297	13,374	11,387	13,881	15,474	158,425
Other Public Sales	101	154	103	106	133	137	185	103	165	82	116	124	1,509
Street & Highway Lighting Sales	229	212	224	224	223	214	220	222	219	230	225	217	2,659
Interdepartmental Sales	1	-	-	-	-	-	-	-	-	-	-	1	2
Total Billed Sales - MWh	14,984	15,509	12,999	11,759	11,882	11,659	15,686	12,622	13,758	11,699	14,222	15,816	162,595
Company Use	60	50	41	23	20	11	14	15	13	19	34	52	352
Total Energy	15,044	15,559	13,040	11,782	11,902	11,670	15,700	12,637	13,771	11,718	14,256	15,868	162,947
Total Requirements (Energy + Losses)	16,313	16,871	14,140	12,776	12,906	12,654	17,024	13,703	14,932	12,706	15,458	17,206	176,689
# of Large Comm & Ind Customers	101	102	101	107	108	106	108	108	108	108	108	108	106
# of Other Public Customers	48	47	47	49	52	52	52	51	50	48	47	46	49
# of Street & Highway Lighting Customers	12	12	12	12	12	12	12	12	12	12	12	12	12
Peak Demand Net of Energy Efficiency Progs	26.2	23.4	25.0	20.2	17.5	27.0	30.4	28.4	23.7	21.9	27.7	29.4	30.4

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

SOUTH DAKOTA YEAR 2017

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,181.4	1,133.9	970.2	829.2	786.3	803.8	1,084.3	909.5	854.4	779.0	983.8	1,185.3	11,499.6
# of Residential Customers	6,588	6,585	6,585	6,588	6,597	6,604	6,618	6,618	6,622	6,616	6,606	6,588	6,601
Total Residential Sales - MWh	7,783	7,467	6,389	5,463	5,187	5,308	7,176	6,019	5,658	5,154	6,499	7,809	75,912
Use per Small Comm & Ind Customer - kWh	1,918.0	1,966.8	1,627.9	1,504.6	1,475.3	1,471.3	1,975.2	1,613.1	1,703.8	1,456.3	1,774.2	1,964.8	20,442.1
# of Small Comm & Ind Customers	1,841	1,837	1,838	1,849	1,879	1,897	1,898	1,892	1,884	1,867	1,851	1,849	1,865
Total Small Comm & Ind Sales - MWh	3,531	3,613	2,992	2,782	2,772	2,791	3,749	3,052	3,210	2,719	3,284	3,633	38,128
Large Comm & Ind Sales	3,469	4,214	3,414	3,302	3,694	3,327	4,516	3,347	4,663	3,640	4,246	4,182	46,014
Total Sales (Residential, SC&I and LC&I)	14,783	15,294	12,795	11,547	11,653	11,426	15,441	12,418	13,531	11,513	14,029	15,624	160,054
Other Public Sales	101	154	103	106	133	137	185	103	165	82	116	124	1,509
Street & Highway Lighting Sales	229	212	224	224	223	214	220	222	219	230	225	217	2,659
Interdepartmental Sales	1	-	-	-	-	-	-	-	-	-	-	1	2
Total Billed Sales - MWh	15,114	15,660	13,122	11,877	12,009	11,777	15,846	12,743	13,915	11,825	14,370	15,966	164,224
Company Use	60	50	41	23	20	11	14	15	13	19	34	52	352
Total Energy	15,174	15,710	13,163	11,900	12,029	11,788	15,860	12,758	13,928	11,844	14,404	16,018	164,576
Total Requirements (Energy + Losses)	16,454	17,035	14,273	12,904	13,044	12,782	17,198	13,834	15,103	12,843	15,619	17,369	178,458
# of Large Comm & Ind Customers	102	103	102	108	109	107	109	109	109	109	109	109	107
# of Other Public Customers	48	47	47	49	52	52	52	51	50	48	47	46	49
# of Street & Highway Lighting Customers	12	12	12	12	12	12	12	12	12	12	12	12	12
Peak Demand Net of Energy Efficiency Progs	26.8	24.0	25.6	20.6	17.4	26.8	30.2	28.3	23.6	21.7	27.0	28.7	30.2

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

SOUTH DAKOTA YEAR 2018

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,181.4	1,133.9	970.2	829.2	786.3	803.8	1,084.3	909.5	854.4	779.0	983.8	1,185.3	11,499.6
# of Residential Customers	6,588	6,585	6,585	6,588	6,597	6,604	6,618	6,618	6,622	6,616	6,606	6,588	6,601
Total Residential Sales - MWh	7,783	7,467	6,389	5,463	5,187	5,308	7,176	6,019	5,658	5,154	6,499	7,809	75,912
Use per Small Comm & Ind Customer - kWh	1,933.5	1,980.5	1,639.4	1,515.1	1,486.2	1,482.2	1,989.5	1,624.9	1,716.3	1,467.0	1,787.1	1,979.5	20,591.9
# of Small Comm & Ind Customers	1,849	1,846	1,847	1,858	1,888	1,906	1,907	1,901	1,893	1,876	1,860	1,858	1,874
Total Small Comm & Ind Sales - MWh	3,575	3,656	3,028	2,815	2,806	2,825	3,794	3,089	3,249	2,752	3,324	3,678	38,591
Large Comm & Ind Sales	3,559	4,324	3,503	3,388	3,791	3,414	4,634	3,435	4,785	3,736	4,357	4,284	47,210
Total Sales (Residential, SC&I and LC&I)	14,917	15,447	12,920	11,666	11,784	11,547	15,604	12,543	13,692	11,642	14,180	15,771	161,713
Other Public Sales	101	154	103	106	133	137	185	103	165	82	116	124	1,509
Street & Highway Lighting Sales	229	212	224	224	223	214	220	222	219	230	225	217	2,659
Interdepartmental Sales	1	-	-	-	-	-	-	-	-	-	-	1	2
Total Billed Sales - MWh	15,248	15,813	13,247	11,996	12,140	11,898	16,009	12,868	14,076	11,954	14,521	16,113	165,883
Company Use	60	50	41	23	20	11	14	15	13	19	34	52	352
Total Energy	15,308	15,863	13,288	12,019	12,160	11,909	16,023	12,883	14,089	11,973	14,555	16,165	166,235
Total Requirements (Energy + Losses)	16,599	17,201	14,409	13,033	13,186	12,913	17,374	13,970	15,277	12,983	15,783	17,528	180,256
# of Large Comm & Ind Customers	102	103	102	108	109	107	109	109	109	109	109	109	107
# of Other Public Customers	48	47	47	49	52	52	52	51	50	48	47	46	49
# of Street & Highway Lighting Customers	12	12	12	12	12	12	12	12	12	12	12	12	12
Peak Demand Net of Energy Efficiency Progs	26.2	23.4	25.0	20.2	17.4	26.7	30.1	28.2	23.5	21.7	26.6	28.3	30.1

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

SOUTH DAKOTA YEAR 2019

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,181.3	1,133.8	970.2	829.2	786.4	803.7	1,084.3	909.5	854.4	779.0	983.8	1,185.2	11,499.3
# of Residential Customers	6,587	6,584	6,584	6,587	6,596	6,603	6,617	6,617	6,621	6,615	6,605	6,587	6,600
Total Residential Sales - MWh	7,781	7,465	6,388	5,462	5,187	5,307	7,175	6,018	5,657	5,153	6,498	7,807	75,898
Use per Small Comm & Ind Customer - kWh	1,947.8	1,995.7	1,652.8	1,527.0	1,497.6	1,493.5	2,005.2	1,637.7	1,729.2	1,478.0	1,800.4	1,994.6	20,750.4
# of Small Comm & Ind Customers	1,858	1,855	1,855	1,867	1,897	1,915	1,916	1,910	1,902	1,885	1,869	1,867	1,883
Total Small Comm & Ind Sales - MWh	3,619	3,702	3,066	2,851	2,841	2,860	3,842	3,128	3,289	2,786	3,365	3,724	39,073
Large Comm & Ind Sales	3,641	4,424	3,583	3,465	3,877	3,492	4,740	3,514	4,895	3,821	4,456	4,383	48,291
Total Sales (Residential, SC&I and LC&I)	15,041	15,591	13,037	11,778	11,905	11,659	15,757	12,660	13,841	11,760	14,319	15,914	163,262
Other Public Sales	101	154	103	106	133	137	185	103	165	82	116	124	1,509
Street & Highway Lighting Sales	229	212	224	224	223	214	220	222	219	230	225	217	2,659
Interdepartmental Sales	1	-	-	-	-	-	-	-	-	-	-	1	2
Total Billed Sales - MWh	15,372	15,957	13,364	12,108	12,261	12,010	16,162	12,985	14,225	12,072	14,660	16,256	167,432
Company Use	60	50	41	23	20	11	14	15	13	19	34	52	352
Total Energy	15,432	16,007	13,405	12,131	12,281	12,021	16,176	13,000	14,238	12,091	14,694	16,308	167,784
Total Requirements (Energy + Losses)	16,734	17,357	14,536	13,154	13,317	13,035	17,540	14,096	15,439	13,111	15,933	17,683	181,935
# of Large Comm & Ind Customers	103	104	103	109	110	108	110	110	110	110	110	110	108
# of Other Public Customers	48	47	47	49	52	52	52	51	50	48	47	46	49
# of Street & Highway Lighting Customers	12	12	12	12	12	12	12	12	12	12	12	12	12
Peak Demand Net of Energy Efficiency Progs	25.8	23.1	24.7	19.9	17.4	26.8	30.2	28.3	23.6	21.7	26.5	28.2	30.2

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

SOUTH DAKOTA YEAR 2020

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,181.3	1,133.8	970.2	829.2	786.3	803.7	1,084.4	909.4	854.4	779.2	983.8	1,185.1	11,499.3
# of Residential Customers	6,585	6,582	6,582	6,585	6,594	6,601	6,615	6,615	6,619	6,612	6,603	6,585	6,598
Total Residential Sales - MWh	7,779	7,463	6,386	5,460	5,185	5,305	7,173	6,016	5,655	5,152	6,496	7,804	75,874
Use per Small Comm & Ind Customer - kWh	1,964.6	2,012.9	1,667.0	1,540.8	1,510.5	1,506.8	2,021.8	1,652.1	1,744.4	1,491.0	1,816.1	2,012.3	20,931.2
# of Small Comm & Ind Customers	1,865	1,862	1,862	1,873	1,904	1,922	1,924	1,917	1,909	1,892	1,876	1,874	1,890
Total Small Comm & Ind Sales - MWh	3,664	3,748	3,104	2,886	2,876	2,896	3,890	3,167	3,330	2,821	3,407	3,771	39,560
Large Comm & Ind Sales	3,726	4,526	3,666	3,546	3,968	3,573	4,850	3,596	5,009	3,910	4,560	4,484	49,414
Total Sales (Residential, SC&I and LC&I)	15,169	15,737	13,156	11,892	12,029	11,774	15,913	12,779	13,994	11,883	14,463	16,059	164,848
Other Public Sales	101	154	103	106	133	137	185	103	165	82	116	124	1,509
Street & Highway Lighting Sales	229	212	224	224	223	214	220	222	219	230	225	217	2,659
Interdepartmental Sales	1	-	-	-	-	-	-	-	-	-	-	1	2
Total Billed Sales - MWh	15,500	16,103	13,483	12,222	12,385	12,125	16,318	13,104	14,378	12,195	14,804	16,401	169,018
Company Use	60	50	41	23	20	11	14	15	13	19	34	52	352
Total Energy	15,560	16,153	13,524	12,245	12,405	12,136	16,332	13,119	14,391	12,214	14,838	16,453	169,370
Total Requirements (Energy + Losses)	16,872	17,515	14,665	13,278	13,451	13,160	17,709	14,225	15,605	13,244	16,089	17,841	183,654
# of Large Comm & Ind Customers	103	104	103	109	110	108	110	110	110	110	110	110	108
# of Other Public Customers	48	47	47	49	52	52	52	51	50	48	47	46	49
# of Street & Highway Lighting Customers	12	12	12	12	12	12	12	12	12	12	12	12	12
Peak Demand Net of Energy Efficiency Progs	25.7	23.0	24.6	19.8	17.5	26.9	30.3	28.4	23.7	21.8	26.5	28.2	30.3

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	1,181.4	1,133.9	970.4	829.4	786.4	803.7	1,084.4	909.4	854.4	779.2	983.9	1,185.2	11,500.2
# of Residential Customers	6,582	6,579	6,579	6,582	6,591	6,598	6,612	6,612	6,616	6,609	6,600	6,582	6,595
Total Residential Sales - MWh	7,776	7,460	6,384	5,459	5,183	5,303	7,170	6,013	5,653	5,150	6,494	7,801	75,846
Use per Small Comm & Ind Customer - kWh	1,979.7	2,028.3	1,679.3	1,552.6	1,522.2	1,518.4	2,037.8	1,664.6	1,758.1	1,502.4	1,831.2	2,027.1	21,092.6
# of Small Comm & Ind Customers	1,874	1,871	1,871	1,882	1,913	1,931	1,933	1,926	1,918	1,901	1,884	1,883	1,899
Total Small Comm & Ind Sales - MWh	3,710	3,795	3,142	2,922	2,912	2,932	3,939	3,206	3,372	2,856	3,450	3,817	40,053
Large Comm & Ind Sales	3,812	4,631	3,751	3,628	4,060	3,656	4,963	3,679	5,125	4,001	4,666	4,588	50,560
Total Sales (Residential, SC&I and LC&I)	15,298	15,886	13,277	12,009	12,155	11,891	16,072	12,898	14,150	12,007	14,610	16,206	166,459
Other Public Sales	101	154	103	106	133	137	185	103	165	82	116	124	1,509
Street & Highway Lighting Sales	229	212	224	224	223	214	220	222	219	230	225	217	2,659
Interdepartmental Sales	1	-	-	-	-	-	-	-	-	-	-	1	2
Total Billed Sales - MWh	15,629	16,252	13,604	12,339	12,511	12,242	16,477	13,223	14,534	12,319	14,951	16,548	170,629
Company Use	60	50	41	23	20	11	14	15	13	19	34	52	352
Total Energy	15,689	16,302	13,645	12,362	12,531	12,253	16,491	13,238	14,547	12,338	14,985	16,600	170,981
Total Requirements (Energy + Losses)	17,012	17,677	14,796	13,405	13,588	13,286	17,882	14,354	15,774	13,379	16,249	18,000	185,402
# of Large Comm & Ind Customers	104	105	104	110	111	109	111	111	111	111	111	111	109
# of Other Public Customers	48	47	47	49	52	52	52	51	50	48	47	46	49
# of Street & Highway Lighting Customers	12	12	12	12	12	12	12	12	12	12	12	12	12
Peak Demand Net of Energy Efficiency Progs	25.7	23.0	24.6	19.8	17.6	27.1	30.5	28.5	23.8	21.9	26.6	28.3	30.5

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	1,181.3	1,134.0	970.3	829.3	786.4	803.8	1,084.3	909.4	854.5	779.1	983.8	1,184.8	11,499.6
# of Residential Customers	6,579	6,576	6,576	6,579	6,588	6,595	6,609	6,609	6,613	6,606	6,597	6,579	6,592
Total Residential Sales - MWh	7,772	7,457	6,381	5,456	5,181	5,301	7,166	6,010	5,651	5,147	6,490	7,795	75,807
Use per Small Comm & Ind Customer - kWh	1,995.7	2,045.8	1,693.5	1,565.6	1,535.1	1,531.2	2,054.1	1,678.4	1,772.6	1,514.4	1,845.7	2,043.9	21,266.7
# of Small Comm & Ind Customers	1,882	1,878	1,879	1,890	1,921	1,939	1,941	1,934	1,926	1,909	1,892	1,891	1,907
Total Small Comm & Ind Sales - MWh	3,756	3,842	3,182	2,959	2,949	2,969	3,987	3,246	3,414	2,891	3,492	3,865	40,552
Large Comm & Ind Sales	3,900	4,738	3,838	3,712	4,153	3,741	5,077	3,764	5,244	4,093	4,774	4,695	51,729
Total Sales (Residential, SC&I and LC&I)	15,428	16,037	13,401	12,127	12,283	12,011	16,230	13,020	14,309	12,131	14,756	16,355	168,088
Other Public Sales	101	154	103	106	133	137	185	103	165	82	116	124	1,509
Street & Highway Lighting Sales	229	212	224	224	223	214	220	222	219	230	225	217	2,659
Interdepartmental Sales	1	-	-	-	-	-	-	-	-	-	-	1	2
Total Billed Sales - MWh	15,759	16,403	13,728	12,457	12,639	12,362	16,635	13,345	14,693	12,443	15,097	16,697	172,258
Company Use	60	50	41	23	20	11	14	15	13	19	34	52	352
Total Energy	15,819	16,453	13,769	12,480	12,659	12,373	16,649	13,360	14,706	12,462	15,131	16,749	172,610
Total Requirements (Energy + Losses)	17,153	17,841	14,930	13,533	13,727	13,417	18,053	14,487	15,946	13,513	16,407	18,162	187,169
# of Large Comm & Ind Customers	104	105	104	110	111	109	111	111	111	111	111	111	109
# of Other Public Customers	48	47	47	49	52	52	52	51	50	48	47	46	49
# of Street & Highway Lighting Customers	12	12	12	12	12	12	12	12	12	12	12	12	12
Peak Demand Net of Energy Efficiency Progs	25.8	23.1	24.7	19.9	17.7	27.3	30.7	28.7	24.0	22.1	26.8	28.5	30.7

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	1,181.3	1,133.9	970.2	829.2	786.4	803.8	1,084.3	909.4	854.4	779.1	983.9	1,184.8	11,499.3
# of Residential Customers	6,574	6,571	6,571	6,574	6,583	6,590	6,604	6,604	6,608	6,601	6,592	6,574	6,587
Total Residential Sales - MWh	7,766	7,451	6,375	5,451	5,177	5,297	7,161	6,006	5,646	5,143	6,486	7,789	75,748
Use per Small Comm & Ind Customer - kWh	2,012.2	2,062.6	1,706.9	1,578.5	1,548.0	1,543.9	2,071.3	1,692.6	1,787.0	1,526.9	1,861.1	2,060.6	21,442.1
# of Small Comm & Ind Customers	1,890	1,886	1,887	1,898	1,929	1,947	1,949	1,942	1,934	1,917	1,900	1,899	1,915
Total Small Comm & Ind Sales - MWh	3,803	3,890	3,221	2,996	2,986	3,006	4,037	3,287	3,456	2,927	3,536	3,913	41,058
Large Comm & Ind Sales	3,992	4,849	3,928	3,799	4,251	3,828	5,196	3,852	5,366	4,189	4,885	4,799	52,934
Total Sales (Residential, SC&I and LC&I)	15,561	16,190	13,524	12,246	12,414	12,131	16,394	13,145	14,468	12,259	14,907	16,501	169,740
Other Public Sales	101	154	103	106	133	137	185	103	165	82	116	124	1,509
Street & Highway Lighting Sales	229	212	224	224	223	214	220	222	219	230	225	217	2,659
Interdepartmental Sales	1	-	-	-	-	-	-	-	-	-	-	1	2
Total Billed Sales - MWh	15,892	16,556	13,851	12,576	12,770	12,482	16,799	13,470	14,852	12,571	15,248	16,843	173,910
Company Use	60	50	41	23	20	11	14	15	13	19	34	52	352
Total Energy	15,952	16,606	13,892	12,599	12,790	12,493	16,813	13,485	14,865	12,590	15,282	16,895	174,262
Total Requirements (Energy + Losses)	17,297	18,007	15,064	13,662	13,869	13,547	18,231	14,622	16,119	13,652	16,571	18,320	188,961
# of Large Comm & Ind Customers	104	105	104	110	111	109	111	111	111	111	111	111	109
# of Other Public Customers	48	47	47	49	52	52	52	51	50	48	47	46	49
# of Street & Highway Lighting Customers	12	12	12	12	12	12	12	12	12	12	12	12	12
Peak Demand Net of Energy Efficiency Progs	26.0	23.2	24.8	20.0	17.9	27.5	31.0	29.0	24.2	22.3	26.9	28.6	31.0

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	1,181.3	1,134.0	970.3	829.2	786.3	803.8	1,084.4	909.4	854.5	779.1	983.8	1,184.8	11,499.3
# of Residential Customers	6,569	6,566	6,566	6,569	6,578	6,585	6,599	6,599	6,603	6,596	6,587	6,569	6,582
Total Residential Sales - MWh	7,760	7,446	6,371	5,447	5,172	5,293	7,156	6,001	5,642	5,139	6,480	7,783	75,690
Use per Small Comm & Ind Customer - kWh	2,028.5	2,079.7	1,721.4	1,591.3	1,560.1	1,555.7	2,088.4	1,705.8	1,802.3	1,539.7	1,876.3	2,077.1	21,616.7
# of Small Comm & Ind Customers	1,898	1,894	1,895	1,906	1,937	1,956	1,957	1,951	1,942	1,925	1,908	1,907	1,923
Total Small Comm & Ind Sales - MWh	3,850	3,939	3,262	3,033	3,022	3,043	4,087	3,328	3,500	2,964	3,580	3,961	41,569
Large Comm & Ind Sales	4,076	4,952	4,011	3,879	4,341	3,909	5,306	3,933	5,480	4,278	4,989	4,900	54,054
Total Sales (Residential, SC&I and LC&I)	15,686	16,337	13,644	12,359	12,535	12,245	16,549	13,262	14,622	12,381	15,049	16,644	171,313
Other Public Sales	101	154	103	106	133	137	185	103	165	82	116	124	1,509
Street & Highway Lighting Sales	229	212	224	224	223	214	220	222	219	230	225	217	2,659
Interdepartmental Sales	1	-	-	-	-	-	-	-	-	-	-	1	2
Total Billed Sales - MWh	16,017	16,703	13,971	12,689	12,891	12,596	16,954	13,587	15,006	12,693	15,390	16,986	175,483
Company Use	60	50	41	23	20	11	14	15	13	19	34	52	352
Total Energy	16,077	16,753	14,012	12,712	12,911	12,607	16,968	13,602	15,019	12,712	15,424	17,038	175,835
Total Requirements (Energy + Losses)	17,433	18,166	15,194	13,784	14,000	13,670	18,399	14,749	16,286	13,784	16,725	18,475	190,665
# of Large Comm & Ind Customers	105	106	105	111	112	110	112	112	112	112	112	112	110
# of Other Public Customers	48	47	47	49	52	52	52	51	50	48	47	46	49
# of Street & Highway Lighting Customers	12	12	12	12	12	12	12	12	12	12	12	12	12
Peak Demand Net of Energy Efficiency Progs	26.1	23.3	24.9	20.1	18.0	27.7	31.2	29.2	24.4	22.4	27.1	28.8	31.2

APPENDIX G

Monthly Forecasts – Integrated System (2015-2024)

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

INTEGRATED SYSTEM YEAR 2015

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,085.6	1,041.7	892.9	774.2	749.0	782.1	1,066.7	918.2	818.2	735.6	923.9	1,100.8	10,888.9
# of Residential Customers	102,835	103,013	103,180	103,252	103,402	103,670	103,912	104,152	104,433	104,777	105,043	105,288	103,913
Total Residential Sales - MWh	111,641	107,305	92,129	79,935	77,453	81,083	110,840	95,629	85,450	77,075	97,051	115,905	1,131,496
Use per Small Comm & Ind Customer - kWh	4,065.8	4,023.8	3,645.0	3,338.2	3,375.4	3,288.9	4,099.6	3,788.0	3,674.7	3,425.8	3,843.3	4,217.6	44,784.5
# of Small Comm & Ind Customers	18,896	18,878	18,904	19,002	19,131	19,258	19,289	19,349	19,354	19,287	19,274	19,300	19,160
Total Small Comm & Ind Sales - MWh	76,828	75,961	68,905	63,432	64,574	63,337	79,078	73,294	71,121	66,073	74,076	81,399	858,078
Large Comm & Ind Sales	100,051	99,224	96,042	97,222	97,169	94,908	107,194	99,888	104,523	100,874	101,509	111,010	1,209,614
Total Sales (Residential, SC&I and LC&I)	288,520	282,490	257,076	240,589	239,196	239,328	297,112	268,811	261,094	244,022	272,636	308,314	3,199,188
Other Public Sales	3,974	4,059	3,890	3,749	4,221	4,573	5,498	5,000	4,506	3,834	3,807	4,034	51,145
Street & Highway Lighting Sales	2,686	2,472	2,492	2,415	2,380	2,216	2,336	2,364	2,414	2,562	2,624	2,619	29,580
Interdepartmental Sales	38	39	32	31	29	26	31	26	30	27	34	39	382
Total Billed Sales - MWh	295,218	289,060	263,490	246,784	245,826	246,143	304,977	276,201	268,044	250,445	279,101	315,006	3,280,295
Company Use	581	515	517	491	504	497	549	554	489	495	509	549	6,250
Total Energy	295,799	289,575	264,007	247,275	246,330	246,640	305,526	276,755	268,533	250,940	279,610	315,555	3,286,545
Total Requirements (Energy + Losses)	320,747	313,998	286,273	268,130	267,106	267,442	331,294	300,097	291,181	272,104	303,192	342,168	3,563,732
# of Large Comm & Ind Customers	1,200	1,200	1,200	1,210	1,212	1,198	1,203	1,170	1,171	1,171	1,170	1,176	1,190
# of Other Public Customers	815	814	814	820	826	824	825	824	821	815	806	803	817
# of Street & Highway Lighting Customers	480	480	480	480	480	480	480	480	480	480	480	480	480
Peak Demand Net of Energy Efficiency Progs	521.8	501.4	457.9	414.4	439.7	573.4	624.5	588.0	498.6	428.9	521.4	603.6	624.5

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

INTEGRATED SYSTEM YEAR 2016

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,090.9	1,046.7	897.3	778.0	752.6	786.0	1,071.6	922.7	822.1	739.2	928.4	1,100.7	10,936.1
# of Residential Customers	106,148	106,334	106,506	106,582	106,737	107,014	107,264	107,513	107,804	108,163	108,437	108,692	107,266
Total Residential Sales - MWh	115,801	111,296	95,569	82,918	80,335	84,110	114,948	99,203	88,623	79,957	100,676	119,639	1,173,075
Use per Small Comm & Ind Customer - kWh	4,265.5	4,220.5	3,825.1	3,502.9	3,541.1	3,451.0	4,297.7	3,974.8	3,854.4	3,596.4	4,033.9	4,385.7	46,947.1
# of Small Comm & Ind Customers	19,518	19,499	19,527	19,627	19,760	19,891	19,922	19,985	19,992	19,924	19,910	19,937	19,791
Total Small Comm & Ind Sales - MWh	83,255	82,295	74,693	68,752	69,973	68,644	85,618	79,437	77,057	71,654	80,314	87,438	929,130
Large Comm & Ind Sales	109,666	108,823	105,236	106,477	106,502	104,054	117,705	109,621	114,641	110,460	111,229	119,201	1,323,615
Total Sales (Residential, SC&I and LC&I)	308,722	302,414	275,498	258,147	256,810	256,808	318,271	288,261	280,321	262,071	292,219	326,278	3,425,820
Other Public Sales	4,003	4,088	3,921	3,778	4,253	4,607	5,537	5,038	4,539	3,862	3,836	4,065	51,527
Street & Highway Lighting Sales	2,686	2,472	2,492	2,415	2,380	2,216	2,336	2,364	2,414	2,562	2,624	2,619	29,580
Interdepartmental Sales	38	39	32	31	29	26	31	26	30	27	34	39	382
Total Billed Sales - MWh	315,449	309,013	281,943	264,371	263,472	263,657	326,175	295,689	287,304	268,522	298,713	333,001	3,507,309
Company Use	581	515	517	491	504	497	549	554	489	495	509	549	6,250
Total Energy	316,030	309,528	282,460	264,862	263,976	264,154	326,724	296,243	287,793	269,017	299,222	333,550	3,513,559
Total Requirements (Energy + Losses)	342,685	335,633	306,283	287,201	286,240	286,432	354,280	321,228	312,065	291,705	324,458	361,682	3,809,892
# of Large Comm & Ind Customers	1,251	1,250	1,251	1,261	1,262	1,249	1,254	1,219	1,220	1,220	1,219	1,225	1,240
# of Other Public Customers	815	814	814	820	826	824	825	824	821	815	806	803	817
# of Street & Highway Lighting Customers	480	480	480	480	480	480	480	480	480	480	480	480	480
Peak Demand Net of Energy Efficiency Progs	566.0	543.9	496.5	449.8	461.4	601.3	654.8	616.5	522.7	449.6	546.7	632.9	654.8

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

INTEGRATED SYSTEM YEAR 2017

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,096.1	1,051.6	901.6	781.7	756.2	789.7	1,076.6	927.2	825.9	742.8	932.8	1,105.6	10,987.7
# of Residential Customers	108,619	108,810	108,986	109,064	109,223	109,507	109,764	110,019	110,318	110,686	110,969	111,230	109,766
Total Residential Sales - MWh	119,061	114,423	98,263	85,254	82,595	86,482	118,173	102,005	91,112	82,214	103,517	122,980	1,206,079
Use per Small Comm & Ind Customer - kWh	4,434.0	4,386.3	3,977.2	3,641.9	3,681.3	3,587.7	4,465.2	4,132.7	4,006.6	3,740.6	4,194.9	4,556.8	48,803.3
# of Small Comm & Ind Customers	20,012	19,993	20,020	20,123	20,259	20,394	20,425	20,489	20,496	20,427	20,413	20,442	20,291
Total Small Comm & Ind Sales - MWh	88,733	87,696	79,624	73,286	74,579	73,167	91,201	84,675	82,120	76,409	85,630	93,151	990,271
Large Comm & Ind Sales	117,597	116,494	112,916	114,112	114,249	111,633	131,122	122,631	127,533	123,275	123,873	130,268	1,445,703
Total Sales (Residential, SC&I and LC&I)	325,391	318,613	290,803	272,652	271,423	271,282	340,496	309,311	300,765	281,898	313,020	346,399	3,642,053
Other Public Sales	4,034	4,118	3,949	3,806	4,284	4,642	5,577	5,074	4,571	3,890	3,864	4,095	51,904
Street & Highway Lighting Sales	2,686	2,472	2,492	2,415	2,380	2,216	2,336	2,364	2,414	2,562	2,624	2,619	29,580
Interdepartmental Sales	38	39	32	31	29	26	31	26	30	27	34	39	382
Total Billed Sales - MWh	332,149	325,242	297,276	278,904	278,116	278,166	348,440	316,775	307,780	288,377	319,542	353,152	3,723,919
Company Use	581	515	517	491	504	497	549	554	489	495	509	549	6,250
Total Energy	332,730	325,757	297,793	279,395	278,620	278,663	348,989	317,329	308,269	288,872	320,051	353,701	3,730,169
Total Requirements (Energy + Losses)	360,793	353,231	322,909	302,960	302,119	302,165	378,423	344,093	334,269	313,236	347,044	383,532	4,044,774
# of Large Comm & Ind Customers	1,294	1,293	1,294	1,304	1,305	1,291	1,296	1,260	1,261	1,261	1,260	1,267	1,282
# of Other Public Customers	815	814	814	820	826	824	825	824	821	815	806	803	817
# of Street & Highway Lighting Customers	480	480	480	480	480	480	480	480	480	480	480	480	480
Peak Demand Net of Energy Efficiency Progs	593.4	570.5	520.5	471.7	481.6	627.9	683.7	643.9	546.0	469.5	562.0	650.9	683.7

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

INTEGRATED SYSTEM YEAR 2018

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,101.4	1,056.6	906.0	785.5	759.8	793.6	1,081.7	931.7	829.8	746.4	937.4	1,110.6	11,040.3
# of Residential Customers	111,090	111,286	111,467	111,547	111,709	112,001	112,263	112,526	112,831	113,210	113,499	113,768	112,266
Total Residential Sales - MWh	122,358	117,587	100,987	87,616	84,881	88,882	121,435	104,841	93,630	84,498	106,389	126,351	1,239,455
Use per Small Comm & Ind Customer - kWh	4,608.1	4,557.7	4,133.8	3,785.1	3,825.6	3,728.8	4,637.9	4,295.1	4,163.0	3,888.9	4,360.6	4,733.4	50,715.9
# of Small Comm & Ind Customers	20,504	20,485	20,514	20,619	20,758	20,896	20,927	20,994	21,002	20,931	20,917	20,946	20,791
Total Small Comm & Ind Sales - MWh	94,484	93,364	84,801	78,045	79,411	77,916	97,058	90,171	87,432	81,399	91,211	99,146	1,054,438
Large Comm & Ind Sales	123,975	122,399	119,251	120,302	120,603	117,814	135,654	127,044	131,936	127,712	128,223	134,776	1,509,689
Total Sales (Residential, SC&I and LC&I)	340,817	333,350	305,039	285,963	284,895	284,612	354,147	322,056	312,998	293,609	325,823	360,273	3,803,582
Other Public Sales	4,064	4,147	3,979	3,834	4,315	4,675	5,617	5,111	4,604	3,920	3,892	4,124	52,282
Street & Highway Lighting Sales	2,686	2,472	2,492	2,415	2,380	2,216	2,336	2,364	2,414	2,562	2,624	2,619	29,580
Interdepartmental Sales	38	39	32	31	29	26	31	26	30	27	34	39	382
Total Billed Sales - MWh	347,605	340,008	311,542	292,243	291,619	291,529	362,131	329,557	320,046	300,118	332,373	367,055	3,885,826
Company Use	581	515	517	491	504	497	549	554	489	495	509	549	6,250
Total Energy	348,186	340,523	312,059	292,734	292,123	292,026	362,680	330,111	320,535	300,613	332,882	367,604	3,892,076
Total Requirements (Energy + Losses)	377,552	369,243	338,378	317,423	316,761	316,655	393,268	357,953	347,569	325,967	360,957	398,607	4,220,333
# of Large Comm & Ind Customers	1,335	1,335	1,335	1,345	1,347	1,332	1,338	1,300	1,301	1,301	1,301	1,307	1,323
# of Other Public Customers	815	814	814	820	826	824	825	824	821	815	806	803	817
# of Street & Highway Lighting Customers	480	480	480	480	480	480	480	480	480	480	480	480	480
Peak Demand Net of Energy Efficiency Progs	610.4	586.7	535.2	485.0	497.3	648.2	705.9	664.9	563.9	485.0	572.5	663.0	705.9

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

INTEGRATED SYSTEM YEAR 2019

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,106.7	1,061.7	910.4	789.3	763.5	797.4	1,086.8	936.3	833.7	750.0	941.9	1,110.3	11,087.7
# of Residential Customers	113,559	113,761	113,946	114,028	114,195	114,493	114,762	115,031	115,344	115,732	116,029	116,305	114,765
Total Residential Sales - MWh	125,680	120,775	103,734	89,999	87,187	91,301	124,724	107,698	96,168	86,800	109,286	129,128	1,272,480
Use per Small Comm & Ind Customer - kWh	4,786.2	4,733.4	4,294.7	3,931.9	3,973.7	3,873.3	4,814.8	4,461.6	4,323.5	4,041.1	4,530.2	4,869.8	52,631.7
# of Small Comm & Ind Customers	21,001	20,981	21,010	21,119	21,260	21,402	21,434	21,503	21,511	21,438	21,426	21,455	21,295
Total Small Comm & Ind Sales - MWh	100,516	99,311	90,231	83,038	84,480	82,896	103,201	95,938	93,003	86,634	97,064	104,481	1,120,793
Large Comm & Ind Sales	128,379	126,518	123,612	124,582	124,983	122,083	137,221	128,493	133,469	129,183	129,702	136,326	1,544,551
Total Sales (Residential, SC&I and LC&I)	354,575	346,604	317,577	297,619	296,650	296,280	365,146	332,129	322,640	302,617	336,052	369,935	3,937,824
Other Public Sales	4,093	4,177	4,009	3,863	4,348	4,709	5,656	5,149	4,636	3,950	3,921	4,154	52,665
Street & Highway Lighting Sales	2,686	2,472	2,492	2,415	2,380	2,216	2,336	2,364	2,414	2,562	2,624	2,619	29,580
Interdepartmental Sales	38	39	32	31	29	26	31	26	30	27	34	39	382
Total Billed Sales - MWh	361,392	353,292	324,110	303,928	303,407	303,231	373,169	339,668	329,720	309,156	342,631	376,747	4,020,451
Company Use	581	515	517	491	504	497	549	554	489	495	509	549	6,250
Total Energy	361,973	353,807	324,627	304,419	303,911	303,728	373,718	340,222	330,209	309,651	343,140	377,296	4,026,701
Total Requirements (Energy + Losses)	392,502	383,647	352,007	330,093	329,543	329,345	405,237	368,916	358,059	335,767	372,080	409,117	4,366,313
# of Large Comm & Ind Customers	1,380	1,379	1,379	1,390	1,392	1,377	1,382	1,343	1,344	1,344	1,344	1,351	1,367
# of Other Public Customers	815	814	814	820	826	824	825	824	821	815	806	803	817
# of Street & Highway Lighting Customers	480	480	480	480	480	480	480	480	480	480	480	480	480
Peak Demand Net of Energy Efficiency Progs	621.7	597.8	545.1	493.8	510.6	665.6	724.7	682.6	579.0	497.9	582.9	675.2	724.7

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

INTEGRATED SYSTEM YEAR 2020

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Use per Residential Customer - kWh	1,111.8	1,066.6	914.6	792.9	767.0	801.2	1,091.9	940.7	837.6	753.5	946.3	1,115.3	11,139.2
# of Residential Customers	115,041	115,244	115,433	115,516	115,685	115,988	116,260	116,532	116,849	117,242	117,544	117,824	116,263
Total Residential Sales - MWh	127,907	122,915	105,572	91,596	88,736	92,926	126,946	109,619	97,878	88,343	111,227	131,409	1,295,074
Use per Small Comm & Ind Customer - kWh	4,920.6	4,865.6	4,415.4	4,042.7	4,085.4	3,982.3	4,948.8	4,587.3	4,444.9	4,155.2	4,657.8	5,005.0	54,108.6
# of Small Comm & Ind Customers	21,343	21,324	21,353	21,462	21,606	21,750	21,785	21,853	21,861	21,788	21,775	21,806	21,642
Total Small Comm & Ind Sales - MWh	105,020	103,754	94,282	86,764	88,269	86,615	107,810	100,246	97,170	90,534	101,424	109,140	1,171,028
Large Comm & Ind Sales	129,833	127,973	125,019	126,006	126,412	123,492	138,805	129,961	135,020	130,670	131,199	137,891	1,562,281
Total Sales (Residential, SC&I and LC&I)	362,760	354,642	324,873	304,366	303,417	303,033	373,561	339,826	330,068	309,547	343,850	378,440	4,028,383
Other Public Sales	4,124	4,207	4,038	3,890	4,379	4,743	5,696	5,187	4,669	3,979	3,950	4,185	53,047
Street & Highway Lighting Sales	2,686	2,472	2,492	2,415	2,380	2,216	2,336	2,364	2,414	2,562	2,624	2,619	29,580
Interdepartmental Sales	38	39	32	31	29	26	31	26	30	27	34	39	382
Total Billed Sales - MWh	369,608	361,360	331,435	310,702	310,205	310,018	381,624	347,403	337,181	316,115	350,458	385,283	4,111,392
Company Use	581	515	517	491	504	497	549	554	489	495	509	549	6,250
Total Energy	370,189	361,875	331,952	311,193	310,709	310,515	382,173	347,957	337,670	316,610	350,967	385,832	4,117,642
Total Requirements (Energy + Losses)	401,410	392,395	359,949	337,440	336,914	336,704	414,405	377,304	366,149	343,313	380,567	418,374	4,464,924
# of Large Comm & Ind Customers	1,411	1,411	1,411	1,422	1,424	1,408	1,414	1,373	1,375	1,375	1,374	1,381	1,398
# of Other Public Customers	815	814	814	820	826	824	825	824	821	815	806	803	817
# of Street & Highway Lighting Customers	480	480	480	480	480	480	480	480	480	480	480	480	480
Peak Demand Net of Energy Efficiency Progs	633.2	608.7	555.1	502.9	520.3	677.9	738.2	695.2	589.7	507.0	592.5	686.4	738.2

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	1,117.0	1,071.6	918.9	796.7	770.7	805.0	1,097.1	945.2	841.6	757.1	950.7	1,117.5	11,188.6
# of Residential Customers	116,522	116,728	116,918	117,003	117,174	117,480	117,756	118,033	118,355	118,752	119,058	119,343	117,760
Total Residential Sales - MWh	130,158	125,080	107,433	93,212	90,301	94,568	129,191	111,562	99,607	89,903	113,192	133,364	1,317,571
Use per Small Comm & Ind Customer - kWh	5,057.0	5,000.1	4,537.9	4,154.9	4,198.9	4,092.9	5,085.5	4,714.9	4,567.9	4,271.2	4,787.6	5,142.7	55,608.8
# of Small Comm & Ind Customers	21,689	21,670	21,700	21,810	21,956	22,102	22,137	22,207	22,216	22,141	22,127	22,159	21,993
Total Small Comm & Ind Sales - MWh	109,681	108,352	98,473	90,618	92,190	90,462	112,577	104,703	101,480	94,568	105,935	113,956	1,222,995
Large Comm & Ind Sales	131,299	129,445	126,441	127,443	127,856	124,918	140,408	131,441	136,587	132,174	132,710	139,409	1,580,131
Total Sales (Residential, SC&I and LC&I)	371,138	362,877	332,347	311,273	310,347	309,948	382,176	347,706	337,674	316,645	351,837	386,729	4,120,697
Other Public Sales	4,155	4,237	4,069	3,918	4,410	4,777	5,735	5,223	4,701	4,008	3,977	4,215	53,425
Street & Highway Lighting Sales	2,686	2,472	2,492	2,415	2,380	2,216	2,336	2,364	2,414	2,562	2,624	2,619	29,580
Interdepartmental Sales	38	39	32	31	29	26	31	26	30	27	34	39	382
Total Billed Sales - MWh	378,017	369,625	338,940	317,637	317,166	316,967	390,278	355,319	344,819	323,242	358,472	393,602	4,204,084
Company Use	581	515	517	491	504	497	549	554	489	495	509	549	6,250
Total Energy	378,598	370,140	339,457	318,128	317,670	317,464	390,827	355,873	345,308	323,737	358,981	394,151	4,210,334
Total Requirements (Energy + Losses)	410,529	401,358	368,087	344,959	344,463	344,239	423,789	385,887	374,431	351,041	389,258	427,393	4,565,434
# of Large Comm & Ind Customers	1,444	1,443	1,443	1,454	1,456	1,440	1,446	1,405	1,406	1,406	1,405	1,413	1,430
# of Other Public Customers	815	814	814	820	826	824	825	824	821	815	806	803	817
# of Street & Highway Lighting Customers	480	480	480	480	480	480	480	480	480	480	480	480	480
Peak Demand Net of Energy Efficiency Progs	643.7	618.9	564.4	511.4	530.1	690.6	751.9	708.1	600.6	516.3	602.2	697.7	751.9

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	1,117.0	1,071.5	918.8	796.6	770.7	805.0	1,097.1	945.2	841.6	757.0	950.7	1,115.2	11,186.1
# of Residential Customers	118,003	118,211	118,405	118,490	118,663	118,974	119,253	119,533	119,859	120,262	120,573	120,861	119,257
Total Residential Sales - MWh	131,806	126,664	108,793	94,393	91,448	95,770	130,833	112,982	100,873	91,044	114,628	134,789	1,334,023
Use per Small Comm & Ind Customer - kWh	5,195.9	5,137.8	4,663.3	4,269.4	4,314.7	4,205.7	5,224.7	4,845.0	4,693.6	4,389.2	4,919.8	5,259.8	57,116.1
# of Small Comm & Ind Customers	22,036	22,014	22,046	22,159	22,306	22,455	22,490	22,561	22,570	22,495	22,480	22,513	22,344
Total Small Comm & Ind Sales - MWh	114,496	113,103	102,807	94,605	96,243	94,440	117,503	109,309	105,935	98,736	110,596	118,415	1,276,188
Large Comm & Ind Sales	132,660	130,805	127,745	128,761	129,176	126,226	141,879	132,796	138,025	133,555	134,104	140,881	1,596,613
Total Sales (Residential, SC&I and LC&I)	378,962	370,572	339,345	317,759	316,867	316,436	390,215	355,087	344,833	323,335	359,328	394,085	4,206,824
Other Public Sales	4,183	4,267	4,099	3,947	4,441	4,811	5,775	5,260	4,734	4,037	4,007	4,244	53,805
Street & Highway Lighting Sales	2,686	2,472	2,492	2,415	2,380	2,216	2,336	2,364	2,414	2,562	2,624	2,619	29,580
Interdepartmental Sales	38	39	32	31	29	26	31	26	30	27	34	39	382
Total Billed Sales - MWh	385,869	377,350	345,968	324,152	323,717	323,489	398,357	362,737	352,011	329,961	365,993	400,987	4,290,591
Company Use	581	515	517	491	504	497	549	554	489	495	509	549	6,250
Total Energy	386,450	377,865	346,485	324,643	324,221	323,986	398,906	363,291	352,500	330,456	366,502	401,536	4,296,841
Total Requirements (Energy + Losses)	419,043	409,735	375,707	352,024	351,566	351,312	432,550	393,931	382,229	358,326	397,412	435,402	4,659,237
# of Large Comm & Ind Customers	1,477	1,477	1,477	1,488	1,490	1,474	1,479	1,437	1,439	1,439	1,438	1,445	1,463
# of Other Public Customers	815	814	814	820	826	824	825	824	821	815	806	803	817
# of Street & Highway Lighting Customers	480	480	480	480	480	480	480	480	480	480	480	480	480
Peak Demand Net of Energy Efficiency Progs	654.3	629.2	573.6	519.9	539.2	702.6	764.9	720.3	610.9	525.3	611.1	707.9	764.9

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	1,116.9	1,071.4	918.7	796.5	770.6	804.9	1,097.1	945.2	841.6	757.0	950.6	1,114.8	11,184.9
# of Residential Customers	119,085	119,297	119,492	119,578	119,752	120,066	120,348	120,631	120,960	121,366	121,680	121,971	120,352
Total Residential Sales - MWh	133,001	127,813	109,777	95,249	92,282	96,644	132,035	114,016	101,794	91,871	115,670	135,976	1,346,128
Use per Small Comm & Ind Customer - kWh	5,311.6	5,251.8	4,767.0	4,364.5	4,410.9	4,299.6	5,341.1	4,953.4	4,798.2	4,487.4	5,029.4	5,374.2	58,386.1
# of Small Comm & Ind Customers	22,306	22,285	22,317	22,431	22,580	22,730	22,766	22,837	22,847	22,770	22,755	22,790	22,618
Total Small Comm & Ind Sales - MWh	118,480	117,036	106,386	97,899	99,598	97,729	121,595	113,121	109,624	102,177	114,445	122,477	1,320,567
Large Comm & Ind Sales	134,038	132,183	129,063	130,095	130,517	127,548	143,368	134,166	139,479	134,952	135,516	142,362	1,613,287
Total Sales (Residential, SC&I and LC&I)	385,519	377,032	345,226	323,243	322,397	321,921	396,998	361,303	350,897	329,000	365,631	400,815	4,279,982
Other Public Sales	4,214	4,296	4,127	3,975	4,473	4,845	5,815	5,298	4,766	4,066	4,035	4,275	54,185
Street & Highway Lighting Sales	2,686	2,472	2,492	2,415	2,380	2,216	2,336	2,364	2,414	2,562	2,624	2,619	29,580
Interdepartmental Sales	38	39	32	31	29	26	31	26	30	27	34	39	382
Total Billed Sales - MWh	392,457	383,839	351,877	329,664	329,279	329,008	405,180	368,991	358,107	335,655	372,324	407,748	4,364,129
Company Use	581	515	517	491	504	497	549	554	489	495	509	549	6,250
Total Energy	393,038	384,354	352,394	330,155	329,783	329,505	405,729	369,545	358,596	336,150	372,833	408,297	4,370,379
Total Requirements (Energy + Losses)	426,187	416,771	382,115	358,000	357,597	357,296	439,948	400,713	388,840	364,501	404,278	442,733	4,738,979
# of Large Comm & Ind Customers	1,503	1,503	1,503	1,514	1,516	1,500	1,506	1,462	1,464	1,463	1,463	1,471	1,489
# of Other Public Customers	815	814	814	820	826	824	825	824	821	815	806	803	817
# of Street & Highway Lighting Customers	480	480	480	480	480	480	480	480	480	480	480	480	480
Peak Demand Net of Energy Efficiency Progs	663.9	638.3	581.9	527.5	547.4	713.0	776.3	731.0	620.1	533.1	619.5	717.7	776.3

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	1,116.8	1,071.3	918.6	796.5	770.6	804.9	1,097.1	945.2	841.5	756.9	950.5	1,114.2	11,183.9
# of Residential Customers	120,119	120,332	120,529	120,616	120,792	121,108	121,393	121,678	122,010	122,420	122,737	123,030	121,397
Total Residential Sales - MWh	134,146	128,916	110,722	96,070	93,079	97,481	133,183	115,007	102,677	92,663	116,667	137,080	1,357,691
Use per Small Comm & Ind Customer - kWh	5,428.7	5,367.7	4,872.6	4,461.1	4,508.5	4,394.4	5,458.9	5,062.5	4,904.0	4,586.6	5,140.4	5,492.3	59,674.6
# of Small Comm & Ind Customers	22,564	22,542	22,574	22,689	22,840	22,993	23,028	23,103	23,111	23,034	23,019	23,052	22,879
Total Small Comm & Ind Sales - MWh	122,493	120,998	109,994	101,217	102,973	101,040	125,708	116,960	113,337	105,647	118,326	126,608	1,365,301
Large Comm & Ind Sales	135,421	133,565	130,387	131,436	131,860	128,878	144,865	135,544	140,940	136,356	136,932	143,858	1,630,042
Total Sales (Residential, SC&I and LC&I)	392,060	383,479	351,103	328,723	327,912	327,399	403,756	367,511	356,954	334,666	371,925	407,546	4,353,034
Other Public Sales	4,245	4,327	4,158	4,003	4,504	4,879	5,855	5,336	4,798	4,095	4,063	4,305	54,568
Street & Highway Lighting Sales	2,686	2,472	2,492	2,415	2,380	2,216	2,336	2,364	2,414	2,562	2,624	2,619	29,580
Interdepartmental Sales	38	39	32	31	29	26	31	26	30	27	34	39	382
Total Billed Sales - MWh	399,029	390,317	357,785	335,172	334,825	334,520	411,978	375,237	364,196	341,350	378,646	414,509	4,437,564
Company Use	581	515	517	491	504	497	549	554	489	495	509	549	6,250
Total Energy	399,610	390,832	358,302	335,663	335,329	335,017	412,527	375,791	364,685	341,845	379,155	415,058	4,443,814
Total Requirements (Energy + Losses)	433,313	423,795	388,521	363,973	363,611	363,273	447,320	407,485	395,442	370,676	411,133	450,064	4,818,606
# of Large Comm & Ind Customers	1,532	1,531	1,531	1,542	1,545	1,528	1,534	1,490	1,492	1,491	1,491	1,499	1,517
# of Other Public Customers	815	814	814	820	826	824	825	824	821	815	806	803	817
# of Street & Highway Lighting Customers	480	480	480	480	480	480	480	480	480	480	480	480	480
Peak Demand Net of Energy Efficiency Progs	673.0	647.1	590.0	534.9	555.4	723.4	787.6	741.7	629.1	540.8	627.7	727.1	787.6