DOCKET NO. _____

APPLICATION OF SOUTHWESTERN PUBLIC SERVICE COMPANY FOR AUTHORITY TO CHANGE RATES	**§ § §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

DIRECT TESTIMONY
of
JANNELL E. MARKS

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

(Filename: MarksRDDirect.doc)

Table of Contents

GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
Census Class	Customer class in which all customers have IDR meters
Commission	Public Utility Commission of Texas
CRMWA	Canadian River Municipal Water Authority
DW	Durbin-Watson
Golden Spread	Golden Spread Electric Cooperative, Inc.
IDR	Interval Demand Recorder
kW	Kilowatt
kWh	Kilowatt-hour
MW	Megawatt
MWh	Megawatt-hour
LP&L	Lubbock Power & Light
NCE	New Century Energies, Inc.
NOAA	National Oceanic and Atmospheric Administration
Non-census Class	Customer class in which not all customers have IDR meters
NSPM	Northern States Power Company, a Minnesota corporation
NSPW	Northern States Power Company, a Wisconsin corporation
Operating Companies	NSPM, NSPW, PSCo, and SPS
PSCo	Public Service Company of Colorado, a Colorado corporation

Acronym/Defined Term	Meaning
R^2 statistic	Coefficient of determination
RFP	Rate Filing Package
SPS	Southwestern Public Service Company, a New Mexico corporation
Test Year	October 1, 2019 through September 30, 2020
Tri-County	Tri-County Electric Cooperative, Inc.
Update Period	October 1, 2020 through December 31, 2020
Updated Test Year	January 1, 2020 through December 31, 2020
Xcel Energy	Xcel Energy Inc.

LIST OF ATTACHMENTS

Attachment	Description
JEM-RD-1	Weather Normalization of Test Year and Updated Test Year Sales (*Filename:* JEM-RD-1.xlsx)
JEM-RD-2	Weather Normalization of Test Year and Updated Test Year Sales Wholesale and New Mexico (*Filename:* JEM-RD-2.xlsx)
JEM-RD-3	Weather Normalization of Test Year and Updated Test Year Peak Demand (*Filename:* JEM-RD-3.xlsx)

DIRECT TESTIMONY
OF
JANNELL E. MARKS

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Jannell E. Marks. My business address is 1800 Larimer Street, Denver, Colorado 80202.

Q. On whose behalf are you testifying in this proceeding?

A. I am filing testimony on behalf of Southwestern Public Service Company, a New Mexico corporation ("SPS") and wholly-owned electric utility subsidiary of Xcel Energy Inc. ("Xcel Energy").

Q. By whom are you employed and in what position?

A. I am employed by Xcel Energy Services Inc., the service company subsidiary of Xcel Energy, as Director of Sales, Energy and Demand Forecasting.

Q. Please briefly outline your responsibilities as Director of Sales, Energy and Demand Forecasting.

A. I am responsible for the development of forecasted customer, sales, and peak demand data and economic conditions for the Xcel Energy Operating Companies, and for the presentation of this information to Xcel Energy's senior management, other Xcel Energy departments, and various regulatory and reporting agencies. I am also responsible for Xcel Energy's Load Research function, which designs, maintains, monitors, and analyzes electric load research samples in the Xcel Energy Operating Companies' service territories. Finally, I am responsible for developing and implementing forecasting, planning, and load analysis studies for regulatory proceedings.

Q. Please describe your educational background.

A. I graduated from Colorado State University with a Bachelor of Science degree in Statistics.

Q. Please describe your professional experience.

A. I began my employment with Public Service Company of Colorado, a Colorado corporation ("PSCo") in 1982 in the Economics and Forecasting Department. In 1985, I became a Research Analyst, and I was promoted to Senior Research Analyst in 1991. In that position, I was responsible for developing the customer and sales forecasts for PSCo and the economic, customer, sales, and demand forecasts for Cheyenne Light, Fuel and Power Company. In 1997, when PSCo merged with SPS to form New Century Energies, Inc. ("NCE"), I assumed the position of Manager, Demand, Energy and Customer Forecasts. In that position, I was responsible for developing demand, energy, and customer forecasts for NCE's operating companies, including SPS. I also directed the preparation of statistical reporting for regulatory agencies and others regarding historical and forecasted reports. In August 2000, following the merger of NCE and Northern States Power Company that created Xcel Energy, I was named Manager, Energy Forecasting, with the added responsibility for Northern States Power Company–Minnesota ("NSPM") and Northern States Power Company–Wisconsin ("NSPW"). I assumed my current position in February 2007, with the added responsibility for the Operating Companies' load research function.

Q. Have you attended or taken any special courses or seminars relating to public utilities?

A. Yes. I have attended the Institute for Professional Education's Economic Modeling and Forecasting class and Itron's Load Forecasting Workshops. I have

also attended industry load research and forecasting conferences and forecasting software user group meetings and training classes sponsored by the Electric Power Research Institute. I am a member of Itron's Energy Forecasting Group and Edison Electric Institute's Load Forecasting Group. Membership in these groups helps me stay up-to-date on industry standards in load research and energy forecasting (including weather normalization).

Q. Have you testified before any regulatory authorities?

A. Yes. I have testified before the Public Utility Commission of Texas ("Commission"), the Colorado Public Utilities Commission, the Minnesota Public Utilities Commission, the New Mexico Public Regulation Commission, the North Dakota Public Service Commission, and the Public Service Commission of Wisconsin on the issues of load research, sales and demand forecasts, weather normalization of sales and demand, and other related topics. I also have submitted written testimony to the South Dakota Public Utilities Commission.

II. ASSIGNMENT AND SUMMARY OF TESTIMONY AND RECOMMENDATIONS

Q. What is your assignment in this proceeding?

A. The purpose of my testimony is to explain the function of load research as used in this proceeding, and to explain how SPS adjusts sales and demand for the period January 1, 2020 through December 31, 2020 ("Updated Test Year")[1] to minimize the impact of abnormal weather patterns experienced during the Updated Test Year on the sales and demand used to set rates for the future.

To explain the purpose of load research and the weather normalization adjustment, I:

1. describe SPS's load research function and the load research information that is used for cost allocation and rate design in this proceeding;

2. explain the methodology that SPS undertakes to measure normal weather and to adjust both sales and demand that have been affected by abnormal weather during the Updated Test Year to determine the sales and demand for the Updated Test Year; and

3. discuss the process by which SPS forecasts information required for Schedule O-7.1 of the Rate Filing Package ("RFP").

In addition, I sponsor or co-sponsor the RFP schedules discussed in Section III of this testimony, as well as the portions of the Executive Summary that contain information from these schedules.

Q. Please provide a summary of the conclusions and recommendations in your testimony.

A. **Load Research** – Load research is the systematic collection and analysis of customers' electrical energy and demand requirements. SPS uses information

[1] The Test Year in this case is the period from October 1, 2019 through September 30, 2020, and the Update Period is October 1, 2020 through December 31, 2020. The Updated Test Year consists of the last nine months of the Test Year and the three months in the Update Period.

from Interval Demand Recorder ("IDR")[2] meters to determine the coincident and non-coincident peaks for all customer classes. For the "Census classes," which are the customer classes in which all customers have IDR meters, the meters provide actual measurements of demand. However, it is costly and not feasible to install an IDR meter for every customer in every class solely for load research purposes, given their functionality. Therefore, for those customer classes in which not all customers have IDR meters, which are referred to as the "non-Census classes," it is necessary to develop load research samples to estimate the coincident and non-coincident peaks for the classes.

Using information from the IDR meters for the Census classes and information from the load research samples for the non-Census classes, I have provided various load research statistics to SPS witness Richard M. Luth, who then incorporates those statistics in the class cost of service study and rate design that he presents. Specifically, I provided the class coincident and non-coincident peak demand for the Census classes and the class coincident and non-coincident load factors at peak for the non-Census classes. I recommend the Commission approve those peak demands and load factors for purposes of allocating costs among classes and designing rates.

Weather Normalization – SPS has calculated the effects of abnormal weather on Updated Test Year sales. Consistent with the Commission's decisions in Docket Nos. 40443[3] and 43695, SPS used a ten-year average to define normal weather

[2] IDR meters are meters capable of recording loads for each interval of time.

[3] *Application of Southwestern Electric Power Company for Authority to Change Rates and Reconcile Fuel Costs*, Docket No. 40443, Order on Rehearing (Mar. 6, 2014).

using the last ten calendar years for which 12 months of data exists prior to the Test Year. Normal daily weather was based on the average of the last ten years of historical heating degree days, cooling degree days, and precipitation data. The Updated Test Year heating degree days were 4.4% above normal; cooling degree days were 5.7% above normal; and precipitation was 9.7% below normal. SPS calculated the effects of abnormal weather on Updated Test Year sales for customer classes whose consumption patterns are affected by the weather using weather normalization regression coefficients derived from econometric models. In total, combined colder-than-normal winter weather, hotter-than-normal summer weather, and lower-than-normal precipitation resulted in Updated Test Year actual sales being 50,130 megawatt-hours ("MWh") or 0.4% higher than normal. Therefore, Updated Test Year sales were adjusted (decreased) by 50,130 MWh.

Similarly, SPS also calculated the effects of abnormal weather on the coincident peak demands in the Updated Test Year for total retail and full requirements wholesale at both the transmission and production level. Taken together, the weather deviations resulted in an average of 31 megawatts ("MW"), or 0.9%, more retail peak demand per month and an average of 19 MW, or 1.9%, more full requirements wholesale peak demand per month at the transmission level, and 5 MW, or 2.0%, more wholesale peak demand per month at the production level from June through September of the Updated Test Year.

SPS also calculated the effect of abnormal weather on Golden Spread Electric Cooperative, Inc.'s ("Golden Spread") full load peak demand coincident

with the SPS transmission system peak demand. The average weather adjustment for the Golden Spread full load peak demand coincident with the SPS transmission system peak demand for the four months of June, July, August, and September of the Updated Test Year was 27 MW per month.

I provided the MWh and MW impacts of abnormal weather to Mr. Luth, who used them to calculate present revenues and the allocation of production and transmission capacity costs among classes.

I explain the methodology that SPS uses to weather normalize monthly sales and demand amounts, as required by Schedule O-2 of the RFP. SPS's weather-impacted sales are developed using industry standard regression modeling techniques. SPS relies on a number of quantitative and qualitative tests to ensure that its regression models are statistically valid. Thus, SPS's estimates of weather normalized sales are reasonable and should be used to set rates in this proceeding.

I recommend that the Commission approve the adjusted sales and demand amounts resulting from the weather normalization discussed in this testimony.

Forecast Methodology – I explain the methodology that SPS uses to forecast the monthly sales and demand amounts, as required by Schedule O-7.1 of the RFP. Those monthly sales and demand forecasts are not used in the cost of service study, but instead are provided merely to comply with Schedule O-7.1.

Q. How is your testimony organized?

A. Section III discusses the RFP schedules that I sponsor or co-sponsor in the case. Section IV discusses the purpose and process of conducting load research. Section V provides an overview of the weather normalization methodology.

Section VI discusses the weather's effect on Updated Test Year sales. Section VII discusses the weather's effect on Updated Test Year peak demand. An overview of the sales forecast methodology is provided in Section VIII.

Q. Will your testimony and certain schedules you sponsor be updated to reflect data for the period from October 1, 2020 through December 31, 2020, the Update Period?

A. Yes. As explained by SPS witness William A. Grant**,** SPS will be using an Updated Test Year in this case to determine its revenue requirement. Specifically, in determining its proposed revenue requirement, SPS will replace the first three months of the Test Year (October 2019 – December 2019) with the three months of the "Update Period" (October 2020 – December 2020) to derive the Updated Test Year. The use of an Updated Test Year necessarily requires that certain costs provided in SPS's Application will be based on estimates.

SPS will file an update no later than 45 days after filing this Application that will replace the Update Period estimates with actual numbers. As part of SPS's update filing, I will update my testimony to include the load research data and calculations used for cost allocation and rate design. I will also update my testimony to include the actual weather normalization adjustment for the Updated Test Year. I note that in the update filing, Mr. Luth will update the calculations that affect jurisdictional allocation, customer class cost allocation, and present revenues to reflect the actual billing determinants for the Update Period. At that time, the actual billing determinants for the Update Period will be adjusted by the weather normalization amounts that I will calculate for the Update Period.

Q. Were Attachments JEM-RD-1, JEM-RD-2, and JEM-RD-3 prepared by you or under your direct supervision and control?

A. Yes.

Q. Were the portions of the RFP schedules and the portions of the Executive Summary you sponsor or co-sponsor prepared by you or under your supervision and control?

A. Yes.

Q. Do you incorporate the RFP schedules and portions of the Executive Summary sponsored or co-sponsored by you into this testimony?

A. Yes.

III. RATE FILING PACKAGE SCHEDULES

Q. Please list the RFP schedules that you sponsor or co-sponsor in this case.

A. I sponsor or co-sponsor the RFP schedules listed in Table JEM-RD-1:

Table JEM-RD-1

Schedule O	1.3, 1.4, 1.9, 2.1(CD), 2.2(CONF)(CD), 2.3(CONF)(CD), 7.1(CONF), 8.1, 8.2, 8.3, 8.4, 9.1, 9.2(CONF), 9.3(CONF), 10.1, and 10.2
Schedule Q	5.1, 5.2, and 5.3

Q. Please list the RFP schedules that you will update as part of SPS's update filing.

A. As part of SPS's update filing, I will update the following schedules to reflect data for the Updated Test Year (i.e., January 1, 2020 through December 31, 2020):

- Schedule O – 1.3, 1.4, 1.9, 8.1, and 8.2; and
- Schedule Q – 5.1 and 5.2.

Q. What information is contained in the O-1 schedules that you sponsor?

A. The O-1 schedules that I sponsor contain the following information:

- Schedule O-1.3 contains unadjusted Test Year data by class for each month of the Test Year and estimates for the Update Period for coincident peaks at the source and at the meter, non-coincident peaks at the source and at the meter, energy sales at the source, energy sales by voltage level at the meter, and monthly class load factors and class coincident peak load factors based on load research for the Test Year and three previous years. I co-sponsor this schedule with Mr. Luth. For this schedule, I sponsor the underlying load research used to determine the coincident and non-coincident peaks.

- Schedule O-1.4 contains adjusted Test Year data by class for each month of the Test Year and estimates for the Update Period for coincident peaks at the source and at the meter, non-coincident peaks at the source and at the meter, energy sales at the source, energy sales by voltage level at the meter, and monthly class load factors and class

coincident peak load factors based on load research for the Test Year and three previous years. I co-sponsor this schedule with Mr. Luth. For this schedule, I sponsor the underlying load research and weather normalization calculations used to determine the coincident and non-coincident peaks presented.

- Schedule O-1.9 contains total system and Texas retail peak demand by class for the Test Year and for each month of the Test Year and estimates for the Update Period. I co-sponsor this schedule with Mr. Luth. For this schedule, I sponsor the underlying load research and weather normalization calculations used in determining the peak demands presented.

Q. What information is provided in the O-2 schedules that you sponsor?

A. The O-2 schedules contain information regarding the models used to derive adjustments to the Test Year and Updated Test Year operating statistics provided in Schedule O-1. The O-2 schedules and Attachments JEM-RD-1, JEM-RD-2, and JEM-RD-3 together provide the work supporting SPS's weather normalization adjustments to energy sales and peak demand. I explain the process by which I derived the adjustments in Sections V, VI, and VII of this testimony.

Q. What information is provided in Schedule O-7.1 (CONF)?

A. Schedule O-7.1(CONF) contains the sales and demand forecasts for the rate year and 24 months following the rate year. I explain the process by which I derived the forecasts in Section VIII of this testimony.

Q. What information is contained in the O-8 schedules?

A. The O-8 schedules contain the information needed to perform a weather normalization analysis:

- Schedule O-8.1 contains 12 years of monthly weather data by weather station, with calculations of actual heating degree days and cooling degree days through the current time period.

- Schedule O-8.2 contains the same information as is included in Schedule O-8.1, except the information has been weighted and adjusted for billing cycles.

- Schedule O-8.3 contains one year of normal heating degree days and normal cooling degree days.

- Schedule O-8.4 contains additional responses using a 65 degrees Fahrenheit base temperature.

Q. What information is provided in the O-9 schedules?

A. The O-9 schedules contain information regarding the models used to derive the sales and demand forecasts provided as part of Schedule O-7.1(CONF).

Q. What information is provided in the O-10 schedules you sponsor?

A. Schedule O-10.1 contains 15 years of information on customer counts, revenues from the sale of electricity, population, total employment, and total non-agricultural employment. Schedule O-10.2 provides 15 years of information on nominal personal income and real personal income.

Q. You stated earlier that you also sponsor the Q-5 schedules. Please explain what is included in those schedules.

A. The Q-5 schedules contain load research information for the Test Year and estimated information for the Update Period. Schedule Q-5.1 contains the sum of customer non-coincident maximum demand and class peak demand for the Census classes, whereas Schedule Q-5.2 contains specified load research data for non-Census classes. Schedule Q-5.3 contains a description of the method used to develop demand estimates, including the sources of the data. I co-sponsor Schedule Q-5.3 with Mr. Luth. For Schedule Q-5.3, I sponsor the description of the load research methodology and data.

IV. LOAD RESEARCH

Q. What is the purpose of load research?

A. Load research is the systematic collection and analysis of customers' electrical energy and demand requirements by time-of-day, month, season, and year. This data, which includes load research samples, is collected and analyzed by customer classes, stratums of customer classes, and other subsets of customer classes. Load research enables utilities to better understand customers, their consumption patterns, their consumption responses to various factors, and the impact of customers' energy requirements on the electric utility's system. In addition, load research data is used to develop demand and energy allocators for cost allocation studies and is used in designing rates.

Q. What are load research samples?

A. It is costly and not feasible to install IDR meters for all customers in all customer classes solely for load research purposes, given their functionality. Therefore, it is necessary for SPS to develop load research samples to determine the coincident and non-coincident peaks for certain classes. Load research samples are subsets of the entire population that SPS surveys to estimate the characteristics of the entire population. SPS's load research samples are developed using a stratified random sampling method. This technique divides the class of interest into smaller groups with like-characteristics. This method effectively reduces the overall variance of the class, thereby reducing the sample size. The samples are designed to meet or exceed the "90/10" load research standard specified by Federal Energy Regulatory Commission regulations implementing the Public Utilities Regulatory Policies Act of 1978:

> Accuracy Level. If sample metering is required, the sampling method and procedures for collecting, processing, and analyzing the sample loads, taken together, shall be designed so as to provide reasonably accurate data consistent with available technology and equipment. An accuracy of plus or minus 10 percent at the 90 percent confidence level shall be used as a target for the measurement of group loads at the time of system and customer group peaks.

While this standard is no longer included in the Code of Federal Regulations, it is still commonly used as the guideline for load research accuracy within the utility industry. Data validation is performed regularly on the load research samples to ensure that the energy use of the sample corresponds closely with the population energy use.

Q. Does SPS use load research samples to determine the demand of all customer classes?

A. No. It is not necessary to use load research samples for customer classes in which all customers have IDR meters because the IDR meters provide actual measurements of demand. It also is not necessary to conduct load research samples for the Street Lighting and Area Lighting classes because lighting facilities are generally unmetered. Most of the customers with IDR meters are in the Large General Service-Transmission class, although some Primary General Service customers with on-site generation also have IDR meters. In addition, a few of the customers with individual rate schedules have IDR meters installed. As noted earlier, I refer to the classes in which all customers have IDR meters as "Census" classes. SPS uses the output of those IDR meters to determine the Census classes' demands for purposes of allocation, rate design, and billing.

Q. For which customer classes has SPS developed load research samples?

A. SPS develops load research samples for its non-Census classes throughout its service territory in both Texas and New Mexico. SPS developed load research samples for the following Texas retail customer classes:

- Residential Service;
- Residential Space Heating Service;[4]
- Large Municipal Service;
- Large School Service;
- Primary General Service;
- Secondary General Service;
- Small General Service; and
- Small Municipal and School Service.

Q. How does SPS go about performing the load research for the non-Census classes?

A. As I discussed earlier in my testimony, it is cost-prohibitive to install an IDR meter for every customer. Consequently, SPS installs IDR meters on a random sample of customers in each non-Census class (developed as I previously described). SPS then uses the electric usage data from those sample customers to extrapolate the demand data for the remainder of the class.

[4] Residential Space Heating Service was an optional rider available through the Residential Service tariff that ended in August 2020. Although it is not a separate customer class, it is broken out for load research purposes. It is my understanding, however, that Mr. Luth combined Residential Service and Residential Space Heating Service into one class for the development of system coincident peak demands and class peak demands.

Q. What load research statistics did you provide for SPS's cost allocation study and rate design?

A. For each SPS Census customer class, I provided the class coincident peak demand and non-coincident peak demand. For each SPS non-Census customer class, I provided: (1) the load factors at the time of the monthly system peak, which is the class coincident peak; and (2) the load factors at the time of the monthly class peak, which is the class non-coincident peak.

Q. Please define the terms "monthly system peak," "class coincident peak," "monthly class peak," and "class non-coincident peak."

A. The *monthly system peak* is the 60-minute interval in each month in which SPS's system experiences the highest demand, and each class's demand during that 60-minute interval is the *class coincident peak*. The *monthly class peak* is the 30-minute interval in each month in which a class experiences its highest demand. Unless the monthly class peak occurs during the same 60-minute interval as the monthly system peak, the monthly class peak is a *class non-coincident peak*.

Q. What is a load factor?

A. A load factor is the ratio of the average load in kilowatts ("kW") supplied during a designated period to the peak or maximum load in kW occurring in that period. For example, assume a customer used 10,000 kilowatt-hours ("kWh") during a 30-day period (720 hours) and had a maximum demand of 21 kW during this same period. The customer's average load would be 13.89 kW (10,000 kWh / 720 hours = 13.89 kW). Dividing that number by 21 kW leads to 0.66 (13.89 / 21 = 0.66). That is then multiplied by 100% to arrive at a load factor of 66%.

Q. How did SPS use the non-Census classes' load factors derived from your load research and the Census classes' peak demand data?

A. I provided the non-Census class coincident and non-coincident load factors at peak and the Census class coincident and non-coincident peak demand for each month to Mr. Luth, who used them to develop demand allocators. Mr. Luth discusses SPS's demand allocators in further detail in his testimony.

Q. How did SPS calculate the demand at the time of the monthly system peak and the demand at the monthly class peak for the non-Census classes?

A. As explained by Mr. Luth, each non-Census class's demand at the time of the system peak was calculated by applying the monthly system peak load factors derived from the load research to the monthly sales by customer class. Each non-Census class's demand at the time of the non-coincident peak was calculated by applying the monthly class peak load factors derived from the load research to the monthly energy sales by customer class.

Q. Did you make any adjustments to the class demands at the time of the monthly system peaks?

A. Yes. Because the hourly loads for the sample classes are estimates, the sum of each hourly demand, adjusted to generation level, will almost never equal SPS's total system load. To account for this difference, the sample classes were adjusted each month so that the sum of all hourly demand equals the hourly system load at the hour of SPS's monthly system peak demand. Mr. Luth describes this process in his direct testimony. Both monthly system peak demand by class and monthly non-coincident class peak demands were adjusted consistent with the proportional allocation process discussed above.

V. WEATHER NORMALIZATION METHODOLOGY

Q. How was the Updated Test Year weather adjustment calculated?

A. SPS calculated the weather adjustment using the deviation between normal and actual weather, customer counts, and weather adjustment coefficients that quantify the impact of a one-unit change in weather on sales per customer.

Q. How did SPS develop the weather adjustment coefficients used in the weather normalization of sales?

A. SPS uses econometric models to develop the weather coefficients used in the weather normalization process.[5] These coefficients quantify the impact of a one-unit change in weather on sales per customer. SPS developed the billing-month coefficients for each weather-sensitive class. SPS then converted the billing-month coefficients to a calendar-month basis by prorating the modeled weather coefficients based on the number of billing days in each billing month that occur in a particular calendar month. Pages 11-15 of Attachment JEM-RD-1 reflect the conversion of modeled weather coefficients to a calendar-month basis.

Q. Please explain the difference between "billing-month" sales and "calendar-month" sales.

A. SPS reads electric meters each working day according to a meter-reading schedule based on 21 billing cycles per billing month. Meters read early in the calendar month mostly reflect consumption that occurred during the previous calendar month. Meters read late in the calendar month mostly reflect

[5] An econometric model is a widely accepted modeling approach in which a linear regression equation relates a dependent variable, such as sales, to a set of explanatory variables, such as economic and demographic concepts, customers, price, and weather. After the relationships are identified, forecasts of the explanatory variables can be used to predict future sales.

consumption that occurred during the current calendar month. Consequently, the "billing-month" sales for the current calendar month reflect consumption that occurred in both the previous calendar month and the current calendar month. Thus, billing-month sales lag calendar-month sales. In order to determine the sales for a calendar month, SPS estimates "unbilled" sales, which is the electricity consumed in the current calendar month that is not billed to the customer until the succeeding calendar month.

Q. What is the purpose of estimating calendar-month sales?

A. Calendar-month sales are used to align the Test Year (or Updated Test Year) revenues with the relevant Test Year (or Updated Test Year) expenses, which are reported on a calendar-month basis. SPS reflects calendar-month revenue on its books for accounting and financial reporting purposes.

Q. Why is it necessary to convert the billing-month coefficients to calendar-month coefficients?

A. Because the Test Year (or Updated Test Year) sales being weather normalized are calendar-month sales, the billing-month coefficients need to be converted to calendar-month coefficients. After the billing-month coefficients are developed through the econometric modeling process, the next step is to convert the billing-month coefficients to a coefficient that represents a calendar month. SPS determines the percentage of billing days for a calendar month that is billed in the current month and that is billed in a future month. The monthly billing-month coefficient is converted to a monthly calendar-month coefficient using these percentages.

Q. Please describe the data SPS relied on to develop the Updated Test Year weather adjustment coefficients.

A. The inputs to the econometric models include historical billing-month sales and monthly number of customers by weather-sensitive rate class, which were obtained from SPS billing system reports. In addition, the following data was used in one or more of the models:

- Real personal income per household for the SPS Texas service territory;
- Non-farm employment for the SPS Texas service territory;
- Population for the SPS Texas service territory;
- Weather (heating or cooling degree days);
- Precipitation variables;
- Number of billing days in each month;
- Seasonal binary variables;
- Other binary variables; and
- Autoregressive and moving average correction terms.

Q. How do the factors listed in the previous question affect sales?

A. Sales are expected to increase as each of the economic indicators increases and to decrease as each economic indicator decreases. For example, if personal income increases, electricity consumption will increase because customers have the means to purchase and use more electricity-consuming products. Likewise, as employment and population levels grow, electricity consumption is expected to increase.

Weather is also an independent variable that affects sales. The further the average daily temperature deviates from 65 degrees Fahrenheit, the more cooling degree days or heating degree days SPS will experience, which increases electricity consumption. Similarly, SPS expects more sales to irrigation customers when there is little precipitation, and it expects fewer sales to irrigation customers when there is more precipitation. This impacts customers in the secondary general service and municipals and schools rate classes, as well as the Canadian River Municipal Water Authority ("CRMWA").

Q. What was your source of economic and demographic data?

A. Historical economic and demographic variables for the counties in SPS's service territory, the state of Texas, and the nation were obtained from IHS Markit.[6] This information is used to determine the historical relationship between sales and economic and demographic measures.

Q. What measure of weather did SPS use for the weather normalization of Texas Updated Test Year retail sales?

A. SPS used heating degree days and cooling degree days based on a 65 degree Fahrenheit temperature base and rainfall equivalent precipitation measured in inches as reported by the National Oceanic and Atmospheric Administration ("NOAA") for the Amarillo International Airport located in Amarillo, Texas and the Lubbock Regional Airport located in Lubbock, Texas weather stations. The weather data is aggregated to the state level by weighting the individual weather

[6] IHS Markit is a well-known provider of economic forecast information frequently relied on by energy forecasting professionals.

station data by the share of load in the Amarillo and Lubbock regions of the Texas service area.[7]

Q. Did the weather reflect the same billing days as the sales data?

A. Yes. To align the weather data with the same period of time as the billing-month sales data, the daily heating degree days, cooling degree days, and precipitation amounts were weighted by the number of times a particular day was included in a particular billing month. These weighted heating degree days, cooling degree days, and precipitation amounts were summed for the month and then divided by the total billing cycle days to arrive at average heating degree days, cooling degree days, and precipitation amounts for a billing month.

Q. Please describe the regression models and associated analyses used in SPS's weather normalization process.

A. The formulae in the regression models and associated statistics used in SPS's weather normalization process are provided in Schedule O-2.1(CD) of the RFP. Specifically, Schedule O-2.1(CD) shows, by customer class or major rate group, the formulae in the regression models with their summary statistics and descriptions for each variable included in the model.

Q. What techniques did SPS employ to evaluate the validity of its regression models?

A. A number of quantitative and qualitative validity tests are applicable to multiple regression analysis. Several of the more common tests SPS uses are as follows:

[7] The weight for Amarillo is approximately 0.745, and the weight for Lubbock is approximately 0.255.

First, the coefficient of determination ("R^2 statistic") test statistic is a measure of the quality of the model's fit to the historical data. It represents the proportion of the variation of the historical sales around their mean value that can be attributed to the functional relationship between the historical sales and the explanatory variables included in the model. If the R^2 statistic is high, the set of explanatory variables specified in the model are explaining a high degree of the historical sales variability. All regression models used to develop the weather normalization coefficients demonstrate R^2 statistics larger than 75%, which is satisfactory under this standard.

Second, the t-statistic of each variable indicates the degree of correlation between that variable's data series and the sales data series being modeled. The t-statistic is a measure of the statistical significance of each variable's individual contribution to the prediction model. Generally, the absolute value of each t-statistic should be greater than 1.960 to be considered statistically significant at the 95% confidence level and greater than 1.645 to be considered statistically significant at the 90% confidence level. This criterion was applied in the development of the regression models used to develop the sales forecast. All variables in the final regression models used to develop the weather normalization coefficients tested satisfactorily at greater than a 91% confidence level standard.

Third, each model was inspected for the presence of first-order autocorrelation, as measured by the Durbin-Watson ("DW") test statistic. Autocorrelation refers to the correlation of the model's error terms for different time periods. For example, under the presence of first-order autocorrelation, an

overestimate in one time period is likely to lead to an overestimate in the succeeding time period, and vice versa. Thus, when forecasting with a regression model, absence of autocorrelation between the error terms is very important. The DW test statistic ranges between 0 and 4, and provides a measure to test for autocorrelation. In the absence of first-order autocorrelation, the DW test statistic equals 2.0. Autoregressive correction terms were applied where appropriate so that the final regression models used to develop the weather normalization coefficients tested satisfactorily for the absence of first-order autocorrelation, as measured by the DW test statistic.

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

VI. WEATHER'S EFFECT ON UPDATED TEST YEAR SALES

Q. Did SPS calculate the effects of abnormal weather on sales for the Updated Test Year?

A. Yes. SPS performed weather normalization to ensure that its Updated Test Year sales and the present revenues calculated using those sales are adjusted to eliminate the effects of abnormal weather using the weather normalization methodology described in Section V of this testimony. The weather adjustments can either increase or decrease sales, depending on how actual weather differs from normal weather.

Because the 12 months that comprise the Updated Test Year were colder than the ten-year average in SPS's service area during the heating season and hotter than the ten-year average during the cooling season, and precipitation was lower than the ten-year average, SPS calculated the effects of abnormal weather, as it has done in prior cases. The Updated Test Year heating degree days were 4.4% above normal; the Updated Test Year cooling degree days were 5.7% above normal; and the Updated Test Year precipitation was 9.7% below normal. The percent difference from normal is calculated using the following formula:

(Actual weather – Normal weather) / Normal weather

The calculation of the percent difference from normal weather is shown on page 1 of Attachment JEM-RD-1.

SPS calculated the effects on sales of abnormal weather during its Updated Test Year for the following customer classes:

- Residential Service;

- Small General Service;
- Secondary General Service; and
- Municipal and School Service.

SPS also weather normalized Updated Test Year sales for CRMWA. SPS's research indicates that weather has little or no effect on the consumption of the Primary General Service, Large General Service-Transmission, and Street Lighting classes. Therefore, consistent with prior practice, SPS did not make weather adjustments for those classes.

Taken together, the weather deviations resulted in 50,130 MWh more being consumed in the Updated Test Year than would have been consumed in the Updated Test Year with normal weather, which amounts to 0.4% of total Texas retail sales. The calculation of the 0.4% appears on page 3 of Attachment JEM-RD-1.

Q. How did SPS define the normal weather?

A. SPS used a ten-year average to define normal weather for purposes of this rate case. Generally speaking, SPS agrees with NOAA's practice that normal weather should be measured based on a 30-year period of time. But because the Commission concluded in Docket No. 40443 that a ten-year period should be used to establish normal values,[8] SPS calculated its weather adjustment in its most recent, fully-litigated base rate case, Docket No. 43695, based on a ten-year

[8] Docket No. 40443, Order on Rehearing at 43-44, Finding of Fact Nos. 257-258 (Mar. 6, 2014).

normal period.[9] SPS's weather normalization adjustment in Docket No. 43695 was approved by the Commission, and SPS has taken the same approach in performing its weather normalization adjustment in this case.

Q. What ten-year period did SPS use for weather normalization?

A. SPS used 120 months of actual weather data from January 1, 2009 through December 31, 2018.

Q. Did SPS include the Updated Test Year in the ten-year period used to calculate normal weather?

A. No. It is standard practice to calculate normal weather using full 12-month periods, each ending in December, and not to include the test year being normalized in the calculation of normal weather. Using actual weather data from the 12-month period used as the test year period in the calculation of the "normal" weather may create a bias toward the actual test year weather, which would potentially misstate the variance of the test year weather from normal weather conditions. SPS has applied this methodology for weather normalization adjustments in its past eight rate cases, including Docket No. 43695. In Docket No. 43695, the Commission adopted the Administrative Law Judge's determination that the factors included in the calculation of normal weather should be independent of the test year weather to which the normal weather is compared. In addition, NOAA also excludes the current year's weather when

[9] SPS continues to use a 30-year definition of normal weather in preparing all of its internal reporting, forecasting, and other management reporting. The other Xcel Energy Operating Companies—NSPM, NSPW, and PSCo—use different definitions of normal weather. PSCo uses a ten-year period for defining normal weather in all of its internal reporting, forecasting, and management reporting, while NSPM and NSPW have a long-standing practice of using a 20-year period for defining normal weather for internal reporting, forecasting, and management reporting.

calculating its 30-year normal weather statistics for purposes of comparing and analyzing the weather for a particular month.

Q. How did SPS determine the normal weather?

A. Normal daily weather was based on the average of the last ten years of historical heating degree days, cooling degree days, and precipitation data used to develop the weather adjustment coefficients for the Updated Test Year. The Updated Test Year actual and normal cooling degree days, heating degree days, and precipitation amounts are reflected on page 1 of Attachment JEM-RD-1.

Q. What measure did SPS use to calculate heating degree days, cooling degree days, and precipitation?

A. As explained in Section V of this testimony, SPS used heating degree days and cooling degree days based on a 65 degree Fahrenheit temperature base and rainfall equivalent precipitation measured in inches as reported by NOAA for Amarillo and Lubbock, Texas.

Q. Please explain how SPS calculated heating degree days.

A. SPS calculated heating degree days for each day by subtracting the average daily temperature from 65 degrees Fahrenheit. For example, if the average daily temperature was 45 degrees Fahrenheit, then 20 heating degree days were calculated for that day. If the average daily temperature was greater than 65 degrees Fahrenheit, then that day recorded zero heating degree days. Daily heating degree days are aggregated to monthly totals.

Q. How did SPS calculate cooling degree days?

A. SPS calculated cooling degree days for each day by subtracting 65 degrees Fahrenheit from the average daily temperature. For example, if the average daily temperature was 75 degrees Fahrenheit, ten cooling degree days were calculated for that day. If the average daily temperature was less than 65 degrees Fahrenheit, then that day recorded zero cooling degree days. Daily cooling degree days are aggregated to monthly totals.

Q. How did SPS calculate precipitation?

A. SPS calculated monthly precipitation by summing the daily precipitation, measured in inches, for each day of the month.

Q. Please explain the steps you took to complete the weather-normalization calculation.

A. After calculating the calendar-month coefficients, I undertook a six-step process to calculate the effect on sales of weather variance from normal conditions during the Updated Test Year. The numbers used as examples in the six steps recounted below appear on pages 4-5 of Attachment JEM-RD-1 for estimated October 2020:

- Step 1 – I calculated the difference between the ten-year average heating degree days in a particular month and the heating degree days in that month of the Updated Test Year. For example, the ten-year average number of heating degree days in October 2020 is 187, whereas the number of heating degree days in October of the Updated Test Year was 367, for a difference of approximately 180.

- Step 2 – I multiplied the difference calculated in Step 1 times the number of customers in each class. For example, the Residential Service class had 205,871 customers in October 2020, so I multiplied 180 times 205,871, for a total of approximately 37,063,883.

- Step 3 – I then multiplied the result from Step 2 times the heating degree day coefficient for that class to determine the number of MWh

resulting from the abnormal weather. Multiplying 37,063,883 times the October 2020 coefficient for the Residential Service class, which is 0.0000049, yields 181 MWh.

- Step 4 – I then performed Steps 1-3 using the cooling degree data. For October 2020, that calculation results in -1,072 MWh.

- Step 5 – I netted the heating degree MWh against the cooling degree MWh for each class by month. That produces a total of -891 MWh for the Residential Service class for October 2020 (181 MWh + -1,072 MWh = -891 MWh).

- Step 6 – Finally, I totaled the number of MWh of all classes in each month, and then I added the monthly amounts to arrive at the 12-month total of 50,130 MWh attributable to abnormal weather. In other words, actual weather resulted in total Updated Test Year retail sales being 50,130 MWh higher than if weather had been normal.

Q. How did SPS use the weather-adjustment?

A. After calculating the weather adjustments by class, I supplied those sales adjustments to Mr. Luth, who used them to calculate present revenues. The sales adjustments that I provided to Mr. Luth are on page 4 of Attachment JEM-RD-1.

Q. Did SPS adjust its New Mexico retail sales during the Updated Test Year to account for the effects of abnormal weather on New Mexico retail sales?

A. Yes. SPS adjusted the Updated Test Year sales for the weather-sensitive New Mexico retail classes using the same process described for Texas retail sales. These calculations are provided in Attachment JEM-RD-2. SPS relied on NOAA weather data measured at the weather station at the Roswell Industrial Air Center located in Roswell, New Mexico.

Q. Did SPS adjust its firm wholesale sales during the Updated Test Year to account for the effects of abnormal weather on wholesale sales?

A. Yes. SPS adjusted the Updated Test Year sales for SPS firm wholesale customers using weather adjustment coefficients developed for each wholesale customer and

weather specific to the location of each wholesale customer. The weather adjustment coefficients for the wholesale customers were developed using historical calendar-month sales for each customer, weather variables (heating or cooling degree days or precipitation), and an economic indicator such as Gross State Product. Since the coefficients are based on calendar-month sales, there is no need to convert the coefficients from a billing-month basis to a calendar-month basis. Sales to the wholesale customers in New Mexico were weather normalized based on Roswell weather, and sales to wholesale customers in Texas were weather normalized based on weather for Amarillo and Lubbock. The calculations of the weather adjustment for firm wholesale sales are provided in Attachment JEM-RD-2.

Q. Were any adjustments made to the firm wholesale sales?

A. Yes. As of July 2020, Tri-County Electric Cooperative, Inc. ("Tri-County") was a part of Golden Spread. The wholesale sales for Tri-County have been included in Golden Spread for the entire Updated Test Year.

Q. Did SPS adjust its partial requirements wholesale sales during the Updated Test Year to account for the effects of abnormal weather on wholesale sales?

A. No. Sales to the partial requirements wholesale customers are not adjusted to account for the effects of abnormal weather. Since these sales are limited by the contracted demand, there is not a consistent response to weather for these customers.

Q. Why does SPS adjust its New Mexico retail sales and its firm wholesale sales for purposes of this Texas retail rate case?

A. Certain allocation factors SPS uses to allocate the components of the total company cost of service among its three rate jurisdictions depend on relative

levels of sales for each jurisdiction. Consequently, to ensure that the allocation percentages for each jurisdiction are determined on the same basis, it is necessary to adjust the sales in all three jurisdictions to account for the effects of abnormal weather on sales.

Q. Why does SPS use data from two weather stations in Texas and one weather station in New Mexico?

A. SPS uses these three weather stations because these three weather stations are representative of SPS's service territory weather conditions. For example, based on annual 2019 sales, 46.3% of SPS's weather-sensitive sales in Texas are to customers located in Randall County and Potter County, which include and surround Amarillo. Another 16.4% of SPS's weather-sensitive sales in Texas are to customers located in the counties immediately surrounding Lubbock. In addition, Roswell is a major population and economic center in the SPS New Mexico service territory, and is close to the geographic center of the SPS New Mexico service territory and, more specifically, close to the center of the weather sensitive loads.

VII. WEATHER'S EFFECT ON UPDATED TEST YEAR PEAK DEMAND

Q. Did SPS calculate the effects of abnormal weather on its Updated Test Year system peak demand?

A. Yes. Because weather varied from normal during the Updated Test Year, it was necessary to adjust the Updated Test Year coincident peak demand[10] to account for weather for the following customer groups:

- Total retail; and
- Aggregated full requirements wholesale at the transmission and production level.

For the same reason I explained in Section VI of this testimony, I adjusted the peak demands in SPS's retail and full requirements wholesale rate jurisdictions to ensure that the allocation percentages for each jurisdiction are determined on the same basis for purposes of this rate case.

Q. Were any adjustments made to the aggregated full requirements wholesale coincident peak demands?

A. Yes. As of July 2020, Tri-County was a part of Golden Spread. The coincident peak impact of Tri-County has been included in Golden Spread for the entire Updated Test Year.

Q. Why does SPS not adjust the coincident peak demand for the partial requirements wholesale customers to account for the impact of abnormal weather?

A. The demand for partial requirements wholesale customers is a contracted amount, and therefore does not change due to weather.

[10] SPS does not weather-normalize non-coincident peak demands.

Q. What source of weather did SPS use to measure the adjustment?

A. SPS used a combination of peak day average daily temperature, peak day heating degree days, and accumulated precipitation for the week prior to the peak day to measure weather adjustments for peak demand. These weather values were calculated using weather data reported from the NOAA weather stations in Amarillo, Lubbock, and Roswell. The total SPS weather is an average of the Amarillo, Lubbock, and Roswell weather station data weighted by sales associated with the respective regions of the SPS service area.[11]

Q. How did SPS calculate average peak day temperature?

A. The peak day average temperature was calculated by adding the peak day maximum daily temperature and peak day minimum daily temperature, and then by dividing that amount by 2. For example, if the peak day maximum temperature was 55 degrees Fahrenheit and the peak day minimum temperature was 35 degrees Fahrenheit, the average peak day temperature would be 45 degrees Fahrenheit.

Q. Please explain how SPS calculated the peak day heating degree days.

A. SPS calculated peak day heating degree days by subtracting the peak day average temperature from 65 degrees Fahrenheit. For example, if the peak day average daily temperature was 45 degrees Fahrenheit, then 20 heating degree days were calculated for that day. If the average peak day temperature was greater than 65 degrees Fahrenheit, then that peak day recorded zero heating degree days.

[11] The weight for Amarillo is approximately 0.563, the weight for Lubbock is approximately 0.194, and the weight for Roswell is approximately 0.243.

Q. How did SPS calculate precipitation for the peak demand weather normalization?

A. SPS calculated the accumulation of water-equivalent precipitation for the seven days prior to the peak day, measured in inches.

Q. How did SPS define the normal weather?

A. SPS calculated its weather adjustment based on a ten-year normal period for this filing. The normal peak day weather was based on the average of the ten-year period from January 2009 to December 2018 for the peak day of each month for historical average daily temperature, heating degree days, and accumulated precipitation. The Updated Test Year and normal-weather data for maximum temperatures, heating degree days, and precipitation are summarized on page 1 of Attachment JEM-RD-3.

Q. How was the Updated Test Year weather adjustment calculated?

A. SPS calculated the peak demand weather adjustment using the deviation between normal and actual weather and weather adjustment coefficients that quantify the impact of a one-unit change in weather on retail and full requirements wholesale peak demand.

Q. How did SPS calculate the coefficients used in the peak demand weather normalization calculations?

A. SPS developed the peak demand weather coefficients for the retail coincident peak demand and full requirements wholesale coincident peak demand, at the transmission level, using econometric models. The data used in the models include historical peak demand for each customer group as the dependent variables, and explanatory variables that include the 12-month moving average

for the respective sales for each customer class, average peak day temperature, peak day heating degree days, and the accumulation of precipitation for the seven days prior to the peak day of each month. Each regression model also has an autoregressive error correction term variable. The weather coefficients for the full requirements wholesale peak demand at the production level are derived by allocating the transmission level coefficients to the production level peaks. The regression models and associated statistics are provided in Schedule O-2.1(CD) of the RFP.

Q. How did the Updated Test Year peak day weather for the June through September period compare to normal weather?

A. For retail customers, the Updated Test Year summer months (June through September 2020) peak day average temperatures were 2.1 degrees Fahrenheit, or 2.5%, above normal, and accumulated precipitation was 0.2 inch, or 61.6%, below normal. As shown on Page 2 of Attachment JEM-RD-3, taken together these weather deviations resulted in an average of 31 MW, or 0.9%, more retail peak demand per month. For full-requirements wholesale customers, the Updated Test Year summer months average peak day temperatures were 2.8 degrees Fahrenheit, or 3.3%, higher than normal, and accumulated precipitation was 0.1 inch, or 47.4%, less than normal. Taken together, these weather deviations resulted in an average of 19 MW, or 1.9%, more full requirements wholesale peak demand per month at the transmission level and 5 MW, or 2.0%, more full requirements wholesale peak demand at the production level from June, July, August, and September in the Updated Test Year compared to normal weather. Because weather affected the level of peak demand, SPS adjusted the Updated

Test Year peak demand for deviations of the actual Updated Test Year weather from the ten-year average weather.

Q. Please explain the steps you took to complete the peak demand weather-normalization calculation.

A. I undertook a four-step process to calculate the effect on peak demand of weather variance from the ten-year normal conditions during the Updated Test Year. The numbers used as examples in the four steps recounted below are for the retail peak demand and appear on page 3 of Attachment JEM-RD-3:

- Step 1 – I calculated the difference between: (i) the ten-year average weather concepts (as measured in average peak day temperature, peak day heating degree days, and precipitation) in a particular month, and (ii) the actual weather concept in that month of the Updated Test Year. For example, for the retail peak demand, the ten-year average peak day temperature in July is 86.4 degrees Fahrenheit, whereas the actual average peak day temperature in July of the Test Year was 92.5 degrees Fahrenheit, a difference of 6.2 degrees Fahrenheit. This step is repeated for each weather concept. The ten-year average of precipitation for the week preceding the peak day in July is 0.18 of an inch of precipitation, whereas the actual precipitation for the week preceding the peak day in July of the Updated Test Year was 0.19 of an inch, for a difference of 0.02 of an inch of precipitation. I note that slight differences in the calculation are due to rounding. The ten-year average of heating degree days on the peak day in July is 0.0, and the actual peak day heating degree days in July of the Updated Test Year was also 0.0, resulting in no difference from normal.

- Step 2 – The variance in weather from the ten-year average from Step 1 for each weather concept is multiplied by the respective weather adjustment coefficient to determine the number of MW resulting from the variance in actual weather from the ten-year average weather. Weather adjustment coefficients are developed with econometric models using the same methodology described earlier. To continue with the retail peak demand example from Step 1, multiplying the variance in average peak day temperature of 6.2 degrees Fahrenheit times the July 2020 coefficient for average peak day temperature, which is 11.2847, yields 70 MW. This step is repeated for each weather concept. Multiplying the variance in precipitation one week prior to the peak day of 0.02 inch times the July 2020 coefficient for precipitation one week prior to the peak day, which is -59.2903, yields -1 MW. Because there is no weather adjustment

coefficient in July for heating degree days, this weather concept did not have a weather adjustment in July.

- Step 3 – For each month, I summed the weather adjustments calculated in Step 2 from each weather concept. Continuing with the example from Step 1 and Step 2, this step produces a total weather adjustment of 69 MW for the total retail peak demand for July 2020 (70 MW + -1 MW = 69 MW).

- Step 4 – Finally, I averaged the weather adjusted MW for the summer months of the Updated Test Year for June 2020, July 2020, August 2020, and September 2020 to arrive at a four-month average of weather's impact on the peak demand. Continuing with the example from the previous steps, the average weather adjustment for the retail peak demand for the four months of June, July, August, and September of the Updated Test Year was 31 MW per month. Using the same methodology described in Step 1 through Step 4, the average weather adjustment for the four months of June, July, August, and September of the Updated Test Year was 19 MW per month for the full requirements wholesale peak demand at the transmission level and 5 MW per month for the full requirements wholesale peak demand at the production level. Pages 3-5 of Attachment JEM-RD-3 contain the weather adjustment calculations for the retail peak demand and the full requirements wholesale peak demand at the transmission and production levels.

Q. Did SPS calculate the effect of weather on the Golden Spread full load peak demand coincident with the SPS system peak demand?

A. Yes. I calculated the effect of weather on the Golden Spread full load peak demand coincident with the SPS system peak demand using the same methodology previously described for weather adjusting the retail and full requirements wholesale peak demand. The weather values used to adjust the Golden Spread full load peak demand were calculated for the Texas service area. As I explained earlier, the Texas service area weather is an average of the Amarillo and Lubbock weather station data weighted by sales associated with the respective regions of the SPS service area located in Texas. The peak demand weather coefficients for Golden Spread were developed using an econometric

model. The data used in the model includes historical peak demand for Golden Spread, as well as the weather concept variables for average temperature and accumulated precipitation for the week prior to the peak day, and an autoregressive error correction term variable. For the Texas Panhandle, the Updated Test Year summer months (June-September 2020) average peak day temperatures were 2.5% above normal, and the accumulated precipitation was 0.2 inch or (64.2%) below normal.

Q. What is the weather adjustment for the Golden Spread full load peak demand coincident with the SPS system peak demand for the Updated Test Year?

A. As shown on Page 2 of Attachment JEM-RD-3, the average weather adjustment for the Golden Spread full load peak demand coincident with the SPS system peak demand for the four months of June, July, August, and September of the Updated Test Year was 27 MW per month. In other words, Golden Spread's actual peak demand was 27 MW higher than the weather normalized peak demand. Page 5 of Attachment JEM-RD-3 provides the weather adjustment calculation for the Golden Spread full load peak demand.

Q. Why does SPS adjust its system retail peak demand and its firm wholesale peak demand for purposes of this Texas retail rate case?

A. Certain allocation factors SPS uses to allocate system production and transmission capacity costs among its three rate jurisdictions depend on relative levels of peak demand for each jurisdiction. Consequently, to ensure that the allocation percentages for each jurisdiction are determined on the same basis, it is necessary

to adjust the peak demands in all three jurisdictions to account for the effects of abnormal weather.

Q. How did SPS use the weather-adjusted peak demand figures?

A. After calculating the weather adjustments for peak demand by customer class, I supplied those peak demand adjustments to Mr. Luth, who used them to calculate the class allocation of production and transmission capacity costs among classes. The peak demand adjustments that I provided to Mr. Luth are on page 2 of Attachment JEM-RD-3.

VIII. FORECAST METHODOLOGY

Q. Please briefly describe SPS's methodology for forecasting rate year energy and demand values.

A. SPS forecasts monthly customer counts, retail sales, retail peak demand, and full requirements wholesale sales using econometric forecasting models. These forecasts have been provided as required by Schedule O-7.1(CONF) of the RFP. However, I note that SPS does not use the forecasted information discussed in this section of my testimony to set rates. The forecasting is done solely for the purpose of complying with the Schedule O-7.1 requirements.

Q. What inputs does SPS use in its econometric forecasting models?

A. The inputs used to arrive at the dependent variable in the econometric forecasting models are: (1) SPS's historical customer counts and billing-month retail MWh sales by jurisdiction and class; (2) SPS's historical calendar-month MWh sales for each full requirements wholesale customer; and (3) SPS's historical retail peak demand. For the explanatory variables, SPS obtains historical and forecasted economic and demographic variables for the nation, state, and SPS service territory from IHS Markit. Those explanatory variables are:

- population;
- number of households;
- Gross Domestic Product;
- Consumer Price Index;
- employment;
- personal income; and
- Industrial Production index for oil and gas extraction and drilling.

SPS also obtains weather information to use as explanatory variables in the models. As discussed earlier, that weather information, which comes from NOAA weather stations located in Amarillo, Lubbock, and Roswell, is composed of 65-degree based heating degree days, 65-degree based cooling degree days, precipitation, and temperature. Other variables used by SPS include autoregressive and moving average correction terms, the number of days in the billing month, total retail sales, customer counts, seasonal binary variables, trend variables, and various other binary variables.

Q. What are the outputs from SPS's econometric models?

A. The outputs from the econometric models are forecasts of customer counts, billing-month retail MWh sales by jurisdiction and class, calendar-month MWh sales for each full requirements wholesale customer, and retail peak demand. The forecast models and model data are provided in Schedules O-9.1 through O-9.3(CONF).

Q. Did SPS make any adjustments to the outputs?

A. Yes. SPS converted the billing-month sales data to calendar-month sales data. In addition, SPS adjusted the model output for incremental Demand Side Management savings, load growth or load reductions that are identified by commercial customer account managers and that would not be captured in the historical modeling data, and increased sales due to customers' charging of electric vehicles.

Q. How did SPS determine the estimated monthly calendar-month sales for the forecast period?

A. SPS calculated the calendar-month sales based on the projected billing-month sales for the following customer classes:

- Residential Service;
- Residential Space Heating Service;
- Small Commercial and Industrial;
- Large Commercial and Industrial;
- Municipal and School Service; and
- Street and Area Lighting.

SPS calculated the calendar-month sales both in terms of the sales load component that is not associated with weather (i.e., "base load") and the sales load component that is influenced by weather (i.e., "total weather load"). The weather was measured in terms of normal heating degree days, cooling degree days, and precipitation as described earlier. SPS calculated the base load sales and the total weather load sales components for each class, and the two components were then combined to provide the total calendar-month volumes.

Q. How did SPS calculate the calendar-month base load component?

A. SPS calculated the calendar-month base load component using four steps:

- Step 1 – SPS calculated the billing-month total weather load by multiplying the billing-month sales weather normalization regression coefficients (defined in terms of billing-month heating degree days, cooling degree days, and number of customers), times billing-month normal heating degree days and cooling degree days, and then multiplying the product times the projected customers.

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

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

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

Q. How did SPS calculate the calendar-month total weather load component?

A. SPS calculated the calendar-month total weather load component in the same way it calculated the billing-month total weather load (as described in Step 1 above). SPS performed the calculation by substituting the calendar-month sales weather normalization regression coefficient (defined in terms of calendar-month heating degree days, cooling degree days, and number of customers) and the calendar-month normal heating degree days and cooling degree days.

Q. How did SPS calculate the calendar-month total sales?

A. SPS calculated the calendar-month total sales for the customer classes listed earlier by combining the calendar-month base load and calendar-month total weather load components. For the Street and Area Lighting class and the Large Commercial and Industrial class, SPS calculated the forecasted calendar-month sales based on the projected billing-month sales in the same manner as detailed above. However, for these classes, there are no total weather load sales. The calendar-month total sales for these classes were calculated only in terms of their base load, where the billing-month base load equaled the projected billing-month sales.

Q. Please describe how the other portions of SPS's customer count and sales forecasts are developed.

A. The sales forecasts for SPS's firm partial requirements loads are based on contract terms and analysis of historical trends. The sales forecasts for SPS's full requirements customers are based on econometric models with Gross County Product, Oil and Gas extraction index, weather concepts, trend variables, and seasonal and other binary variables as explanatory variables.

Q. How are the Texas voltage level MWh sales estimates derived?

A. Texas retail sales by customer class are allocated to voltage levels using historical sales proportions. After developing both the SPS system and Texas retail sales estimates by voltage level, SPS derives the MWh sales estimates at the source by applying the voltage level loss factors to the sales estimates. A loss factor represents transmission and distribution losses, plus all unaccounted for energy.

Q. How is SPS's system peak demand forecast developed?

A. SPS develops the retail peak demand forecast using an econometric model, with monthly historical system retail peak demand (MW) as the dependent variable, and system retail sales, weather concepts, and month specific binary variables as explanatory variables. For full requirements wholesale peak demand forecasts at the delivery point, SPS uses historical monthly load factors to develop monthly peak demands based on the projected monthly sales. A load factor is the ratio of sales to the peak demand sustained over a period of time. The formula to calculate the load factors is:

$$Load\ Factor\ (\%) = \frac{Sales\ (MWh)}{Peak\ Demand\ (MW)\ x\ hours\ per\ month}$$

Peaks at the delivery point are then grossed up to the source by applying loss factors.

The projected load factors are based on historical load factors. The monthly load factors and loss factors used for the forecast period are assumed to be the same as the historical fload factors and loss factors.

Q. Have you provided SPS's forecasted monthly sales and system peak demands?

A. Yes. SPS's sales forecast and system peak demands are provided in Schedule O-7.1 (CONF).[12]

Q. Does this conclude your pre-filed direct testimony?

A. Yes.

[12] I note that Schedule O-7.1(CONF) includes the load of Lubbock Power & Light ("LP&L"), which is currently a transmission customer of SPS. However, as contemplated in the Commission's final order issued in Docket No. 47576 and discussed by other SPS witnesses in this proceeding, SPS expects that approximately 470 MW of LP&L's load will be disconnected from SPS's system and transition to the Electric Reliability Council of Texas system on June 1, 2021.

AFFIDAVIT

STATE OF COLORADO)
)
COUNTY OF JEFFERSON)

JANNELL E. MARKS, first being sworn on her oath, states:

I am the witness identified in the preceding testimony. I have read the testimony and the accompanying attachment(s) and am familiar with the contents. Based upon my personal knowledge, the facts stated in the testimony are true. In addition, in my judgment and based upon my professional experience, the opinions and conclusions stated in the testimony are true, valid, and accurate.

Jannell E Marks
JANNELL E. MARKS

Subscribed and sworn to before me this 25th day of January, 2021 by JANNELL E. MARKS.

Notary Public, State of Colorado

My Commission Expires: 08/22/2022

ENEIDA M HARMENING
Notary Public
State of Colorado
Notary ID # 20064033354
My Commission Expires 08-22-2022

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Panhandle Weather Data (Amarillo TX and Lubbock TX)
Normal Weather Based on a 10-year Historical Average

Month	Year			Weather Act Cal HDD65	Weather Act Cal CDD65	Weather Act Cal Precip	Weather Norm Cal HDD65	Weather Norm Cal CDD65	Weather Norm Cal Precip	Dev HDD65	Dev CDD65	Dev Precip
Oct	2019	Oct-19	Actual	367	35	4.7	187	47	1.5	180	-12	3.19
Nov	2019	Nov-19	Actual	576	0	0.9	473	2	0.7	103	-2	0.21
Dec	2019	Dec-19	Actual	687	0	0.9	799	0	0.6	-112	0	0.36
Jan	2020	Jan-20	Actual	705	0	0.3	801	0	0.7	-96	0	-0.39
Feb	2020	Feb-20	Actual	727	0	0.4	651	1	0.7	76	-1	-0.29
Mar	2020	Mar-20	Actual	344	7	2.0	394	9	0.7	-50	-2	1.28
Apr	2020	Apr-20	Actual	250	25	0.1	210	37	1.5	40	-12	-1.39
May	2020	May-20	Actual	49	181	0.8	74	159	2.4	-25	22	-1.55
Jun	2020	Jun-20	Actual	0	415	2.6	0	412	2.2	0	3	0.38
Jul	2020	Jul-20	Actual	0	562	2.1	0	482	3.0	0	80	-0.95
Aug	2020	Aug-20	Actual	0	518	1.6	0	440	3.0	0	78	-1.36
Sep	2020	Sep-20	Actual	62	178	0.6	18	229	1.9	44	-51	-1.32
Oct	2020	Oct-20	Estimate	367	35	4.7	187	47	1.5	180	-12	3.19
Nov	2020	Nov-20	Estimate	576	0	0.9	473	2	0.7	103	-2	0.21
Dec	2020	Dec-20	Estimate	687	0	0.9	799	0	0.6	-112	0	0.36
Annual (Oct19 - Sep20)				**3,767**	**1,921**	**16.99**	**3,609**	**1,817**	**18.81**	**158**	**104**	**-1.82**
Annual Dev %										**4.4%**	**5.7%**	**-9.7%**
Annual (Jan20 - Dec20)				**3,767**	**1,921**	**16.99**	**3,609**	**1,817**	**18.81**	**158**	**104**	**-1.82**
Annual Dev %										**4.4%**	**5.7%**	**-9.7%**

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Southwestern Public Service Company Electric Sales - Texas
Calendar Month - MONTHLY MWH

		Actual Sales Cal Mth Res	Actual Sales Cal Mth Small C&I	Actual Sales Cal Mth Large C&I	Actual Sales Cal Mth Street	Actual Sales Cal Mth Other Sale Auth	Actual Sales Cal Mth Retail	WN Sales Cal Mth Res	WN Sales Cal Mth Small C&I	WN Sales Cal Mth Large C&I	WN Sales Cal Mth Street	WN Sales Cal Mth Other Sale Auth	WN Sales Cal Mth Retail
Oct-19	Actual	170,208	252,835	679,476	2,360	31,103	1,135,981	171,205	253,379	679,476	2,360	31,409	1,137,830
Nov-19	Actual	186,326	247,889	649,574	2,361	27,843	1,113,993	181,519	245,504	649,570	2,361	27,843	1,106,797
Dec-19	Actual	227,344	254,897	659,230	2,348	29,326	1,173,145	237,468	258,580	659,235	2,348	29,326	1,186,957
Jan-20	Actual	228,222	228,759	668,009	2,305	27,130	1,154,426	237,019	230,388	668,012	2,305	27,130	1,164,854
Feb-20	Actual	195,177	206,707	627,488	2,271	23,881	1,055,525	189,958	205,185	627,488	2,271	23,881	1,048,784
Mar-20	Actual	168,419	224,110	657,094	2,266	31,750	1,083,639	169,845	233,757	657,094	2,266	32,578	1,095,539
Apr-20	Actual	137,558	207,480	597,713	2,254	23,384	968,388	137,571	201,322	597,497	2,254	22,324	960,969
May-20	Actual	191,651	246,586	556,748	2,233	26,375	1,023,593	188,466	242,612	556,505	2,233	25,778	1,015,594
Jun-20	Actual	259,671	262,404	564,981	2,211	26,014	1,115,281	258,879	262,520	565,025	2,211	25,983	1,114,617
Jul-20	Actual	319,146	326,932	622,088	2,196	37,538	1,307,900	296,444	312,353	621,416	2,196	36,744	1,269,154
Aug-20	Actual	293,505	318,191	656,427	2,147	42,621	1,312,891	272,095	302,670	655,757	2,147	41,331	1,274,000
Sep-20	Actual	189,415	234,634	606,984	2,093	26,636	1,059,761	201,073	240,705	607,097	2,093	28,641	1,079,608
Oct-20	Estimate	170,208	252,835	679,476	2,360	31,103	1,135,981	171,099	253,324	679,476	2,360	31,396	1,137,655
Nov-20	Estimate	186,326	247,889	649,574	2,361	27,843	1,113,993	181,415	245,441	649,570	2,361	27,843	1,106,630
Dec-20	Estimate	227,344	254,897	659,230	2,348	29,326	1,173,145	237,529	258,552	659,235	2,348	29,326	1,186,990
Test Year Total	**Actual**	**2,566,641**	**3,011,424**	**7,545,813**	**27,046**	**353,600**	**13,504,525**	**2,541,545**	**2,988,975**	**7,544,171**	**27,046**	**352,968**	**13,454,704**
Updated Test Year Total	**Estimate**	**2,566,641**	**3,011,424**	**7,545,813**	**27,046**	**353,600**	**13,504,525**	**2,541,394**	**2,988,828**	**7,544,171**	**27,046**	**352,955**	**13,454,395**

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Southwestern Public Service Company Electric Sales - Texas
Calendar Month - MONTHLY MWH

		Act var fr WN Res	Act var fr WN Small C&I	Act var fr WN Large C&I	Act var Cal Mth Street	Act var Cal Mth Other Sale Auth	Act var fr WN Retail	% var Res	% var Small C&I	% var Large C&I	% var Street	% var Other Sale Auth	% var Retail
Oct-19	Actual	(998)	(544)	(1)	0	(306)	(1,849)	-0.6%	-0.2%	0.0%	0.0%	-1.0%	-0.2%
Nov-19	Actual	4,806	2,385	4	0	0	7,195	2.6%	1.0%	0.0%	0.0%	0.0%	0.7%
Dec-19	Actual	(10,124)	(3,683)	(6)	0	0	(13,812)	-4.3%	-1.4%	0.0%	0.0%	0.0%	-1.2%
Jan-20	Actual	(8,797)	(1,629)	(2)	0	0	(10,428)	-3.7%	-0.7%	0.0%	0.0%	0.0%	-0.9%
Feb-20	Actual	5,218	1,522	0	0	0	6,740	2.7%	0.7%	0.0%	0.0%	0.0%	0.6%
Mar-20	Actual	(1,426)	(9,647)	0	0	(827)	(11,900)	-0.8%	-4.1%	0.0%	0.0%	-2.5%	-1.1%
Apr-20	Actual	(13)	6,157	216	0	1,059	7,419	0.0%	3.1%	0.0%	0.0%	4.7%	0.8%
May-20	Actual	3,185	3,974	244	0	597	7,999	1.7%	1.6%	0.0%	0.0%	2.3%	0.8%
Jun-20	Actual	793	(116)	(43)	0	31	664	0.3%	0.0%	0.0%	0.0%	0.1%	0.1%
Jul-20	Actual	22,702	14,579	672	0	793	38,747	7.7%	4.7%	0.1%	0.0%	2.2%	3.1%
Aug-20	Actual	21,409	15,522	670	0	1,290	38,891	7.9%	5.1%	0.1%	0.0%	3.1%	3.1%
Sep-20	Actual	(11,659)	(6,071)	(112)	0	(2,005)	(19,847)	-5.8%	-2.5%	0.0%	0.0%	-7.0%	-1.8%
Oct-20	Estimate	(891)	(489)	(1)	0	(293)	(1,674)	-0.5%	-0.2%	0.0%	0.0%	-0.9%	-0.1%
Nov-20	Estimate	4,911	2,448	4	0	0	7,363	2.7%	1.0%	0.0%	0.0%	0.0%	0.7%
Dec-20	Estimate	(10,185)	(3,654)	(5)	0	0	(13,844)	-4.3%	-1.4%	0.0%	0.0%	0.0%	-1.2%
Test Year Total	**Actual**	**25,097**	**22,449**	**1,642**	**0**	**633**	**49,820**	**1.0%**	**0.8%**	**0.0%**	**0.0%**	**0.2%**	**0.4%**
Updated Test Year Total	**Estimate**	**25,247**	**22,596**	**1,642**	**0**	**645**	**50,130**	**1.0%**	**0.8%**	**0.0%**	**0.0%**	**0.2%**	**0.4%**

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Retail Weather Adjustment Summary	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Estimate	Test Year	Updated Test Year
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
Heating Degree Days 10-yr Normal	187	473	799	801	651	394	210	74	0	0	0	18	187	473	799	3,609	3,609
Heating Degree Days Actual	367	576	687	705	727	344	250	49	0	0	0	62	367	576	687	3,767	3,767
Variance from Normal	180	103	(112)	(96)	76	(50)	40	(25)	(0)	0	0	44	180	103	(112)	158	158
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
Cooling Degree Days 10-yr Normal	47	2	0	0	1	9	37	159	412	482	440	229	47	2	0	1,817	1,817
Cooling Degree Days Actual	35	0	0	0	0	7	25	181	415	562	518	178	35	0	0	1,921	1,921
Variance from Normal	(12)	(2)	0	0	(1)	(2)	(12)	22	3	80	78	(51)	(12)	(2)	0	104	104
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
Precipitation 10-yr Normal	1.51	0.71	0.55	0.67	0.71	0.68	1.48	2.40	2.17	3.03	2.98	1.92	1.51	0.71	0.55	18.81	18.81
Precipitation Actual	4.69	0.92	0.91	0.28	0.42	1.96	0.09	0.85	2.55	2.09	1.63	0.60	4.69	0.92	0.91	16.99	16.99
Variance from Normal	3.19	0.21	0.36	(0.39)	(0.29)	1.28	(1.39)	(1.55)	0.38	(0.95)	(1.36)	(1.32)	3.19	0.21	0.36	(1.82)	(1.82)
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
Texas Residential Service **(1)**	(998)	4,806	(10,124)	(8,797)	5,218	(1,426)	(13)	3,185	793	22,702	21,409	(11,659)	(891)	4,911	(10,185)	25,097	25,247
Texas Small General Service **(2)**	(102)	297	(659)	(550)	332	(100)	(1)	221	59	1,874	1,997	(1,143)	(94)	303	(663)	2,224	2,234
Texas Secondary General Service **(3) & (4)**	(443)	2,092	(3,029)	(1,082)	1,190	(9,546)	6,158	3,756	(174)	12,726	13,546	(4,938)	(396)	2,149	(2,996)	20,256	20,393
CRMWA Weather Adjustment **(5)**	0	0	0	0	0	0	216	241	(44)	651	649	(102)	0	0	0	1,611	1,611
Small Municipal and School Service **(6)**	(14)	0	0	0	0	(46)	60	34	2	43	73	(123)	(13)	0	0	29	29
Large Municipal and School Service **(7)**	(142)	0	0	0	0	(362)	606	395	18	471	724	(1,128)	(136)	0	0	582	588
Large School Service **(8)**	(150)	0	0	0	0	(419)	393	168	11	280	493	(754)	(144)	0	0	21	28
Texas Retail Weather Adjustment Total	(1,849)	7,195	(13,812)	(10,428)	6,740	(11,900)	7,419	7,999	664	38,747	38,891	(19,847)	(1,674)	7,363	(13,844)	49,820	50,130

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Residential Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Estimate
Heating Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	180	103	(112)	(96)	76	(50)	40	(25)	(0)	0	0	44	180	103	(112)
Heating Degree Days Weather Coefficients	0.0000033	0.0002262	0.0004373	0.0004422	0.0003352	0.0001380	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000049	0.0002311	0.0004399
Res Service Customers	205,871	206,092	206,035	206,269	206,146	206,328	206,364	206,548	206,789	206,980	207,101	207,072	205,871	206,092	206,035
Heating Degree Days Weather Adjustment (MWh)	121	4,806	-10,124	-8,797	5,218	-1,426	0	0	0	0	0	0	181	4,911	-10,185
Cooling Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	(12)	(2)	0	0	(1)	(2)	(12)	22	3	80	78	(51)	(12)	(2)	0
Cooling Degree Days Weather Coefficients	0.0004609	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000054	0.0006891	0.0012502	0.0013654	0.0013288	0.0010968	0.0004419	0.0000000	0.0000000
Res Service Customers	205,871	206,092	206,035	206,269	206,146	206,328	206,364	206,548	206,789	206,980	207,101	207,072	205,871	206,092	206,035
Cooling Degree Days Weather Adjustment (MWh)	(1,119)	0	0	0	0	0	(13)	3,185	793	22,702	21,409	(11,659)	(1,072)	0	0
TX Residential Service Weather Adjustment (1)	(998)	4,806	(10,124)	(8,797)	5,218	(1,426)	(13)	3,185	793	22,702	21,409	(11,659)	(891)	4,911	(10,185)

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Small General Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Estimate
Heating Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	180	103	(112)	(96)	76	(50)	40	(25)	(0)	0	0	44	180	103	(112)
Heating Degree Days Weather Coefficients	0.0000013	0.0000896	0.0001827	0.0001764	0.0001364	0.0000621	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000019	0.0000915	0.0001839
Small General Service Customers	32,113	32,125	32,098	32,316	32,242	32,274	32,223	32,203	32,241	32,251	32,241	32,263	32,113	32,125	32,098
Heating Degree Days Weather Adjustment (MWh)	7	297	-659	-550	332	-100	0	0	0	0	0	0	11	303	-663
Cooling Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	(12)	(2)	0	0	(1)	(2)	(12)	22	3	80	78	(51)	(12)	(2)	0
Cooling Degree Days Weather Coefficients	0.0002886	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000024	0.0003064	0.0005941	0.0007232	0.0007961	0.0006904	0.0002767	0.0000000	0.0000000
Small General Service Customers	32,113	32,125	32,098	32,316	32,242	32,274	32,223	32,203	32,241	32,251	32,241	32,263	32,113	32,125	32,098
Cooling Degree Days Weather Adjustment (MWh)	(109)	0	0	0	0	0	(1)	221	59	1,874	1,997	(1,143)	(105)	0	0
TX Small General Service Weather Adjustment	(102)	297	(659)	(550)	332	(100)	(1)	221	59	1,874	1,997	(1,143)	(94)	303	(663)

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Small Secondary General Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Estimate
Heating Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	180	103	(112)	(96)	76	(50)	40	(25)	(0)	0	0	44	180	103	(112)
Heating Degree Days Weather Coefficients	0.0000243	0.0016734	0.0022262	0.0009644	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000364	0.0017187	0.0022017
Small Secondary General Customers	12,104	12,103	12,088	11,879	11,924	11,942	11,946	11,956	11,958	11,967	11,974	11,967	12,104	12,103	12,088
Heating Degree Days Weather Adjustment (MWh)	53	2,088	-3,024	-1,105	0	0	0	0	0	0	0	0	79	2,145	-2,991
Cooling Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	(12)	(2)	0	0	(1)	(2)	(12)	22	3	80	78	(51)	(12)	(2)	0
Cooling Degree Days Weather Coefficients	0.0034735	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000456	0.0057740	0.0101414	0.0118153	0.0124481	0.0093773	0.0033302	0.0000000	0.0000000
Small Secondary General Customers	12,104	12,103	12,088	11,879	11,924	11,942	11,946	11,956	11,958	11,967	11,974	11,967	12,104	12,103	12,088
Cooling Degree Days Weather Adjustment (MWh)	-496	0	0	0	0	0	-6	1,545	372	11,358	11,596	-5,761	-475	0	0
Precipitation Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	3.19	0.21	0.36	(0.39)	(0.29)	1.28	(1.39)	(1.55)	0.38	(0.95)	(1.36)	(1.32)	3.19	0.21	0.36
Precipitation Weather Coefficients	0.000000	0.000000	0.000000	-0.005390	-0.346283	-0.623817	-0.371267	-0.119098	-0.119078	-0.118989	-0.118736	-0.052884	0.000000	0.000000	0.000000
Small Secondary General Customers	12,104	12,103	12,088	11,879	11,924	11,942	11,946	11,956	11,958	11,967	11,974	11,967	12,104	12,103	12,088
Precipitation Weather Adjustment (MWh)	0	0	0	25	1,190	(9,546)	6,165	2,209	(547)	1,347	1,929	833	0	0	0
TX Small Secondary General Service Weather Adjustment (4)	(443)	2,088	(3,024)	(1,080)	1,190	(9,546)	6,158	3,753	(175)	12,705	13,525	(4,927)	(396)	2,145	(2,991)

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Large Secondary General Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Estimate
Heating Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	180	103	(112)	(96)	76	(50)	40	(25)	(0)	0	0	44	180	103	(112)
Heating Degree Days Weather Coefficients	0.0000243	0.0016734	0.0022262	0.0009644	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000364	0.0017187	0.0022017
Large Secondary General Customers	22	22	22	22	23	22	22	22	22	22	22	22	22	22	22
Heating Degree Days Weather Adjustment (MWh)	0	4	-6	-2	0	0	0	0	0	0	0	0	0	4	-5
Cooling Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	(12)	(2)	0	0	(1)	(2)	(12)	22	3	80	78	(51)	(12)	(2)	0
Cooling Degree Days Weather Coefficients	0.0034735	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000456	0.0057740	0.0101414	0.0118153	0.0124481	0.0093773	0.0033302	0.0000000	0.0000000
Large Secondary General Customers	22	22	22	22	23	22	22	22	22	22	22	22	22	22	22
Cooling Degree Days Weather Adjustment (MWh)	-1	0	0	0	0	0	0	3	1	21	21	-11	-1	0	0
Precipitation Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal															
Precipitation Weather Coefficients							Large SG customer usage is not impacted by precipitation								
Small Secondary General Customers															
Precipitation Weather Adjustment (MWh)															
TX Large Secondary General Service Weather Adjustment (5)	(1)	4	(6)	(2)	0	0	(0)	3	1	21	21	(11)	(1)	4	(5)

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Canadian River Municipal Water Authority (CRMWA)	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Estimate
Cooling Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	(12)	(2)	0	0	(1)	(2)	(12)	22	3	80	78	(51)	(12)	(2)	0
Cooling Degree Days Weather Coefficients	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	5.1028412	6.2818395	5.6352651	5.9612807	0.0000000	0.0000000	0.0000000
CRMWA Customers	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	0	16	505	438	(306)	0	0	0
Precipitation Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	3.19	0.21	0.36	(0.39)	(0.29)	1.28	(1.39)	(1.55)	0.38	(0.95)	(1.36)	(1.32)	3.19	0.21	0.36
Precipitation Weather Coefficients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-155.18874	-155.18874	-155.18874	-155.18874	-155.18874	-155.18874	0.00000	0.00000	0.00000
Small Secondary General Customers	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Precipitation Weather Adjustment (MWh)	0	0	0	0	0	0	216	241	(60)	147	211	204	0	0	0
CRMWA Weather Adjustment (6)	0	0	0	0	0	0	216	241	(44)	651	649	(102)	0	0	0

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Municipal and School Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Estimate
Cooling Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	(12)	(2)	0	0	(1)	(2)	(12)	22	3	80	78	(51)	(12)	(2)	0
Cooling Degree Days Weather Coefficients	0.0057879	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0017161	0.0028399	0.0022550	0.0022107	0.0037106	0.0087476	0.0055490	0.0000000	0.0000000
Municipal & School Customers	4,479	4,478	4,478	4,473	4,476	4,471	4,472	4,469	4,464	4,468	4,469	4,465	4,479	4,478	4,478
Cooling Degree Days Weather Adjustment (MWh)	(306)	0	0	0	0	0	(89)	284	31	793	1,290	(2,005)	(293)	0	0
Precipitation Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Variance from Normal	3.19	0.21	0.36	(0.39)	(0.29)	1.28	(1.39)	(1.55)	0.38	(0.95)	(1.36)	(1.32)	3.19	0.21	0.36
Precipitation Weather Coefficients	0.00000	0.00000	0.00000	0.00000	0.00000	(0.14442)	(0.18483)	(0.04512)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Small Secondary General Customers	4,479	4,478	4,478	4,473	4,476	4,471	4,472	4,469	4,464	4,468	4,469	4,465	4,479	4,478	4,478
Precipitation Weather Adjustment (MWh)	0	0	0	0	0	(827)	1,149	313	0	0	0	0	0	0	0
Weather Adjustment	(306)	0	0	0	0	(827)	1,059	597	31	793	1,290	(2,005)	(293)	0	0
Texas - Municipal and School Weather Impact Allocation (Billed Sales in MWh)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
SMSTX	1,745	1,468	1,855	2,008	1,880	1,756	1,399	1,195	1,355	1,828	2,048	2,057	1,745	1,468	1,855
LMSTX	17,598	13,835	13,937	14,419	13,871	13,876	14,037	13,761	16,134	20,213	20,205	18,793	17,598	13,835	13,937
LSSTX	18,642	12,789	13,550	13,297	9,351	16,055	9,116	5,845	9,877	11,999	13,745	12,563	18,642	12,789	13,550
Total	37,985	28,092	29,343	29,723	25,103	31,687	24,551	20,801	27,366	34,040	35,998	33,413	37,985	28,092	29,343
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
SMSTX	4.59%	5.23%	6.32%	6.76%	7.49%	5.54%	5.70%	5.74%	4.95%	5.37%	5.69%	6.16%	4.59%	5.23%	6.32%
LMSTX	46.33%	49.25%	47.50%	48.51%	55.26%	43.79%	57.17%	66.16%	58.96%	59.38%	56.13%	56.24%	46.33%	49.25%	47.50%
LSSTX	49.08%	45.52%	46.18%	44.73%	37.25%	50.67%	37.13%	28.10%	36.09%	35.25%	38.18%	37.60%	49.08%	45.52%	46.18%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Municipal and School Allocation of Sales impacted by Weather															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
SMSTX **(7)**	(14)	0	0	0	0	(46)	60	34	2	43	73	(123)	(13)	0	0
LMSTX **(8)**	(142)	0	0	0	0	(362)	606	395	18	471	724	(1,128)	(136)	0	0
LSSTX **(9)**	(150)	0	0	0	0	(419)	393	168	11	280	493	(754)	(144)	0	0

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Residential Service Coefficients (Modeled with MWH)

			Model Coefficients		Monthly Weights Model to Calendar			Calendar Month	
Year	Month	Date	HDD	CDD	Current	1st Future	2nd Future	HDD	CDD
2019	10	Oct-19	-	0.0010	48.39%	50.69%	0.92%	0.0000	0.0005
2019	11	Nov-19	-	-	36.35%	63.02%	0.63%	0.0002	-
2019	12	Dec-19	0.0004	-	43.32%	56.68%	0.00%	0.0004	-
2020	1	Jan-20	0.0005	-	49.62%	49.46%	0.92%	0.0004	-
2020	2	Feb-20	0.0004	-	40.56%	59.44%	0.00%	0.0003	-
2020	3	Mar-20	0.0003	-	45.93%	54.07%	0.00%	0.0001	-
2020	4	Apr-20	-	-	46.67%	52.86%	0.48%	-	0.0000
2020	5	May-20	-	-	39.63%	60.37%	0.00%	-	0.0007
2020	6	Jun-20	-	0.0011	44.13%	55.87%	0.00%	-	0.0013
2020	7	Jul-20	-	0.0013	49.31%	50.54%	0.15%	-	0.0014
2020	8	Aug-20	-	0.0014	44.55%	55.30%	0.15%	-	0.0013
2020	9	Sep-20	-	0.0013	44.44%	55.56%	0.00%	-	0.0011
2020	10	Oct-20	-	0.0010	46.39%	52.23%	1.38%	0.0000	0.0004
2020	11	Nov-20	-	-	34.76%	65.08%	0.16%	0.0002	-
2020	12	Dec-20	0.0004	-	41.17%	58.37%	0.46%	0.0004	-
2021	1	Jan-21	0.0005	-	43.32%	54.84%	1.84%	0.0004	-
2021	2	Feb-21	0.0004	-	35.88%	64.12%	0.00%	0.0003	-
2021	3	Mar-21	0.0003	-	47.16%	52.84%	0.00%	0.0001	-
2021	4	Apr-21	-	-	47.94%	51.59%	0.48%	-	0.0000
2021	5	May-21	-	-	40.40%	59.60%	0.00%		
2021	6	Jun-21	-	0.0011	45.40%	54.44%	0.16%		

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Small General Service Coefficients (Modeled with MWH)

		Model Coefficients			Monthly Weights Model to Calendar			Calendar Month		
Year	Month	HDD	CDD	Precip	Current	1st Future	2nd Future	HDD	CDD	Precip
2019	10	-	0.00060	-	48.39%	50.69%	0.92%	0.00000	0.00029	-
2019	11	-	-	-	36.35%	63.02%	0.63%	0.00009	-	-
2019	12	0.00014	-	-	43.32%	56.68%	0.00%	0.00018	-	-
2020	1	0.00022	-	-	49.62%	49.46%	0.92%	0.00018	-	-
2020	2	0.00014	-	-	40.56%	59.44%	0.00%	0.00014	-	-
2020	3	0.00014	-	-	45.93%	54.07%	0.00%	0.00006	-	-
2020	4	-	-	-	46.67%	52.86%	0.48%	-	0.00000	-
2020	5	-	-	-	39.63%	60.37%	0.00%	-	0.00031	-
2020	6	-	0.00051	-	44.13%	55.87%	0.00%	-	0.00059	-
2020	7	-	0.00066	-	49.31%	50.54%	0.15%	-	0.00072	-
2020	8	-	0.00078	-	44.55%	55.30%	0.15%	-	0.00080	-
2020	9	-	0.00081	-	44.44%	55.56%	0.00%	-	0.00069	-
2020	10	-	0.00060	-	46.39%	52.23%	1.38%	0.00000	0.00028	-
2020	11	-	-	-	34.76%	65.08%	0.16%	0.00009	-	-
2020	12	0.00014	-	-	41.17%	58.37%	0.46%	0.00018	-	-
2021	1	0.00022	-	-	43.32%	54.84%	1.84%	0.00017	-	-
2021	2	0.00014	-	-	35.88%	64.12%	0.00%	0.00014	-	-
2021	3	0.00014	-	-	47.16%	52.84%	0.00%	0.00006	-	-
2021	4	-	-	-	47.94%	51.59%	0.48%	-	0.00000	-
2021	5	-	-	-	40.40%	59.60%	0.00%			
2021	6	-	0.00051	-	45.40%	54.44%	0.16%			

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Secondary General Service Coefficients (Modeled with MWH)

		Model Coefficients			Monthly Weights Model to Calendar			Calendar Month						
Year	Month	HDD	CDD	Precip	Current	1st Future	2nd Future	HDD	CDD	Precip	Actual Cust	HDD	CDD	Precip
2019	10	-	87.05	-	48.39%	50.69%	0.92%	0.29	42.12	-	12,126	0.0000243	0.0034735	0.0000000
2019	11	-	-	-	36.35%	63.02%	0.63%	20.29	-	-	12,125	0.0016734	0.0000000	0.0000000
2019	12	31.97	-	-	43.32%	56.68%	0.00%	26.96	-	-	12,110	0.0022262	0.0000000	0.0000000
2020	1	23.13	-	-	49.62%	49.46%	0.92%	11.48	-	(64.15)	11,901	0.0009644	0.0000000	-0.0053900
2020	2	-	-	-	40.56%	59.44%	0.00%	-	-	(4,137.04)	11,947	0.0000000	0.0000000	-0.3462831
2020	3	-	-	(6,959.83)	45.93%	54.07%	0.00%	-	-	(7,463.35)	11,964	0.0000000	0.0000000	-0.6238173
2020	4	-	-	(7,891.05)	46.67%	52.86%	0.48%	-	0.55	(4,443.32)	11,968	0.0000000	0.0000456	-0.3712668
2020	5	-	-	(1,426.55)	39.63%	60.37%	0.00%	-	69.16	(1,426.55)	11,978	0.0000000	0.0057740	-0.1190979
2020	6	-	114.57	(1,426.55)	44.13%	55.87%	0.00%	-	121.49	(1,426.55)	11,980	0.0000000	0.0101414	-0.1190780
2020	7	-	126.97	(1,426.55)	49.31%	50.54%	0.15%	-	141.65	(1,426.55)	11,989	0.0000000	0.0118153	-0.1189886
2020	8	-	155.98	(1,426.55)	44.55%	55.30%	0.15%	-	149.33	(1,424.36)	11,996	0.0000000	0.0124481	-0.1187365
2020	9	-	144.14	(1,426.55)	44.44%	55.56%	0.00%	-	112.42	(634.02)	11,989	0.0000000	0.0093773	-0.0528838
2020	10	-	87.05	-	46.39%	52.23%	1.38%	0.44	40.38	-	12,126	0.0000364	0.0033302	0.0000000
2020	11	-	-	-	34.76%	65.08%	0.16%	20.84	-	-	12,125	0.0017187	0.0000000	0.0000000
2020	12	31.97	-	-	41.17%	58.37%	0.46%	26.66	-	-	12,110	0.0022017	0.0000000	0.0000000
2021	1	23.13	-	-	43.32%	54.84%	1.84%	10.02	-	(128.29)	11,901	0.0008420	0.0000000	-0.0107799
2021	2	-	-	-	35.88%	64.12%	0.00%	-	-	(4,462.34)				
2021	3	-	-	(6,959.83)	47.16%	52.84%	0.00%	-	-	(7,451.91)				
2021	4	-	-	(7,891.05)	47.94%	51.59%	0.48%	-	0.55	(4,525.41)				
2021	5	-	-	(1,426.55)	40.40%	59.60%	0.00%							
2021	6	-	114.57	(1,426.55)	45.40%	54.44%	0.16%							

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas CRMWA Coefficients (Modeled with MWH)

		Model Coefficients (Calendar)			Monthly Weights Model to Calendar			Revenue Month		
Year	Month	HDD	CDD	Precip	Current	1st Future	2nd Future	HDD	CDD	Precip
2019	10	-	-	-	48.39%	50.69%	0.92%	-	-	-
2019	11	-	-	-	36.35%	63.02%	0.63%	-	-	-
2019	12	-	-	-	43.32%	56.68%	0.00%	-	-	-
2020	1	-	-	-	49.62%	49.46%	0.92%	-	-	-
2020	2	-	-	-	40.56%	59.44%	0.00%	-	-	-
2020	3	-	-	-	45.93%	54.07%	0.00%	-	-	(155.18874)
2020	4	-	-	(155.2)	46.67%	52.86%	0.48%	-	-	(155.18874)
2020	5	-	-	(155.2)	39.63%	60.37%	0.00%	-	5.10284	(155.18874)
2020	6	-	5.10	(155.2)	44.13%	55.87%	0.00%	-	6.28184	(155.18874)
2020	7	-	6.28	(155.2)	49.31%	50.54%	0.15%	-	5.63527	(155.18874)
2020	8	-	5.64	(155.2)	44.55%	55.30%	0.15%	-	5.96128	(155.18874)
2020	9	-	5.96	(155.2)	44.44%	55.56%	0.00%	-	-	-
2020	10	-	-	-	46.39%	52.23%	1.38%	-	-	-
2020	11	-	-	-	34.76%	65.08%	0.16%	-	-	-
2020	12	-	-	-	41.17%	58.37%	0.46%	-	-	-
2021	1	-	-	-	43.32%	54.84%	1.84%	-	-	-
2021	2	-	-	-	35.88%	64.12%	0.00%	-	-	-
2021	3	-	-	-	47.16%	52.84%	0.00%	-	-	(155.18874)
2021	4	-	-	(155.18874)	47.94%	51.59%	0.48%	-	-	(155.18874)
2021	5	-	-	(155.18874)	40.40%	59.60%	0.00%			
2021	6	-	5.10284	(155.18874)	45.40%	54.44%	0.16%			

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Sales

Texas Municipals and Schools Coefficients (Modeled with MWH)

		Model Coefficients			Monthly Weights Model to Calendar			Calendar Month		
Year	Month	HDD	CDD	Precip	Current	1st Future	2nd Future	HDD	CDD	Precip
2019	10	-	0.0120	-	48.39%	50.69%	0.92%	-	0.0058	-
2019	11	-	-	-	36.35%	63.02%	0.63%	-	-	-
2019	12	-	-	-	43.32%	56.68%	0.00%	-	-	-
2020	1	-	-	-	49.62%	49.46%	0.92%	-	-	-
2020	2	-	-	-	40.56%	59.44%	0.00%	-	-	-
2020	3	-	-	-	45.93%	54.07%	0.00%	-	-	(0.1444)
2020	4	-	-	(0.267)	46.67%	52.86%	0.48%	-	0.0017	(0.1848)
2020	5	-	0.0032	(0.114)	39.63%	60.37%	0.00%	-	0.0028	(0.0451)
2020	6	-	0.0026	-	44.13%	55.87%	0.00%	-	0.0023	-
2020	7	-	0.0020	-	49.31%	50.54%	0.15%	-	0.0022	-
2020	8	-	0.0024	-	44.55%	55.30%	0.15%	-	0.0037	-
2020	9	-	0.0047	-	44.44%	55.56%	0.00%	-	0.0087	-
2020	10	-	0.0120	-	46.39%	52.23%	1.38%	-	0.0055	-
2020	11	-	-	-	34.76%	65.08%	0.16%	-	-	-
2020	12	-	-	-	41.17%	58.37%	0.46%	-	-	-
2021	1	-	-	-	43.32%	54.84%	1.84%	-	-	-
2021	2	-	-	-	35.88%	64.12%	0.00%	-	-	-
2021	3	-	-	-	47.16%	52.84%	0.00%	-	-	(0.1411)
2021	4	-	-	(0.267)	47.94%	51.59%	0.48%	-	0.0017	(0.1868)
2021	5	-	0.0032	(0.114)	40.40%	59.60%	0.00%			
2021	6	-	0.0026	-	45.40%	54.44%	0.16%			

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Roswell Weather Data
Normal Weather Based on a 10-year Historical Average

Month	Year			Weather Act Cal HDD65	Weather Act Cal CDD65	Weather Act Cal Precip	Weather Norm Cal HDD65	Weather Norm Cal CDD65	Weather Norm Cal Precip	Dev HDD65	Dev CDD65	Dev Precip
Oct	2019	Oct-19	Actual	206	57	4.83	121	59	1.39	85	-2	3.44
Nov	2019	Nov-19	Actual	459	0	1.38	435	1	0.23	24	-1	1.15
Dec	2019	Dec-19	Actual	604	0	0.11	748	0	0.56	-144	0	-0.45
Jan	2020	Jan-20	Actual	604	0	0.44	744	0	0.32	-140	0	0.12
Feb	2020	Feb-20	Actual	559	0	0.57	533	0	0.38	26	0	0.19
Mar	2020	Mar-20	Actual	240	9	2.07	299	9	0.20	-59	0	1.88
Apr	2020	Apr-20	Actual	111	76	0.23	120	57	0.46	-9	19	-0.23
May	2020	May-20	Actual	2	328	0.20	30	209	1.22	-28	120	-1.02
Jun	2020	Jun-20	Actual	0	530	0.39	0	500	1.29	0	30	-0.90
Jul	2020	Jul-20	Actual	0	707	0.81	0	545	1.71	0	162	-0.90
Aug	2020	Aug-20	Actual	0	624	0.57	0	509	1.60	0	115	-1.03
Sep	2020	Sep-20	Actual	41	268	0.09	6	269	1.84	35	0	-1.75
Oct	2020	Oct-20	Estimate	206	57	4.83	121	59	1.39	85	-2	3.44
Nov	2020	Nov-20	Estimate	459	0	1.38	435	1	0.23	24	-1	1.15
Dec	2020	Dec-20	Estimate	604	0	0.11	748	0	0.56	-144	0	-0.45
Annual (Oct19 - Sep20)			**Actual**	**2,826**	**2,599**	**11.69**	**3,035**	**2,156**	**11.20**	**-209**	**444**	**0.50**
Annual Dev %										**-6.9%**	**20.6%**	**4.4%**
Annual (Jan20 - Dec20)			**Estimate**	**2,826**	**2,599**	**11.69**	**3,035**	**2,156**	**11.20**	**-209**	**444**	**0.50**
Annual Dev %										**-6.9%**	**20.6%**	**4.4%**

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico
New Mexico - Calendar Month Weather Normal Sales
10-Year Normal Weather

Southwestern Public Service Company Electric Sales - New Mexico
Calendar Month - MONTHLY MWH

		Actual Sales Cal Mth Res	Actual Sales Cal Mth Small C&I	Actual Sales Cal Mth Large C&I	Actual Sales Cal Mth Street	Actual Sales Cal Mth Other Sale Auth	Actual Sales Cal Mth Retail	WN Sales Cal Mth Res	WN Sales Cal Mth Small C&I	WN Sales Cal Mth Large C&I	WN Sales Cal Mth Street	WN Sales Cal Mth Other Sale Auth	WN Sales Cal Mth Retail
Oct-19	Actual	81,246	161,769	299,217	1,033	11,530	554,795	80,690	161,793	299,217	1,033	11,548	554,281
Nov-19	Actual	92,902	154,465	317,417	1,023	9,395	575,203	92,034	154,437	317,417	1,023	9,395	574,306
Dec-19	Actual	114,894	155,940	332,288	1,015	9,313	613,450	123,660	156,326	332,288	1,015	9,313	622,602
Jan-20	Actual	118,998	154,248	342,216	998	10,228	626,688	128,208	154,698	342,216	998	10,229	636,349
Feb-20	Actual	98,607	148,960	317,282	987	9,121	574,957	97,179	149,134	317,282	987	9,204	573,785
Mar-20	Actual	82,057	181,009	343,805	985	9,830	617,686	83,904	184,284	343,805	985	11,211	624,189
Apr-20	Actual	68,677	144,743	309,741	978	9,653	533,792	68,741	144,539	309,741	978	9,527	533,525
May-20	Actual	89,487	155,940	323,897	972	9,925	580,222	87,525	153,048	323,896	972	9,141	574,582
Jun-20	Actual	115,618	153,470	294,294	963	9,962	574,307	114,679	151,888	294,293	963	9,672	571,494
Jul-20	Actual	139,705	170,446	346,996	949	13,351	671,446	133,865	163,779	346,992	949	12,551	658,136
Aug-20	Actual	131,943	171,778	362,494	909	15,219	682,343	127,970	166,611	362,491	909	14,442	672,423
Sep-20	Actual	93,747	151,216	348,264	881	11,023	605,131	93,760	150,418	348,264	881	11,031	604,354
Oct-20	Estimate	81,246	161,769	299,217	1,033	11,530	554,795	80,690	161,792	299,217	1,033	11,548	554,279
Nov-20	Estimate	92,902	154,465	317,417	1,023	9,395	575,203	92,034	154,437	317,417	1,023	9,395	574,306
Dec-20	Estimate	114,894	155,940	332,288	1,015	9,313	613,450	123,660	156,326	332,288	1,015	9,313	622,602
Test Year Total	**Actual**	**1,227,880**	**1,903,984**	**3,937,910**	**11,693**	**128,551**	**7,210,019**	**1,232,214**	**1,890,954**	**3,937,902**	**11,693**	**127,263**	**7,200,026**
Updated Test Year Total	**Estimate**	**1,227,880**	**1,903,984**	**3,937,910**	**11,693**	**128,551**	**7,210,019**	**1,232,214**	**1,890,953**	**3,937,902**	**11,693**	**127,263**	**7,200,025**

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico
New Mexico - Calendar Month Weather Normal Sales
10-Year Normal Weather

Southwestern Public Service Company Electric Sales - New Mexico
Calendar Month - MONTHLY MWH

		Act var fr WN Res	Act var fr WN Small C&I	Act var fr WN Large C&I	Act var fr WN Street	Act var fr WN Other Sale Auth	Act var fr WN Retail	% var Res	% var Small C&I	% var Large C&I	% var Street	% var Other Sale Auth	% var Retail
Oct-19	Actual	556	(24)	(0)	0	(18)	515	0.69%	-0.01%	0.00%	0.00%	-0.15%	0.09%
Nov-19	Actual	868	28	0	0	0	896	0.94%	0.02%	0.00%	0.00%	0.00%	0.16%
Dec-19	Actual	(8,766)	(386)	0	0	0	(9,152)	-7.09%	-0.25%	0.00%	0.00%	0.00%	-1.47%
Jan-20	Actual	(9,210)	(450)	0	0	(1)	(9,661)	-7.18%	-0.29%	0.00%	0.00%	-0.01%	-1.52%
Feb-20	Actual	1,428	(174)	0	0	(82)	1,172	1.47%	-0.12%	0.00%	0.00%	-0.89%	0.20%
Mar-20	Actual	(1,847)	(3,276)	0	0	(1,380)	(6,503)	-2.20%	-1.78%	0.00%	0.00%	-12.31%	-1.04%
Apr-20	Actual	(64)	204	0	0	126	267	-0.09%	0.14%	0.00%	0.00%	1.32%	0.05%
May-20	Actual	1,962	2,892	1	0	784	5,639	2.24%	1.89%	0.00%	0.00%	8.58%	0.98%
Jun-20	Actual	939	1,582	1	0	291	2,812	0.82%	1.04%	0.00%	0.00%	3.01%	0.49%
Jul-20	Actual	5,840	6,666	4	0	800	13,310	4.36%	4.07%	0.00%	0.00%	6.37%	2.02%
Aug-20	Actual	3,973	5,168	3	0	776	9,919	3.10%	3.10%	0.00%	0.00%	5.38%	1.48%
Sep-20	Actual	(13)	799	(0)	0	(8)	778	-0.01%	0.53%	0.00%	0.00%	-0.07%	0.13%
Oct-20	Estimate	556	(22)	(0)	0	(18)	516	0.69%	-0.01%	0.00%	0.00%	-0.15%	0.09%
Nov-20	Estimate	868	28	0	0	0	896	0.94%	0.02%	0.00%	0.00%	0.00%	0.16%
Dec-20	Estimate	(8,766)	(386)	0	0	0	(9,152)	-7.09%	-0.25%	0.00%	0.00%	0.00%	-1.47%
Test Year Total	**Actual**	**(4,334)**	**13,030**	**8**	**0**	**1,288**	**9,992**	**-0.35%**	**0.69%**	**0.00%**	**0.00%**	**1.01%**	**0.1%**
Updated Test Year Total	**Estimate**	**(4,334)**	**13,032**	**8**	**0**	**1,288**	**9,994**	**-0.35%**	**0.69%**	**0.00%**	**0.00%**	**1.01%**	**0.1%**

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Weather Impacted Sales Calculation

New Mexico Retail Weather Adjustment Summary	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Heating Degree Days 10-yr Normal	121	435	748	744	533	299	120	30	0	0
Heating Degree Days Actual	206	459	604	604	559	240	111	2	0	0
Variance from Normal	85	24	(144)	(140)	26	(59)	(9)	(28)	0	0
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Cooling Degree Days 10-yr Normal	59	1	0	0	0	9	57	209	500	545
Cooling Degree Days Actual	57	0	0	0	0	9	76	328	530	707
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30	162
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Precipitation 10-yr Normal	1.39	0.23	0.56	0.32	0.38	0.20	0.46	1.22	1.29	1.71
Precipitation Actual	4.83	1.38	0.11	0.44	0.57	2.07	0.23	0.20	0.39	0.81
Variance from Normal	3.44	1.15	(0.45)	0.12	0.19	1.88	(0.23)	(1.02)	(0.90)	(0.90)
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
New Mexico Residential Service **(1)**	(14)	304	(3,511)	(3,383)	464	(425)	0	0	0	0
New Mexico Residential Space Heat **(2)**	571	564	(5,255)	(5,828)	964	(1,422)	(64)	1,962	939	5,840
New Mexico Small General Service **(3)**	(4)	28	(386)	(448)	80	(83)	1	514	241	1,395
New Mexico Secondary General Service **(4) & (5)**	(20)	0	0	0	0	0	2	1,818	850	4,850
New Mexico Irrigation Service **(6)**	0	0	0	(2)	(254)	(3,193)	201	561	492	425
Large Municipal and School Service **(7)**	(16)	0	0	(1)	(75)	(1,249)	115	708	265	731
Small Municipal and School Service **(8)**	(1)	0	0	(0)	(8)	(132)	11	76	26	69
New Mexico Retail Weather Adjustment Total	515	896	(9,152)	(9,661)	1,172	(6,503)	267	5,639	2,812	13,310

New Mexico Residential Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Heating Degree Days Weather Adjustment (10-yr Normal)										
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Variance from Normal	85	24	(144)	(140)	26	(59)	(9)	(28)	0	0
Heating Degree Days Weather Coefficients	0.0000031	0.0002134	0.0003967	0.0003929	0.0002923	0.0001182	0.0000000	0.0000000	0.0000000	0.0000000
Res Service Customers	61,167	61,227	61,324	61,453	61,505	61,590	61,602	61,668	61,741	61,817
Heating Degree Days Weather Adjustment (MWh)	16	315	-3,511	-3,383	467	-427	0	0	0	0
Cooling Degree Days Weather Adjustment (10-yr Normal)										
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30	162
Cooling Degree Days Weather Coefficients	0.0003114	0.0002134	0.0003967	0.0003929	0.0002923	0.0001182	0.0000000	0.0000000	0.0000000	0.0000000
Res Service Customers	61,167	61,227	61,324	61,453	61,505	61,590	61,602	61,668	61,741	61,817
Cooling Degree Days Weather Adjustment (MWh)	(30)	(10)	0	0	(4)	1	0	0	0	0
NM Residential Service Weather Adjustment (1)	(14)	304	(3,511)	(3,383)	464	(425)	0	0	0	0

New Mexico Residential Space Heat	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Heating Degree Days Weather Adjustment (10-yr Normal)

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Variance from Normal	85	24	(144)	(140)	26	(59)	(9)	(28)	0	0
Heating Degree Days Weather Coefficients	0.0002327	0.0007858	0.0012239	0.0013970	0.0012457	0.0008153	0.0002481	0.0000000	0.0000000	0.0000000
Res Space Heat Customers	29,755	29,763	29,757	29,776	29,772	29,764	29,751	29,746	29,740	29,752
Heating Degree Days Weather Adjustment (MWh)	587	564	(5,255)	(5,828)	964	(1,422)	(66)	0	0	0

Cooling Degree Days Weather Adjustment (10-yr Normal)

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30	162
Cooling Degree Days Weather Coefficients	0.0003472	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000044	0.0005519	0.0010420	0.0012103
Res Space Heat Customers	29,755	29,763	29,757	29,776	29,772	29,764	29,751	29,746	29,740	29,752
Cooling Degree Days Weather Adjustment (MWh)	(17)	0	0	0	0	0	3	1,962	939	5,840
NM Residential Space Heat Weather Adjustment (2)	571	564	(5,255)	(5,828)	964	(1,422)	(64)	1,962	939	5,840

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Small General Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Heating Degree Days Weather Adjustment (10-yr Normal)										
	Apr-16	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Variance from Normal	85	24	(144)	(140)	26	(59)	(9)	(28)	0	0
Heating Degree Days Weather Coefficients	0.0000014	0.0000987	0.0002251	0.0002689	0.0002591	0.0001193	0.0000000	0.0000000	0.0000000	0.0000000
Small General Service Customers	11,886	11,871	11,884	11,889	11,880	11,889	11,891	11,864	11,868	11,889
Heating Degree Days Weather Adjustment (MWh)	0	28	-386	-448	80	-83	0	0	0	0
Cooling Degree Days Weather Adjustment (10-yr Normal)										
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30	162
Cooling Degree Days Weather Coefficients	0.0002286	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000029	0.0003627	0.0006711	0.0007235
Small General Service Customers	11,886	11,871	11,884	11,889	11,880	11,889	11,891	11,864	11,868	11,889
Cooling Degree Days Weather Adjustment (MWh)	(4)	0	0	0	0	0	1	514	241	1,395
NM Small General Service Weather Adjustment (3)	(4)	28	(386)	(448)	80	(83)	1	514	241	1,395

New Mexico Small Secondary General Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)										
	Apr-16	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30	162
Cooling Degree Days Weather Coefficients	0.0031211	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000300	0.0037882	0.0069498	0.0073903
Small Secondary General Customers	3,905	3,929	3,943	3,969	3,979	4,003	4,002	4,014	4,033	4,043
Cooling Degree Days Weather Adjustment (MWh)	-20	0	0	0	0	0	2	1,817	849	4,846
NM Small Secondary General Service Weather Adjustment (4)	(20)	0	0	0	0	0	2	1,817	849	4,846

New Mexico Large Secondary General Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)										
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30	162
Cooling Degree Days Weather Coefficients	0.0031211	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000300	0.0037882	0.0069498	0.0073903
Large Secondary General Customers	3	3	3	3	3	3	3	3	3	3
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	1	1	4
NM Large Secondary General Service Weather Adjustment (5)	(0)	0	0	0	0	0	0	1	1	4

New Mexico Irrigation Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Precipitation Weather Adjustment (10-yr Normal)										
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year

Sales Wholesale and New Mexico

Variance from Normal	3.44	1.15	(0.45)	0.12	0.19	1.88	(0.23)	(1.02)	(0.90)	(0.90)
Precipitation Weather Coefficients	0.0000000	0.0000000	0.0000000	-0.0209970	-1.3541831	-1.7146845	-0.8695468	-0.5510122	-0.5478954	-0.4718172
Irrigation Customers	1,001	1,001	998	999	996	993	994	996	997	999
Precipitation Weather Adjustment (MWh)	0	0	0	(2)	(254)	(3,193)	201	561	492	425
NM Irrigation Weather Adjustment (6)	0	0	0	(2)	(254)	(3,193)	201	561	492	425

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Municipal and School Service	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)										
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30	162
Cooling Degree Days Weather Coefficients	0.0063562	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000155	0.0019638	0.0027440	0.0028312
Municipal & School Customers	1,734	1,735	1,737	1,738	1,744	1,742	1,742	1,742	1,742	1,742
Cooling Degree Days Weather Adjustment (MWh)	(18)	0	0	0	0	0	1	409	145	800
Precipitation Weather Adjustment (10-yr Normal)										
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Variance from Normal	3.44	1.15	(0.45)	0.12	0.19	1.88	(0.23)	(1.02)	(0.90)	(0.90)
Precipitation Weather Coefficients	0.0000000	0.0000000	0.0000000	-0.0038944	-0.2511664	-0.4225423	-0.3095842	-0.2107459	-0.0929958	0.0000000
Municipal & School Customers	1,734	1,735	1,737	1,738	1,744	1,742	1,742	1,742	1,742	1,742
Precipitation Weather Adjustment (MWh)	0	0	0	(1)	(82)	(1,380)	126	375	146	0
Municipal & School Weather Adjustment	(18)	0	0	(1)	(82)	(1,380)	126	784	291	800
New Mexico - Municipal and School Weather Impact Allocation										
Billed Sales in MWh	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
LMSNM	13,396	9,262	9,158	9,818	8,430	9,645	7,375	7,073	9,991	11,073
SMSNM	1,076	803	985	1,036	875	1,017	709	761	975	1,037
Total	14,472	10,065	10,143	10,853	9,305	10,662	8,084	7,834	10,967	12,110
Allocation Factors	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
LMSNM	92.56%	92.02%	90.29%	90.46%	90.60%	90.46%	91.23%	90.29%	91.11%	91.43%
SMSNM	7.44%	7.98%	9.71%	9.54%	9.40%	9.54%	8.77%	9.71%	8.89%	8.57%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Municipal and School Allocation of Sales impacted by Weather										
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
LMSNM **(7)**	(16)	0	0	(1)	(75)	(1,249)	115	708	265	731
SMSNM **(8)**	(1)	0	0	(0)	(8)	(132)	11	76	26	69

	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Res	556	868	(8,766)	(9,210)	1,428	(1,847)	(64)	1,962	939	5,840
Sm C&I	(24)	28	(386)	(450)	(174)	(3,276)	204	2,892	1,582	6,666
Lg C&I	(0)	0	0	0	0	0	0	1	1	4
Street Light	0	0	0	0	0	0	0	0	0	0
Other Sales to Public Authority (OSPA)	(18)	0	0	(1)	(82)	(1,380)	126	784	291	800
Retail	515	896	(9,152)	(9,661)	1,172	(6,503)	267	5,639	2,812	13,310

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Actual	Actual	Estimate	Estimate	Estimate	Test Year	Updated Test Year
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
0	6	121	435	748	3,035	3,035
0	41	206	459	604	2,826	2,826
0	35	85	24	(144)	(209)	(209)
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
509	269	59	1	0	2,156	2,156
624	268	57	0	0	2,599	2,599
115	(0)	(2)	(1)	0	444	444
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
1.60	1.84	1.39	0.23	0.56	11.20	11.20
0.57	0.09	4.83	1.38	0.11	11.69	11.69
(1.03)	(1.75)	3.44	1.15	(0.45)	0.50	0.50
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
0	0	(14)	304	(3,511)	(6,565)	(6,565)
3,973	(13)	571	564	(5,255)	2,231	2,231
961	(3)	(3)	28	(386)	2,296	2,297
3,431	(14)	(20)	0	0	10,918	10,918
779	816	0	0	0	(176)	(176)
713	(7)	(16)	0	0	1,185	1,185
63	(1)	(1)	0	0	103	103
9,919	778	516	896	(9,152)	9,992	9,994

Actual	Actual	Estimate	Estimate	Estimate
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
0	35	85	24	(144)
0.0000000	0.0000000	0.0000031	0.0002134	0.0003967
61,875	61,829	61,167	61,227	61,324
0	0	16	315	-3,511
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
115	(0)	(2)	(1)	0
0.0000000	0.0000000	0.0003114	0.0002134	0.0003967
61,875	61,829	61,167	61,227	61,324
0	0	(30)	(10)	0
0	0	(14)	304	(3,511)

Actual	Actual	Estimate	Estimate	Estimate

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
0	35	85	24	(144)
0.0000000	0.0000000	0.0002327	0.0007858	0.0012239
29,742	29,711	29,755	29,763	29,757
0	0	587	564	(5,255)
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
115	(0)	(2)	(1)	0
0.0011615	0.0008743	0.0003472	0.0000000	0.0000000
29,742	29,711	29,755	29,763	29,757
3,973	(13)	(17)	0	0
3,973	(13)	571	564	(5,255)

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Actual	Actual	Estimate	Estimate	Estimate
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
0	35	85	24	(144)
0.0000000	0.0000000	0.0000014	0.0000987	0.0002251
11,869	11,888	11,886	11,871	11,884
0	0	1	28	-386
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
115	(0)	(2)	(1)	0
0.0007038	0.0005696	0.0002286	0.0000000	0.0000000
11,869	11,888	11,886	11,871	11,884
961	(3)	(4)	0	0
961	(3)	(3)	28	(386)

Actual	Actual	Estimate	Estimate	Estimate
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
115	(0)	(2)	(1)	0
0.0073300	0.0067079	0.0031211	0.0000000	0.0000000
4,067	4,079	3,905	3,929	3,943
3,428	-14	-20	0	0
3,428	(14)	(20)	0	0

Actual	Actual	Estimate	Estimate	Estimate
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
115	(0)	(2)	(1)	0
0.0073300	0.0067079	0.0031211	0.0000000	0.0000000
3	3	3	3	3
3	0	0	0	0
3	(0)	(0)	0	0

Actual	Actual	Estimate	Estimate	Estimate
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

(1.03)	(1.75)	3.44	1.15	(0.45)
-0.7583426	-0.4665101	0.0000000	0.0000000	0.0000000
1,000	1,002	1,001	1,001	998
779	816	0	0	0
779	816	0	0	0

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Actual	Actual	Estimate	Estimate	Estimate
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
115	(0)	(2)	(1)	0
0.0038688	0.0092081	0.0063562	0.0000000	0.0000000
1,745	1,749	1,734	1,735	1,737
776	(8)	(18)	0	0
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
(1.03)	(1.75)	3.44	1.15	(0.45)
0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
1,745	1,749	1,734	1,735	1,737
0	0	0	0	0
776	(8)	(18)	0	0
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
10,718	12,403	13,396	9,262	9,158
950	988	1,076	803	985
11,668	13,391	14,472	10,065	10,143
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
91.86%	92.62%	92.56%	92.02%	90.29%
8.14%	7.38%	7.44%	7.98%	9.71%
100.00%	100.00%	100.00%	100.00%	100.00%
Aug-20	Sep-20	Sep-20	Sep-20	Sep-20
713	(7)	(16)	0	0
63	(1)	(1)	0	0

Actual	Actual	Estimate	Estimate	Estimate		Updated
					Test Year	Test Year
Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
3,973	(13)	556	868	(8,766)	(4,334)	(4,334)
5,168	799	(22)	28	(386)	13,030	13,032
3	(0)	(0)	0	0	8	8
0	0	0	0	0	0	0
776	(8)	(18)	0	0	1,288	1,288
9,919	778	516	896	(9,152)	9,992	9,994

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Residential Service Coefficients (Modeled with MWH)

			Model Coefficients		Monthly Weights Model to Calendar			Calendar Month	
Year	Month	Date	HDD	CDD	Current	1st Future	2nd Future	HDD	CDD
2019	10	Oct-19	-	0.0006	48.39%	50.69%	0.92%	0.0000	0.0003
2019	11	Nov-19	-	-	36.35%	63.02%	0.63%	0.0002	-
2019	12	Dec-19	0.0003	-	43.32%	56.68%	0.00%	0.0004	-
2020	1	Jan-20	0.0004	-	49.62%	49.46%	0.92%	0.0004	-
2020	2	Feb-20	0.0003	-	40.56%	59.44%	0.00%	0.0003	-
2020	3	Mar-20	0.0003	-	45.93%	54.07%	0.00%	0.0001	-
2020	4	Apr-20	-	-	46.67%	52.86%	0.48%	-	0.0000
2020	5	May-20	-	-	39.63%	60.37%	0.00%	-	0.0005
2020	6	Jun-20	-	0.0008	44.13%	55.87%	0.00%	-	0.0009
2020	7	Jul-20	-	0.0009	49.31%	50.54%	0.15%	-	0.0009
2020	8	Aug-20	-	0.0010	44.55%	55.30%	0.15%	-	0.0009
2020	9	Sep-20	-	0.0009	44.44%	55.56%	0.00%	-	0.0007
2020	10	Oct-20	-	0.0006	46.39%	52.23%	1.38%	0.0000	0.0003
2020	11	Nov-20	-	-	34.76%	65.08%	0.16%	0.0002	-
2020	12	Dec-20	0.0003	-	41.17%	58.37%	0.46%	0.0004	-
2021	1	Jan-21	0.0004	-	43.32%	54.84%	1.84%	0.0004	-
2021	2	Feb-21	0.0003	-	35.88%	64.12%	0.00%		
2021	3	Mar-21	0.0003	-	47.16%	52.84%	0.00%		

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Residential Space Heat Coefficients (Modeled with MWH)

		Model Coefficients		Monthly Weights Model to Calendar			Calendar Month	
Year	Month	HDD	CDD	Current	1st Future	2nd Future	HDD	CDD
2019	10	-	0.00072	48.39%	50.69%	0.92%	0.00023	0.00035
2019	11	0.00044	-	36.35%	63.02%	0.63%	0.00079	-
2019	12	0.00098	-	43.32%	56.68%	0.00%	0.00122	-
2020	1	0.00141	-	49.62%	49.46%	0.92%	0.00140	-
2020	2	0.00139	-	40.56%	59.44%	0.00%	0.00125	-
2020	3	0.00115	-	45.93%	54.07%	0.00%	0.00082	-
2020	4	0.00053	-	46.67%	52.86%	0.48%	0.00025	0.00000
2020	5	-	-	39.63%	60.37%	0.00%	-	0.00055
2020	6	-	0.00091	44.13%	55.87%	0.00%	-	0.00104
2020	7	-	0.00114	49.31%	50.54%	0.15%	-	0.00121
2020	8	-	0.00128	44.55%	55.30%	0.15%	-	0.00116
2020	9	-	0.00107	44.44%	55.56%	0.00%	-	0.00087
2020	10	-	0.00072	46.39%	52.23%	1.38%	0.00024	0.00033
2020	11	0.00044	-	34.76%	65.08%	0.16%	0.00079	-
2020	12	0.00098	-	41.17%	58.37%	0.46%	0.00123	-
2021	1	0.00141	-	43.32%	54.84%	1.84%	0.00139	-
2021	2	0.00139	-	35.88%	64.12%	0.00%		
2021	3	0.00115	-	47.16%	52.84%	0.00%		

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Small General Service Coefficients (Modeled with MWH)

		Model Coefficients		Monthly Weights Model to Calendar			Calendar Month	
Year	Month	HDD	CDD	Current	1st Future	2nd Future	HDD	CDD
2019	10	-	0.00047	48.39%	50.69%	0.92%	0.00000	0.00023
2019	11	-	-	36.35%	63.02%	0.63%	0.00010	-
2019	12	0.00015	-	43.32%	56.68%	0.00%	0.00023	-
2020	1	0.00028	-	49.62%	49.46%	0.92%	0.00027	-
2020	2	0.00026	-	40.56%	59.44%	0.00%	0.00026	-
2020	3	0.00026	-	45.93%	54.07%	0.00%	0.00012	-
2020	4	-	-	46.67%	52.86%	0.48%	-	0.00000
2020	5	-	-	39.63%	60.37%	0.00%	-	0.00036
2020	6	-	0.00060	44.13%	55.87%	0.00%	-	0.00067
2020	7	-	0.00073	49.31%	50.54%	0.15%	-	0.00072
2020	8	-	0.00072	44.55%	55.30%	0.15%	-	0.00070
2020	9	-	0.00069	44.44%	55.56%	0.00%	-	0.00057
2020	10	-	0.00047	46.39%	52.23%	1.38%	0.00000	0.00022
2020	11	-	-	34.76%	65.08%	0.16%	0.00010	-
2020	12	0.00015	-	41.17%	58.37%	0.46%	0.00023	-
2021	1	0.00028	-	43.32%	54.84%	1.84%	0.00027	-
2021	2	0.00026	-	35.88%	64.12%	0.00%		
2021	3	0.00026	-	47.16%	52.84%	0.00%		

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Secondary General Service Coefficients (Modeled with MWH)

		Model Coefficients		Monthly Weights Model to Calendar			Calendar Month			
Year	Month	HDD	CDD	Current	1st Future	2nd Future	HDD	CDD	Actual Cust	CDD per Cst
2019	10	-	25.188	48.39%	50.69%	0.92%	-	12.1878	3,905	0.0031
2019	11	-	-	36.35%	63.02%	0.63%	-	-	3,929	-
2019	12	-	-	43.32%	56.68%	0.00%	-	-	3,943	-
2020	1	-	-	49.62%	49.46%	0.92%	-	-	3,969	-
2020	2	-	-	40.56%	59.44%	0.00%	-	-	3,979	-
2020	3	-	-	45.93%	54.07%	0.00%	-	-	4,003	-
2020	4	-	-	46.67%	52.86%	0.48%	-	0.1199	4,002	0.0000
2020	5	-	-	39.63%	60.37%	0.00%	-	15.2057	4,014	0.0038
2020	6	-	25.188	44.13%	55.87%	0.00%	-	28.0285	4,033	0.0069
2020	7	-	30.272	49.31%	50.54%	0.15%	-	29.8792	4,043	0.0074
2020	8	-	29.496	44.55%	55.30%	0.15%	-	29.8111	4,067	0.0073
2020	9	-	30.078	44.44%	55.56%	0.00%	-	27.3615	4,079	0.0067
2020	10	-	25.188	46.39%	52.23%	1.38%	-	11.6848	3,905	0.0030
2020	11	-	-	34.76%	65.08%	0.16%	-	-	3,929	-
2020	12	-	-	41.17%	58.37%	0.46%	-	-	3,943	-
2021	1	-	-	43.32%	54.84%	1.84%	-	-	3,969	-
2021	2	-	-	35.88%	64.12%	0.00%				
2021	3	-	-	47.16%	52.84%	0.00%				

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Muni & School Service Coefficients (Modeled with MWH)

		Model Coefficients			Monthly Weights Model to Calendar			Calendar Month		
Year	Month	HDD	CDD	Precip	Current	1st Future	2nd Future	HDD	CDD	Precip
2019	10	-	0.01314	-	48.39%	50.69%	0.92%	-	0.00636	-
2019	11	-	-	-	36.35%	63.02%	0.63%	-	-	-
2019	12	-	-	-	43.32%	56.68%	0.00%	-	-	-
2020	1	-	-	-	49.62%	49.46%	0.92%	-	-	(0.00389)
2020	2	-	-	-	40.56%	59.44%	0.00%	-	-	(0.25117)
2020	3	-	-	(0.42254)	45.93%	54.07%	0.00%	-	-	(0.42254)
2020	4	-	-	(0.42254)	46.67%	52.86%	0.48%	-	0.00002	(0.30958)
2020	5	-	-	(0.21075)	39.63%	60.37%	0.00%	-	0.00196	(0.21075)
2020	6	-	0.00325	(0.21075)	44.13%	55.87%	0.00%	-	0.00274	(0.09300)
2020	7	-	0.00234	-	49.31%	50.54%	0.15%	-	0.00283	-
2020	8	-	0.00330	-	44.55%	55.30%	0.15%	-	0.00387	-
2020	9	-	0.00430	-	44.44%	55.56%	0.00%	-	0.00921	-
2020	10	-	0.01314	-	46.39%	52.23%	1.38%	-	0.00609	-
2020	11	-	-	-	34.76%	65.08%	0.16%	-	-	-
2020	12	-	-	-	41.17%	58.37%	0.46%	-	-	-
2021	1	-	-	-	43.32%	54.84%	1.84%	-	-	(0.00779)
2021	2	-	-	-	35.88%	64.12%	0.00%			
2021	3	-	-	(0.42254)	47.16%	52.84%	0.00%			

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Irrigation Service Coefficients (Modeled with MWH)

		Model Coefficients			Monthly Weights Model to Calendar			Calendar Month		
Year	Month	HDD	CDD	Precip	Current	1st Future	2nd Future	HDD	CDD	Precip
2019	10	-	-	-	48.39%	50.69%	0.92%	-	-	-
2019	11	-	-	-	36.35%	63.02%	0.63%	-	-	-
2019	12	-	-	-	43.32%	56.68%	0.00%	-	-	-
2020	1	-	-	-	49.62%	49.46%	0.92%	-	-	(0.0210)
2020	2	-	-	-	40.56%	59.44%	0.00%	-	-	(1.3542)
2020	3	-	-	(2.2782)	45.93%	54.07%	0.00%	-	-	(1.7147)
2020	4	-	-	(1.2360)	46.67%	52.86%	0.48%	-	-	(0.8695)
2020	5	-	-	(0.5488)	39.63%	60.37%	0.00%	-	-	(0.5510)
2020	6	-	-	(0.5524)	44.13%	55.87%	0.00%	-	-	(0.5479)
2020	7	-	-	(0.5443)	49.31%	50.54%	0.15%	-	-	(0.4718)
2020	8	-	-	(0.3993)	44.55%	55.30%	0.15%	-	-	(0.7583)
2020	9	-	-	(1.0496)	44.44%	55.56%	0.00%	-	-	(0.4665)
2020	10	-	-	-	46.39%	52.23%	1.38%	-	-	-
2020	11	-	-	-	34.76%	65.08%	0.16%	-	-	-
2020	12	-	-	-	41.17%	58.37%	0.46%	-	-	-
2021	1	-	-	-	43.32%	54.84%	1.84%	-	-	(0.0420)
2021	2	-	-	-	35.88%	64.12%	0.00%			
2021	3	-	-	(2.2782)	47.16%	52.84%	0.00%			

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

SPS Wholesale Weather Impacted Sales

Sales (In MWh) Calendar Month							Sales (In MWh) WN Calendar Month				
		Central Valley	Farmers	Lea County	Roosevelt	Total	Central Valley	Farmers	Lea County	Roosevelt	Total
Oct-19	Actual	67,865	20,168	95,843	11,272	195,148	67,865	20,204	95,843	11,272	195,184
Nov-19	Actual	66,564	21,743	61,955	11,598	161,860	66,564	21,743	61,955	11,598	161,860
Dec-19	Actual	68,333	22,062	70,686	12,007	173,088	68,333	22,062	70,686	12,007	173,088
Jan-20	Actual	69,444	23,115	69,032	12,317	173,908	69,444	23,115	69,032	12,317	173,908
Feb-20	Actual	63,586	22,922	89,495	11,859	187,862	63,586	22,922	89,495	11,859	187,862
Mar-20	Actual	65,976	24,866	91,053	14,025	195,920	65,976	24,866	91,053	14,025	195,920
Apr-20	Actual	63,987	26,158	86,799	13,808	190,752	63,987	26,158	86,799	13,808	190,752
May-20	Actual	56,068	29,030	88,653	14,036	187,787	53,975	26,031	81,096	12,355	173,457
Jun-20	Actual	65,442	31,700	100,926	16,009	214,078	64,949	31,125	99,666	15,502	211,242
Jul-20	Actual	72,604	38,889	117,951	17,664	247,108	69,015	34,135	108,566	15,047	226,764
Aug-20	Actual	71,403	37,811	113,397	17,330	239,941	68,994	34,649	105,666	15,503	224,812
Sep-20	Actual	61,169	30,417	95,345	14,198	201,130	61,172	30,426	95,361	14,203	201,162
Oct-20	Estimate	67,865	20,168	95,843	11,272	195,148	67,865	20,204	95,843	11,272	195,184
Nov-20	Estimate	66,564	21,743	61,955	11,598	161,860	66,564	21,743	61,955	11,598	161,860
Dec-20	Estimate	68,333	22,062	70,686	12,007	173,088	68,333	22,062	70,686	12,007	173,088
Test Year Total	Actual Estimate	**792,441**	**328,881**	**1,081,135**	**166,124**	**2,368,581**	**783,861**	**317,437**	**1,055,217**	**159,496**	**2,316,011**
Updated Test Year Total		**792,441**	**328,881**	**1,081,135**	**166,124**	**2,368,581**	**783,861**	**317,437**	**1,055,217**	**159,496**	**2,316,011**

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

SPS Wholesale Weather Impacted Sales

Sales (In MWh) Calendar Month		Weather Impacted Sales 10-Year Normal				
		Central Valley	Farmers	Lea County	Roosevelt	Total
Oct-19	Actual	0	(36)	0	0	(36)
Nov-19	Actual	0	0	0	0	0
Dec-19	Actual	0	0	0	0	0
Jan-20	Actual	0	0	0	0	0
Feb-20	Actual	0	0	0	0	0
Mar-20	Actual	0	0	0	0	0
Apr-20	Actual	0	0	0	0	0
May-20	Actual	2,093	2,998	7,557	1,682	14,330
Jun-20	Actual	492	576	1,261	507	2,836
Jul-20	Actual	3,589	4,754	9,384	2,617	20,343
Aug-20	Actual	2,409	3,161	7,731	1,827	15,129
Sep-20	Actual	(3)	(9)	(16)	(4)	(32)
Oct-20	Estimate	0	(36)	0	0	(36)
Nov-20	Estimate	0	0	0	0	0
Dec-20	Estimate	0	0	0	0	0
Test Year Total	Actual	**8,580**	**11,444**	**25,918**	**6,628**	**52,570**
	Estimate					2.3%
Updated Test Year Total		**8,580**	**11,444**	**25,918**	**6,628**	**52,570**
						2.3%

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Wholesale Weather Impacted Sales Calculation
Using Roswell Weather (Normal Period 2009-2018)

New Mexico Wholesale Weather Adjustment Summary	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Heating Degree Days 10-yr Normal	121	435	748	744	533	299	120	30	0
Heating Degree Days Actual	206	459	604	604	559	240	111	2	0
Variance from Normal	85	24	(144)	(140)	26	(59)	(9)	(28)	0
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Cooling Degree Days 10-yr Normal	59	1	0	0	0	9	57	209	500
Cooling Degree Days Actual	57	0	0	0	0	9	76	328	530
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Precipitation 10-yr Normal	1.39	0.23	0.56	0.32	0.38	0.20	0.46	1.22	1.29
Precipitation Actual	4.83	1.38	0.11	0.44	0.57	2.07	0.23	0.20	0.39
Variance from Normal	3.44	1.15	(0.45)	0.12	0.19	1.88	(0.23)	(1.02)	(0.90)
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Central Valley **(1)**	0	0	0	0	0	0	0	2,093	492
Farmers **(2)**	(36)	0	0	0	0	0	0	2,998	576
Lea County **(3)**	0	0	0	0	0	0	0	7,557	1,261
Roosevelt **(4)**	0	0	0	0	0	0	0	1,682	507
New Mexico Wholesale Weather Adjustment Total	(36)	0	0	0	0	0	0	14,330	2,836

Central Valley	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)									
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.512	16.249
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	2,093	492
Central Valley Weather Adjustment (1)	0	0	0	0	0	0	0	2,093	492

Farmers	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)									
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30
Cooling Degree Days Weather Coefficients	22.718	0.000	0.000	0.000	0.000	0.000	0.000	25.091	18.998
Cooling Degree Days Weather Adjustment (MWh)	(36)	0	0	0	0	0	0	2,998	576
Farmers Weather Adjustment (2)	(36)	0	0	0	0	0	0	2,998	576

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Lea County	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)									
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	63.241	41.607
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	7,557	1,261
Lea County Weather Adjustment (3)	0	0	0	0	0	0	0	7,557	1,261

Roosevelt	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)									
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.046	9.689
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	1,439	294
Precipitation Weather Adjustment (10-yr Normal)									
	Apr2016	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Variance from Normal	3.44	1.15	-0.45	0.12	0.19	1.88	-0.23	-1.02	-0.90
Precipitation Weather Coefficients	0	0	0	0	0	0	0	-237	-237
Precipitation Weather Adjustment (MWh)	0	0	0	0	0	0	0	242	214
Roosevelt Weather Adjustment (4)	0	0	0	0	0	0	0	1,682	507

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Actual	Actual	Actual	Estimate	Estimate	Estimate	Test Year	Updated Test Year
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
0	0	6	121	435	748	3,035	3,035
0	0	41	206	459	604	2,826	2,826
0	0	35	85	24	(144)	(209)	(209)
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
545	509	269	59	1	0	2,156	2,156
707	624	268	57	0	0	2,599	2,599
162	115	(0)	(2)	(1)	0	444	444
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
1.71	1.60	1.84	1.39	0.23	0.56	11.20	11.20
0.81	0.57	0.09	4.83	1.38	0.11	11.69	11.69
(0.90)	(1.03)	(1.75)	3.44	1.15	(0.45)	0.50	0.50
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
3,589	2,409	(3)	0	0	0	8,580	8,580
4,754	3,161	(9)	(36)	0	0	11,444	11,444
9,384	7,731	(16)	0	0	0	25,918	25,918
2,617	1,827	(4)	0	0	0	6,628	6,628
20,343	15,129	(32)	(36)	0	0	52,570	52,570

Actual	Actual	Actual	Estimate	Estimate	Estimate
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
162	115	(0)	(2)	(1)	0
22.124	20.950	6.373	0.000	0.000	0.000
3,589	2,409	(3)	0	0	0
3,589	2,409	(3)	0	0	0

Actual	Actual	Actual	Estimate	Estimate	Estimate
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
162	115	(0)	(2)	(1)	0
29.309	27.490	17.078	22.718	0.000	0.000
4,754	3,161	(9)	(36)	0	0
4,754	3,161	(9)	(36)	0	0

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Actual	Actual	Actual	Estimate	Estimate	Estimate
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
162	115	(0)	(2)	(1)	0
57.857	67.230	31.593	0.000	0.000	0.000
9,384	7,731	(16)	0	0	0
9,384	7,731	(16)	0	0	0

Actual	Actual	Actual	Estimate	Estimate	Estimate
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
162	115	(0)	(2)	(1)	0
14.814	13.768	8.832	0.000	0.000	0.000
2,403	1,583	-4	0	0	0
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
-0.90	-1.03	-1.75	3.44	1.15	-0.45
-237	-237	0	0	0	0
214	244	0	0	0	0
2,617	1,827	(4)	0	0	0

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Central Valley Coefficients (Modeled with MWH)

Date	Year	Month	Model Coefficients HDD	CDD	Precip
Oct-2019	2019	Oct	0.0000	0.0000	0.0000
Nov-2019	2019	Nov	0.0000	0.0000	0.0000
Dec-2019	2019	Dec	0.0000	0.0000	0.0000
Jan-2020	2020	Jan	0.0000	0.0000	0.0000
Feb-2020	2020	Feb	0.0000	0.0000	0.0000
Mar-2020	2020	Mar	0.0000	0.0000	0.0000
Apr-2020	2020	Apr	0.0000	0.0000	0.0000
May-2020	2020	May	0.0000	17.5116	0.0000
Jun-2020	2020	Jun	0.0000	16.2488	0.0000
Jul-2020	2020	Jul	0.0000	22.1242	0.0000
Aug-2020	2020	Aug	0.0000	20.9498	0.0000
Sep-2020	2020	Sep	0.0000	6.3734	0.0000
Oct-2020	2020	Oct	0.0000	0.0000	0.0000
Nov-2020	2020	Nov	0.0000	0.0000	0.0000
Dec-2020	2020	Dec	0.0000	0.0000	0.0000
Jan-2021	2021	Jan	0.0000	0.0000	0.0000
Feb-2021	2021	Feb	0.0000	0.0000	0.0000
Mar-2021	2021	Mar	0.0000	0.0000	0.0000

Farmers Coefficients (Modeled with MWH)

Year	Month	Model Coefficients HDD	CDD	Precip
2019	Oct	0.0000	22.7185	0.0000
2019	Nov	0.0000	0.0000	0.0000
2019	Dec	0.0000	0.0000	0.0000
2020	Jan	0.0000	0.0000	0.0000
2020	Feb	0.0000	0.0000	0.0000
2020	Mar	0.0000	0.0000	0.0000
2020	Apr	0.0000	0.0000	0.0000
2020	May	0.0000	25.0908	0.0000
2020	Jun	0.0000	18.9980	0.0000
2020	Jul	0.0000	29.3091	0.0000
2020	Aug	0.0000	27.4904	0.0000
2020	Sep	0.0000	17.0778	0.0000
2020	Oct	0.0000	22.7185	0.0000
2020	Nov	0.0000	0.0000	0.0000
2020	Dec	0.0000	0.0000	0.0000
2021	Jan	0.0000	0.0000	0.0000
2021	Feb	0.0000	0.0000	0.0000
2021	Mar	0.0000	0.0000	0.0000

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Lea County Coefficients (Modeled with MWH)

		Model Coefficients		
Year	Month	HDD	CDD	Precip
2019	Oct	0.0000	0.0000	0.0000
2019	Nov	0.0000	0.0000	0.0000
2019	Dec	0.0000	0.0000	0.0000
2020	Jan	0.0000	0.0000	0.0000
2020	Feb	0.0000	0.0000	0.0000
2020	Mar	0.0000	0.0000	0.0000
2020	Apr	0.0000	0.0000	0.0000
2020	May	0.0000	63.2413	0.0000
2020	Jun	0.0000	41.6071	0.0000
2020	Jul	0.0000	57.8572	0.0000
2020	Aug	0.0000	67.2298	0.0000
2020	Sep	0.0000	31.5926	0.0000
2020	Oct	0.0000	0.0000	0.0000
2020	Nov	0.0000	0.0000	0.0000
2020	Dec	0.0000	0.0000	0.0000
2021	Jan	0.0000	0.0000	0.0000
2021	Feb	0.0000	0.0000	0.0000
2021	Mar	0.0000	0.0000	0.0000

Roosevelt Coefficients (Modeled with MWH)

		Model Coefficients		
Year	Month	HDD	CDD	Precip
2019	Oct	0.0000	0.0000	0.0000
2019	Nov	0.0000	0.0000	0.0000
2019	Dec	0.0000	0.0000	0.0000
2020	Jan	0.0000	0.0000	0.0000
2020	Feb	0.0000	0.0000	0.0000
2020	Mar	0.0000	0.0000	0.0000
2020	Apr	0.0000	0.0000	0.0000
2020	May	0.0000	12.0458	-237.2387
2020	Jun	0.0000	9.6889	-237.2387
2020	Jul	0.0000	14.8140	-237.2387
2020	Aug	0.0000	13.7681	-237.2387
2020	Sep	0.0000	8.8316	0.0000
2020	Oct	0.0000	0.0000	0.0000
2020	Nov	0.0000	0.0000	0.0000
2020	Dec	0.0000	0.0000	0.0000
2021	Jan	0.0000	0.0000	0.0000
2021	Feb	0.0000	0.0000	0.0000
2021	Mar	0.0000	0.0000	0.0000

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

SPS Wholesale Weather Impacted Sales

Sales (In MWh) Calendar Month							Sales (In MWh) WN Calendar Month				
		Central Valley	Farmers	Lea County	Roosevelt	Total	Central Valley	Farmers	Lea County	Roosevelt	Total
Oct-19	Actual	46,260	10,085	66,317	6,595	129,256	46,260	10,103	66,317	6,595	129,275
Nov-19	Actual	45,474	11,353	32,180	6,791	95,798	45,474	11,353	32,180	6,791	95,798
Dec-19	Actual	46,588	11,585	40,299	7,291	105,764	46,588	11,585	40,299	7,291	105,764
Jan-20	Actual	47,839	13,033	39,125	6,896	106,893	47,839	13,033	39,125	6,896	106,893
Feb-20	Actual	43,065	12,816	61,199	7,817	124,898	43,065	12,816	61,199	7,817	124,898
Mar-20	Actual	43,377	14,116	59,143	8,650	125,287	43,377	14,116	59,143	8,650	125,287
Apr-20	Actual	40,275	15,348	54,028	8,232	117,883	40,275	15,348	54,028	8,232	117,883
May-20	Actual	31,373	17,608	54,697	8,275	111,952	30,202	15,789	50,034	7,284	103,309
Jun-20	Actual	39,330	19,341	64,206	9,567	132,443	39,034	18,990	63,404	9,264	130,691
Jul-20	Actual	43,247	24,664	77,800	11,004	156,715	41,110	21,649	71,610	9,374	143,742
Aug-20	Actual	43,526	24,429	74,462	10,755	153,173	42,057	22,387	69,385	9,621	143,451
Sep-20	Actual	38,495	20,288	64,262	8,623	131,668	38,497	20,294	64,273	8,625	131,689
Oct-20	Estimate	46,260	10,085	66,317	6,595	129,256	46,260	10,103	66,317	6,595	129,275
Nov-20	Estimate	45,474	11,353	32,180	6,791	95,798	45,474	11,353	32,180	6,791	95,798
Dec-20	Estimate	46,588	11,585	40,299	7,291	105,764	46,588	11,585	40,299	7,291	105,764
Test Year Total	Actual	**508,851**	**194,667**	**687,716**	**100,496**	**1,491,731**	**503,780**	**187,463**	**670,996**	**96,441**	**1,458,679**
	Estimate										
Updated Test Year Total		**508,851**	**194,667**	**687,716**	**100,496**	**1,491,731**	**503,780**	**187,463**	**670,996**	**96,441**	**1,458,679**

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

SPS Wholesale Weather Impacted Sales

Sales (In MWh) Calendar Month		Weather Impacted Sales 10-Year Normal				
		Central Valley	Farmers	Lea County	Roosevelt	Total
Oct-19	Actual	0	(18)	0	0	(18)
Nov-19	Actual	0	0	0	0	0
Dec-19	Actual	0	0	0	0	0
Jan-20	Actual	0	0	0	0	0
Feb-20	Actual	0	0	0	0	0
Mar-20	Actual	0	0	0	0	0
Apr-20	Actual	0	0	0	0	0
May-20	Actual	1,171	1,819	4,663	992	8,644
Jun-20	Actual	296	351	802	303	1,752
Jul-20	Actual	2,138	3,015	6,190	1,630	12,973
Aug-20	Actual	1,469	2,043	5,077	1,134	9,722
Sep-20	Actual	(2)	(6)	(11)	(3)	(21)
Oct-20	Estimate	0	(18)	0	0	(18)
Nov-20	Estimate	0	0	0	0	0
Dec-20	Estimate	0	0	0	0	0
Test Year Total	Actual	**5,071**	**7,204**	**16,721**	**4,056**	**33,051**
	Estimate					2.3%
Updated Test Year Total		**5,071**	**7,204**	**16,721**	**4,056**	**33,051**
						2.3%

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

New Mexico Wholesale Weather Impacted Sales Calculation
Using Roswell Weather (Normal Period 2009-2018)

New Mexico Wholesale Weather Adjustment Summary	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Heating Degree Days 10-yr Normal	121	435	748	744	533	299	120	30	0
Heating Degree Days Actual	206	459	604	604	559	240	111	2	0
Variance from Normal	85	24	(144)	(140)	26	(59)	(9)	(28)	0
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Cooling Degree Days 10-yr Normal	59	1	0	0	0	9	57	209	500
Cooling Degree Days Actual	57	0	0	0	0	9	76	328	530
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Precipitation 10-yr Normal	1.39	0.23	0.56	0.32	0.38	0.20	0.46	1.22	1.29
Precipitation Actual	4.83	1.38	0.11	0.44	0.57	2.07	0.23	0.20	0.39
Variance from Normal	3.44	1.15	(0.45)	0.12	0.19	1.88	(0.23)	(1.02)	(0.90)
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Central Valley **(1)**	0	0	0	0	0	0	0	1,171	296
Farmers **(2)**	(18)	0	0	0	0	0	0	1,819	351
Lea County **(3)**	0	0	0	0	0	0	0	4,663	802
Roosevelt **(4)**	0	0	0	0	0	0	0	992	303
New Mexico Wholesale Weather Adjustment Total	(18)	0	0	0	0	0	0	8,644	1,752

Central Valley	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)									
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.799	9.765
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	1,171	296
Central Valley Weather Adjustment (1)	0	0	0	0	0	0	0	1,171	296

Farmers	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)									
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30
Cooling Degree Days Weather Coefficients	11.361	0.000	0.000	0.000	0.000	0.000	0.000	15.219	11.591
Cooling Degree Days Weather Adjustment (MWh)	(18)	0	0	0	0	0	0	1,819	351
Farmers Weather Adjustment (2)	(18)	0	0	0	0	0	0	1,819	351

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Lea County	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)									
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.018	26.469
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	4,663	802
Lea County Weather Adjustment (3)	0	0	0	0	0	0	0	4,663	802

Roosevelt	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Cooling Degree Days Weather Adjustment (10-yr Normal)									
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Variance from Normal	(2)	(1)	0	0	(0)	0	19	120	30
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.102	5.790
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	849	175
Precipitation Weather Adjustment (10-yr Normal)									
	Apr2016	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Variance from Normal	3.44	1.15	-0.45	0.12	0.19	1.88	-0.23	-1.02	-0.90
Precipitation Weather Coefficients	0	0	0	0	0	0	0	-140	-142
Precipitation Weather Adjustment (MWh)	0	0	0	0	0	0	0	143	128
Roosevelt Weather Adjustment (4)	0	0	0	0	0	0	0	992	303

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Actual	Actual	Actual	Estimate	Estimate	Estimate	Test Year	Updated Test Year
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
0	0	6	121	435	748	3,035	3,035
0	0	41	206	459	604	2,826	2,826
0	0	35	85	24	(144)	(209)	(209)
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
545	509	269	59	1	0	2,156	2,156
707	624	268	57	0	0	2,599	2,599
162	115	(0)	(2)	(1)	0	444	444
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
1.71	1.60	1.84	1.39	0.23	0.56	11.20	11.20
0.81	0.57	0.09	4.83	1.38	0.11	11.69	11.69
(0.90)	(1.03)	(1.75)	3.44	1.15	(0.45)	0.50	0.50
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total	Total
2,138	1,469	(2)	0	0	0	5,071	5,071
3,015	2,043	(6)	(18)	0	0	7,204	7,204
6,190	5,077	(11)	0	0	0	16,721	16,721
1,630	1,134	(3)	0	0	0	4,056	4,056
12,973	9,722	(21)	(18)	0	0	33,051	33,051

Actual	Actual	Actual	Estimate	Estimate	Estimate
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
162	115	(0)	(2)	(1)	0
13.179	12.771	4.011	0.000	0.000	0.000
2,138	1,469	(2)	0	0	0
2,138	1,469	(2)	0	0	0

Actual	Actual	Actual	Estimate	Estimate	Estimate
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
162	115	(0)	(2)	(1)	0
18.588	17.762	11.391	11.361	0.000	0.000
3,015	2,043	(6)	(18)	0	0
3,015	2,043	(6)	(18)	0	0

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Actual	Actual	Actual	Estimate	Estimate	Estimate
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
162	115	(0)	(2)	(1)	0
38.162	44.146	21.293	0.000	0.000	0.000
6,190	5,077	(11)	0	0	0
6,190	5,077	(11)	0	0	0

Actual	Actual	Actual	Estimate	Estimate	Estimate
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
162	115	(0)	(2)	(1)	0
9.229	8.545	5.364	0.000	0.000	0.000
1,497	983	-3	0	0	0
Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
-0.90	-1.03	-1.75	3.44	1.15	-0.45
-148	-147	0	0.0	0.0	0.0
133	151	0	0	0	0
1,630	1,134	(3)	0	0	0

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Central Valley Coefficients (Modeled with MWH)

Date	Year	Month	Model Coefficients HDD	CDD	Precip
Oct-2019	2019	Oct	0.0000	0.0000	0.0000
Nov-2019	2019	Nov	0.0000	0.0000	0.0000
Dec-2019	2019	Dec	0.0000	0.0000	0.0000
Jan-2020	2020	Jan	0.0000	0.0000	0.0000
Feb-2020	2020	Feb	0.0000	0.0000	0.0000
Mar-2020	2020	Mar	0.0000	0.0000	0.0000
Apr-2020	2020	Apr	0.0000	0.0000	0.0000
May-2020	2020	May	0.0000	9.7987	0.0000
Jun-2020	2020	Jun	0.0000	9.7654	0.0000
Jul-2020	2020	Jul	0.0000	13.1785	0.0000
Aug-2020	2020	Aug	0.0000	12.7705	0.0000
Sep-2020	2020	Sep	0.0000	4.0109	0.0000
Oct-2020	2020	Oct	0.0000	0.0000	0.0000
Nov-2020	2020	Nov	0.0000	0.0000	0.0000
Dec-2020	2020	Dec	0.0000	0.0000	0.0000
Jan-2021	2021	Jan	0.0000	0.0000	0.0000
Feb-2021	2021	Feb	0.0000	0.0000	0.0000
Mar-2021	2021	Mar	0.0000	0.0000	0.0000

Farmers Coefficients (Modeled with MWH)

Year	Month	Model Coefficients HDD	CDD	Precip
2019	Oct	0.0000	11.3608	0.0000
2019	Nov	0.0000	0.0000	0.0000
2019	Dec	0.0000	0.0000	0.0000
2020	Jan	0.0000	0.0000	0.0000
2020	Feb	0.0000	0.0000	0.0000
2020	Mar	0.0000	0.0000	0.0000
2020	Apr	0.0000	0.0000	0.0000
2020	May	0.0000	15.2185	0.0000
2020	Jun	0.0000	11.5913	0.0000
2020	Jul	0.0000	18.5881	0.0000
2020	Aug	0.0000	17.7615	0.0000
2020	Sep	0.0000	11.3910	0.0000
2020	Oct	0.0000	11.3608	0.0000
2020	Nov	0.0000	0.0000	0.0000
2020	Dec	0.0000	0.0000	0.0000
2021	Jan	0.0000	0.0000	0.0000
2021	Feb	0.0000	0.0000	0.0000
2021	Mar	0.0000	0.0000	0.0000

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Lea County Coefficients (Modeled with MWH)

		Model Coefficients		
Year	Month	HDD	CDD	Precip
2019	Oct	0.0000	0.0000	0.0000
2019	Nov	0.0000	0.0000	0.0000
2019	Dec	0.0000	0.0000	0.0000
2020	Jan	0.0000	0.0000	0.0000
2020	Feb	0.0000	0.0000	0.0000
2020	Mar	0.0000	0.0000	0.0000
2020	Apr	0.0000	0.0000	0.0000
2020	May	0.0000	39.0183	0.0000
2020	Jun	0.0000	26.4688	0.0000
2020	Jul	0.0000	38.1622	0.0000
2020	Aug	0.0000	44.1461	0.0000
2020	Sep	0.0000	21.2931	0.0000
2020	Oct	0.0000	0.0000	0.0000
2020	Nov	0.0000	0.0000	0.0000
2020	Dec	0.0000	0.0000	0.0000
2021	Jan	0.0000	0.0000	0.0000
2021	Feb	0.0000	0.0000	0.0000
2021	Mar	0.0000	0.0000	0.0000

Roosevelt Coefficients (Modeled with MWH)

		Model Coefficients		
Year	Month	HDD	CDD	Precip
2019	Oct	0.0000	0.0000	0.0000
2019	Nov	0.0000	0.0000	0.0000
2019	Dec	0.0000	0.0000	0.0000
2020	Jan	0.0000	0.0000	0.0000
2020	Feb	0.0000	0.0000	0.0000
2020	Mar	0.0000	0.0000	0.0000
2020	Apr	0.0000	0.0000	0.0000
2020	May	0.0000	7.1015	-139.8626
2020	Jun	0.0000	5.7897	-141.7653
2020	Jul	0.0000	9.2288	-147.7957
2020	Aug	0.0000	8.5448	-147.2369
2020	Sep	0.0000	5.3635	0.0000
2020	Oct	0.0000	0.0000	0.0000
2020	Nov	0.0000	0.0000	0.0000
2020	Dec	0.0000	0.0000	0.0000
2021	Jan	0.0000	0.0000	0.0000
2021	Feb	0.0000	0.0000	0.0000
2021	Mar	0.0000	0.0000	0.0000

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

		Production				Transmission (Production + Load Reduction)			
Year	Month	Central Valley	Farmers	Lea County	Roosevelt	Central Valle	Farmers	Lea Count	Roosevelt
2019	Oct	46,260	10,085	66,317	6,595	67,865	20,168	95,843	11,272
2019	Nov	45,474	11,353	32,180	6,791	66,564	21,743	61,955	11,598
2019	Dec	46,588	11,585	40,299	7,291	68,333	22,062	70,686	12,007
2020	Jan	47,839	13,033	39,125	6,896	69,444	23,115	69,032	12,317
2020	Feb	43,065	12,816	61,199	7,817	63,586	22,922	89,495	11,859
2020	Mar	43,377	14,116	59,143	8,650	65,976	24,866	91,053	14,025
2020	Apr	40,275	15,348	54,028	8,232	63,987	26,158	86,799	13,808
2020	May	31,373	17,608	54,697	8,275	56,068	29,030	88,653	14,036
2020	Jun	39,330	19,341	64,206	9,567	65,442	31,700	100,926	16,009
2020	Jul	43,247	24,664	77,800	11,004	72,604	38,889	117,951	17,664
2020	Aug	43,526	24,429	74,462	10,755	71,403	37,811	113,397	17,330
2020	Sep	38,495	20,288	64,262	8,623	61,169	30,417	95,345	14,198

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year
Sales Wholesale and New Mexico

	Ratio (Production/Transmission)				Reductions in kWh, at meter			
	Central Valley	Farmers	Lea Count	Roosevelt	Central Valley	Farmers	Lea County	Roosevelt
Oct	68%	50%	69%	59%	(21,605,046)	(10,082,355)	(29,526,896)	(4,677,221)
Nov	68%	52%	52%	59%	(21,090,087)	(10,390,169)	(29,774,696)	(4,806,929)
Dec	68%	53%	57%	61%	(21,744,433)	(10,477,286)	(30,386,452)	(4,715,940)
Jan	69%	56%	57%	56%	(21,605,046)	(10,082,355)	(29,906,339)	(5,420,621)
Feb	68%	56%	68%	66%	(20,520,922)	(10,105,586)	(28,295,641)	(4,042,234)
Mar	66%	57%	65%	62%	(22,598,181)	(10,750,253)	(31,910,033)	(5,375,126)
Apr	63%	59%	62%	60%	(23,711,344)	(10,810,267)	(32,771,525)	(5,575,496)
May	56%	61%	62%	59%	(24,694,800)	(11,422,022)	(33,956,318)	(5,761,346)
Jun	60%	61%	64%	60%	(26,111,905)	(12,359,015)	(36,720,834)	(6,442,795)
Jul	60%	63%	66%	62%	(29,356,534)	(14,225,258)	(40,151,313)	(6,659,620)
Aug	61%	65%	66%	62%	(27,877,478)	(13,381,190)	(38,935,545)	(6,574,439)
Sep	63%	67%	67%	61%	(22,673,682)	(10,128,817)	(31,083,389)	(5,575,496)

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Peak Demand

Test Year and Updated Test Year Peak Day Weather Variance from the 10-yr Average by Concept - Retail

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20	Filing Summer 4-mth Avg	Update Summer 4-mth Avg
Norm Avg Peak Day Temperature	71.1	37.2	25.9	25.4	28.1	44.2	70.0	75.5	85.3	86.4	84.6	79.7	71.1	37.2	25.9	84.0	84.0
Act Avg Peak Day Temperature	34.9	29.5	35.1	33.6	31.6	40.9	69.4	77.2	85.6	92.5	86.4	79.6	34.9	29.5	35.1	86.0	86.0
Variance	-36.2	-7.8	9.2	8.3	3.5	-3.2	-0.6	1.7	0.4	6.2	1.8	-0.1	-36.2	-7.8	9.2	2.1	2.1
% Variance	-50.9%	-20.9%	35.6%	32.6%	12.5%	-7.3%	-0.8%	2.3%	0.4%	7.2%	2.1%	-0.1%	-50.9%	-20.9%	35.6%	2.5%	2.5%
Norm Peak Day Heating Degree Days	0.3	28.1	39.1	39.6	36.9	21.7	1.7	0.0	0.0	0.0	0.0	0.0	0.3	28.1	39.1	0.0	0.0
Act Peak Day Heating Degree Days	30.1	35.5	29.9	31.4	33.4	24.1	0.0	0.0	0.0	0.0	0.0	0.0	30.1	35.5	29.9	0.0	0.0
Variance	29.8	7.5	-9.2	-8.3	-3.5	2.3	-1.7	0.0	0.0	0.0	0.0	0.0	29.8	7.5	-9.2	0.0	0.0
% Variance	10196.8%	26.6%	-23.6%	-20.9%	-9.5%	10.7%	-100.0%						10196.8%	26.6%	-23.6%		
Norm Precipitation for the week prior to the Peak Day	0.26	0.08	0.22	0.13	0.12	0.17	0.15	0.33	0.12	0.18	0.72	0.11	0.26	0.08	0.22	0.3	0.3
Act Precipitation for the week prior to the Peak Day	0.31	0.22	0.00	0.02	0.12	1.34	0.00	0.22	0.24	0.19	0.00	0.00	0.31	0.22	0.00	0.1	0.1
Variance	0.05	0.15	-0.22	-0.12	0.00	1.17	-0.15	-0.11	0.11	0.02	-0.71	-0.11	0.05	0.15	-0.22	-0.2	-0.2
% Variance	19.2%	190.5%	-100.0%	-86.8%	3.2%	709.7%	-100.0%	-33.3%	91.4%	8.5%	-99.3%	-100.0%	19.2%	190.5%	-100.0%	-61.6%	-61.6%

Test Year and Updated Test Year Peak Day Weather Variance from the 10-yr Average by Concept - Full Req Wholesale

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20	Filing Summer 4-mth Avg	Update Summer 4-mth Avg
Norm Avg Peak Day Temperature	71.95	40.75	29.4	30.15	34	46.75	70.2	77.75	86	86.1	84.7	79.45	71.95	40.75	29.4	84.1	84.1
Act Avg Peak Day Temperature	37	34	35.5	40.5	37.5	46.5	71.5	81	85.5	92.5	86.5	83	37	34	35.5	86.9	86.9
Variance	-35.0	-6.8	6.1	10.4	3.5	-0.3	1.3	3.3	-0.5	6.4	1.8	3.6	-35.0	-6.8	6.1	2.8	2.8
% Variance	-48.6%	-16.6%	20.7%	34.3%	10.3%	-0.5%	1.9%	4.2%	-0.6%	7.4%	2.1%	4.5%	-48.6%	-16.6%	20.7%	3.3%	3.3%
Norm Peak Day Heating Degree Days	0	24.45	35.6	34.85	31	18.85	1.5	0	0	0	0	0	0.2921	28.076	39.09135	0.0	0.0
Act Peak Day Heating Degree Days	28	31	29.5	24.5	27.5	18.5	0	0	0	0	0	0	30.077	35.542	29.869	0.0	0.0
Variance	28.0	6.6	-6.1	-10.4	-3.5	-0.4	-1.5	0.0	0.0	0.0	0.0	0.0	29.8	7.5	-9.2	0.0	0.0
% Variance		26.8%	-17.1%	-29.7%	-11.3%	-1.9%	-100.0%						10196.8%	26.6%	-23.6%		
Norm Precipitation for the week prior to the Peak Day	0.16	0.08	0.19	0.11	0.05	0.08	0.13	0.09	0.06	0.22	0.28	0.19	0.16	0.08	0.19	0.2	0.2
Act Precipitation for the week prior to the Peak Day	0.00	0.40	0.00	0.04	0.28	1.02	0.00	0.00	0.37	0.00	0.02	0.00	0.00	0.40	0.00	0.1	0.1
Variance	-0.2	0.3	-0.2	-0.1	0.2	0.9	-0.1	-0.1	0.3	-0.2	-0.3	-0.2	-0.2	0.3	-0.2	-0.1	-0.1
% Variance	-100.0%	406.3%	-100.0%	-61.9%	460.0%	1143.9%	-100.0%	-100.0%	527.1%	-100.0%	-92.7%	-100.0%	-100.0%	406.3%	-100.0%	-47.4%	-47.4%

Test Year and Updated Test Year Peak Day Weather Variance from the 10-yr Average by Concept (GSEC)

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20	Filing Summer 4-mth Avg	Update Summer 4-mth Avg
Norm Avg Peak Day Temperature	70.8	36.4	24.8	23.8	26.1	43.3	70.0	74.7	85.0	86.4	84.6	79.8	70.0	74.7	84.3	84.0	84.0
Act Avg Peak Day Temperature	34.3	28.0	35.0	31.4	29.6	39.1	68.8	75.9	85.6	92.5	86.4	79.6	34.3	28.0	35.0	86.1	86.1
Variance	-36.6	-8.4	10.2	7.6	3.5	-4.2	-1.2	1.2	0.6	6.1	1.8	-0.1	-35.8	-46.7	-49.3	2.1	2.1
% Variance	-51.6%	-23.0%	41.3%	31.9%	13.4%	-9.6%	-1.7%	1.6%	0.7%	7.1%	2.2%	-0.2%	-51.1%	-62.5%	-58.5%	2.5%	2.5%
Norm Precipitation for the week prior to the Peak Day	0.29	0.09	0.23	0.14	0.14	0.19	0.15	0.40	0.15	0.16	0.86	0.09	0.15	0.46	0.15	0.3	0.3
Act Precipitation for the week prior to the Peak Day	0.40	0.17	0.00	0.01	0.07	1.44	0.00	0.29	0.20	0.25	0.00	0.00	0.40	0.17	0.00	0.1	0.1
Variance	0.12	0.08	-0.23	-0.13	-0.07	1.25	-0.15	-0.11	0.05	0.09	-0.86	-0.09	0.25	-0.29	-0.15	-0.2	-0.2
% Variance	41.0%	92.8%	-100.0%	-92.8%	-50.5%	650.9%	-100.0%	-28.5%	35.0%	55.8%	-100.0%	-100.0%	161.4%	-64.1%	-100.0%	-64.2%	-64.2%

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Peak Demand

Test Year and Updated Test Year Peak Demand Weather Adjustment Summary by Customer Class

Summary Table of Retail Peak Weather Normal Adjustment

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20	Filing 4-mth Avg *	Update 4-mth Avg *	Filing 12-mth Avg *	Update 12-mth Avg *
WN Peak	3,072	2,887	3,048	2,991	2,957	2,644	2,591	2,878	3,455	3,692	3,638	3,354	3,072	2,941	2,967	3,535	3,535	3,100	3,098
Weather Adj	-136	55	-81	-68	-25	13	20	30	-13	69	63	6	-136	0	0	31	31	-6	-4
Actual Peak	2,936	2,941	2,967	2,923	2,931	2,656	2,611	2,908	3,442	3,761	3,701	3,359	2,936	2,941	2,967	3,566	3,566	3,095	3,095
Percent Chg	4.6%	-1.9%	2.7%	2.3%	0.9%	-0.5%	-0.8%	-1.0%	0.4%	-1.8%	-1.7%	-0.2%	4.6%	0.0%	0.0%	0.9%	0.9%	-0.2%	-0.1%

Summary Table of Full Requirement Wholesale Peak - Transmission Weather Normal Adjustment with Precipitation

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20	Filing 4-mth Avg *	Update 4-mth Avg *	Filing 12-mth Avg *	Update 12-mth Avg *
WN Peak	739	747	690	789	769	647	751	835	994	1,053	993	872	739	747	690	978	978	823	823
Weather Adj	-90	18	-20	-32	-12	-1	9	17	-17	44	22	25	-90	18	-20	19	19	-3	-3
Actual Peak	650	765	671	757	757	646	760	852	978	1,097	1,014	898	650	765	671	997	997	820	820
Percent Chg	13.8%	-2.4%	2.9%	4.2%	1.6%	0.2%	-1.2%	-2.0%	1.7%	-4.0%	-2.1%	-2.8%	13.8%	-2.4%	2.9%	1.9%	1.9%	-0.4%	-0.4%

Summary Table of Full Requirement Wholesale Peak - Production Weather Normal Adjustment with Precipitation

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20	Filing 4-mth Avg *	Update 4-mth Avg *	Filing 12-mth Avg *	Update 12-mth Avg *
WN Peak	302	243	278	270	261	219	220	228	232	252	239	290	302	243	278	253	253	253	253
Weather Adj	-37	6	-8	-11	-4	0	3	5	-4	11	5	8	-37	6	-8	5	5	-2	-2
Actual Peak	266	249	270	259	257	219	223	232	228	262	245	298	266	249	270	258	258	251	251
Percent Chg	13.8%	-2.4%	2.9%	4.2%	1.6%	0.2%	-1.2%	-2.0%	1.7%	-4.0%	-2.1%	-2.8%	13.8%	-2.4%	2.9%	2.0%	2.0%	-0.9%	-0.9%

Summary Table of Golden Spread Full Load Peak Weather Normal Adjustment

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20	Filing 4-mth Avg *	Update 4-mth Avg *	Filing 12-mth Avg *	Update 12-mth Avg *
WN Peak	601	590	573	536	552	598	909	928	1,160	1,343	1,278	1,098	600	590	573	1,220	1,220	847	847
Weather Adj	-26	0	0	0	0	-8	13	18	-2	44	62	4	-25	0	0	27	27	9	9
Actual Peak	575	590	573	536	552	591	922	947	1,158	1,386	1,340	1,102	575	590	573	1,247	1,247	856	856
Percent Chg	4.5%	0.0%	0.0%	0.0%	0.0%	1.3%	-1.4%	-1.9%	0.2%	-3.2%	-4.6%	-0.4%	4.4%	0.0%	0.0%	2.2%	2.2%	1.0%	1.0%

** the four month average is of June 2020, July 2020, August 2020, and September 2020 for the filing*

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Peak Demand

Test Year and Updated Test Year Retail Peak Demand Weather Adjustment Detail
Actual Historical Retail Peak Demand (MW)

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20
Test year	2,936	2,941	2,967	2,923	2,931	2,656	2,611	2,908	3,442	3,761	3,701	3,359	2,936	2,941	2,967
Average Temperature Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Average Temperature Normal	71.1	37.2	25.9	25.4	28.1	44.2	70.0	75.5	85.3	86.4	84.6	79.7	71	37	26
Average Temperature Actual	34.9	29.5	35.1	33.6	31.6	40.9	69.4	77.2	85.6	92.5	86.4	79.6	34.9	29.5	35.1
Variance from Normal	-36.2	-7.8	9.2	8.3	3.5	-3.2	-0.6	1.7	0.4	6.2	1.8	-0.1	-36.2	-7.8	9.2
Average Temperature Weather Coefficients	3.8	-	-	-	-	-	3.4	8.2	10.8	11.3	11.4	8.8	3.8	-	-
Average Temperature Weather Adjustment (MW)	(135.797)	-	-	-	-	-	(2.014)	14.044	3.862	69.706	20.732	(0.872)	(135.797)	-	-
Heating Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Heating Degree Days Normal	0.3	28.1	39.1	39.6	36.9	21.7	1.7	0.0	0.0	0.0	0.0	0.0	0.3	28.1	39.1
Heating Degree Days Actual	30.1	35.5	29.9	31.4	33.4	24.1	0.0	0.0	0.0	0.0	0.0	0.0	30.1	35.5	29.9
Variance from Normal	29.8	7.5	-9.2	-8.3	-3.5	2.3	-1.7	0.0	0.0	0.0	0.0	0.0	29.8	7.5	-9.2
Heating Degree Days Weather Coefficients	0.0000	7.3491	8.7817	8.2713	7.2679	5.4234	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Heating Degree Days Weather Adjustment (MW)	-	55	(81)	(68)	(25)	13	-	-	-	-	-	-	-	-	-
Precipitation 1 week before Peak Day Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Precipitation Normal	0.26	0.08	0.22	0.13	0.12	0.17	0.15	0.33	0.12	0.18	0.72	0.11	0.3	0.1	0.2
Precipitation Actual	0.31	0.22	0.00	0.02	0.12	1.34	0.00	0.22	0.24	0.19	0.00	0.00	0.3	0.2	-
Variance from Normal	0.05	0.15	-0.22	-0.12	0.00	1.17	-0.15	-0.11	0.11	0.02	-0.71	-0.11	0.05	0.15	-0.22
Precipitation Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	-146.387	-146.387	-146.387	-59.290	-59.290	-59.290	0.000	0.000	0.000
Precipitation Weather Adjustment (MW)	-	-	-	-	-	-	22	16	(17)	(1)	42	7	-	-	-

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Peak Demand

Test Year and Updated Test Year Full Requirement Wholesale Peak Demand Weather Adjustment Detail
Actual Historical Full Requirement Wholesale Peak Demand (MW)

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20
Test year	650	765	671	757	757	646	760	852	978	1,097	1,014	898	650	765	671
Average Temperature Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Average Temperature Normal	72.0	40.8	29.4	30.2	34.0	46.8	70.2	77.8	86.0	86.1	84.7	79.5	72.0	40.8	29.4
Average Temperature Actual	37.0	34.0	35.5	40.5	37.5	46.5	71.5	81.0	85.5	92.5	86.5	83.0	37.0	34.0	35.5
Variance from Normal	-35.0	-6.8	6.1	10.4	3.5	-0.3	1.3	3.3	-0.5	6.4	1.8	3.6	-35.0	-6.8	6.1
Average Temperature Weather Coefficients	2.5646	0.0000	0.0000	0.0000	0.0000	0.0000	2.5665	3.9073	5.0488	5.3514	5.5589	4.7475	2.5646	0.0000	0.0000
Average Temperature Weather Adjustment (MW)	(89.6)	-	-	-	-	-	3.3	12.7	(2.5)	34.2	10.0	16.9	(89.6)	-	-
Heating Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Heating Degree Days Normal	0.0	24.5	35.6	34.9	31.0	18.9	1.5	0.0	0.0	0.0	0.0	0.0	0.0	24.5	35.6
Heating Degree Days Actual	28.0	31.0	29.5	24.5	27.5	18.5	0.0	0.0	0.0	0.0	0.0	0.0	28.0	31.0	29.5
Variance from Normal	28.0	6.6	(6.1)	(10.4)	(3.5)	(0.4)	(1.5)	-	-	-	-	-	28.0	6.6	(6.1)
Heating Degree Days Weather Coefficients	0.0000	2.7551	3.2048	3.1009	3.4292	3.3903	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.7551	3.2048
Heating Degree Days Weather Adjustment (MW)	-	18.0	(19.5)	(32.1)	(12.0)	(1.2)	-	-	-	-	-	-	-	18.0	(19.5)
Precipitation 1 week before Peak Day Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Precipitation Normal	0.16	0.08	0.19	0.11	0.05	0.08	0.13	0.09	0.06	0.22	0.28	0.19	0.2	0.1	0.2
Precipitation Actual	0.00	0.40	0.00	0.04	0.28	1.02	0.00	0.00	0.37	0.00	0.02	0.00	0.0	0.4	0.0
Variance from Normal	-0.16	0.32	-0.19	-0.07	0.23	0.94	-0.13	-0.09	0.31	-0.22	-0.26	-0.19	-0.16	0.32	-0.19
Precipitation Weather Coefficients	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-45.1343	-45.1343	-45.1343	-45.1343	-45.1343	-45.1343	0.0000	0.0000	0.0000
Precipitation Weather Adjustment (MW)	-	-	-	-	-	-	6.0	4.2	(14.0)	9.9	11.5	8.4	-	-	-

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Peak Demand

Test Year and Updated Test Year Full Requirement Wholesale Peak Demand Weather Adjustment Detail
Actual Historical Full Requirement Wholesale Peak Demand (MW)

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20
Test year	266	249	270	259	257	219	223	232	228	262	245	298	266	249	270
Average Temperature Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Average Temperature Normal	72.0	40.8	29.4	30.2	34.0	46.8	70.2	77.8	86.0	86.1	84.7	79.5	72.0	40.8	29.4
Average Temperature Actual	37.0	34.0	35.5	40.5	37.5	46.5	71.5	81.0	85.5	92.5	86.5	83.0	37.0	34.0	35.5
Variance from Normal	-35.0	-6.8	6.1	10.4	3.5	-0.3	1.3	3.3	-0.5	6.4	1.8	3.6	-35.0	-6.8	6.1
Average Temperature Weather Coefficients	1.0490	0.0000	0.0000	0.0000	0.0000	0.0000	0.7535	1.0662	1.1789	1.2786	1.3408	1.5762	1.0490	0.0000	0.0000
Average Temperature Weather Adjustment (MW)	(36.7)	-	-	-	-	-	1.0	3.5	(0.6)	8.2	2.4	5.6	(36.7)	-	-
Heating Degree Days Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Heating Degree Days Normal	0.0	24.5	35.6	34.9	31.0	18.9	1.5	0.0	0.0	0.0	0.0	0.0	0.0	24.5	35.6
Heating Degree Days Actual	28.0	31.0	29.5	24.5	27.5	18.5	0.0	0.0	0.0	0.0	0.0	0.0	28.0	31.0	29.5
Variance from Normal	28.0	6.6	(6.1)	(10.4)	(3.5)	(0.4)	(1.5)	-	-	-	-	-	28.0	6.6	(6.1)
Heating Degree Days Weather Coefficients	0.0000	0.8958	1.2886	1.0598	1.1654	1.1498	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.8958	1.2886
Heating Degree Days Weather Adjustment (MW)	-	5.9	(7.9)	(11.0)	(4.1)	(0.4)	-	-	-	-	-	-	-	5.9	(7.9)
Precipitation 1 week before Peak Day Weather Adjustment (10-yr Normal)															
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Precipitation Normal	0.16	0.08	0.19	0.11	0.05	0.08	0.13	0.09	0.06	0.22	0.28	0.19	0.2	0.1	0.2
Precipitation Actual	0.00	0.40	0.00	0.04	0.28	1.02	0.00	0.00	0.37	0.00	0.02	0.00	0.0	0.4	0.0
Variance from Normal	-0.16	0.32	-0.19	-0.07	0.23	0.94	-0.13	-0.09	0.31	-0.22	-0.26	-0.19	-0.16	0.32	-0.19
Precipitation Weather Coefficients	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-13.2505	-12.3158	-10.5391	-10.7842	-10.8865	-14.9846	0.0000	0.0000	0.0000
Precipitation Weather Adjustment (MW)	-	-	-	-	-	-	1.7	1.1	(3.3)	2.4	2.8	2.8	-	-	-

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Peak Demand

Test Year and Updated Test Year Golden Spread Full Load Peak Demand Weather Adjustment Detail
Actual Historical Golden Spread Full Load Peak Demand (MW)

	Actual Oct-19	Actual Nov-19	Actual Dec-19	Actual Jan-20	Actual Feb-20	Actual Mar-20	Actual Apr-20	Actual May-20	Actual Jun-20	Actual Jul-20	Actual Aug-20	Actual Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20
Test year	575	590	573	536	552	591	922	947	1,158	1,386	1,340	1,102	575	590	573

Average Temperature Weather Adjustment (10-yr Normal)	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Average Temperature Normal	70.8	36.4	24.8	23.8	26.1	43.3	70.0	74.7	85.0	86.4	84.6	79.8	70.0	74.7	84.3
Average Temperature Actual	34.3	28.0	35.0	31.4	29.6	39.1	68.8	75.9	85.6	92.5	86.4	79.6	34.3	28.0	35.0
Variance from Normal	-36.6	-8.4	10.2	7.6	3.5	-4.2	-1.2	1.2	0.6	6.1	1.8	-0.1	-35.8	-46.7	-49.3
Average Temperature Weather Coefficients	0.7029	0.0000	0.0000	0.0000	0.0000	1.8678	3.6356	4.4172	6.0680	8.0075	8.1012	4.5212	0.7029	0.0000	0.0000
Average Temperature Weather Adjustment (MW)	(25.7)	-	-	-	-	(7.8)	(4.3)	5.4	3.8	48.8	14.7	(0.7)	(25.2)	-	-

Precipitation 1 week before Peak Day Weather Adjustment (10-yr Normal)	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Precipitation Normal	0.3	0.1	0.2	0.1	0.1	0.2	0.2	0.4	0.1	0.2	0.9	0.1	0.2	0.5	0.1
Precipitation Actual	0.4	0.2	0.0	0.0	0.1	1.4	0.0	0.3	0.2	0.3	0.0	0.0	0.4	0.2	0.0
Variance from Normal	0.1	0.1	-0.2	-0.1	-0.1	1.2	-0.2	-0.1	0.1	0.1	-0.9	-0.1	0.2	-0.3	-0.1
Precipitation Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	-112.511	-112.511	-112.511	-54.953	-54.953	-54.953	0.000	0.000	0.000
Precipitation Weather Adjustment (MW)	-	-	-	-	-	-	17.3	12.8	(5.8)	(5.0)	47.4	4.9	-	-	-

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Peak Demand

Retail Peak Demand

Model Coefficients

Date	Year	Month	PD HDD	PD Avg Temp	Precip 1WKB4
Oct-19	2019	10	0.0000	3.7529	0.0000
Nov-19	2019	11	7.3491	0.0000	0.0000
Dec-19	2019	12	8.7817	0.0000	0.0000
Jan-20	2020	1	8.2713	0.0000	0.0000
Feb-20	2020	2	7.2679	0.0000	0.0000
Mar-20	2020	3	5.4234	0.0000	0.0000
Apr-20	2020	4	0.0000	3.4390	-146.3875
May-20	2020	5	0.0000	8.1842	-146.3875
Jun-20	2020	6	0.0000	10.7710	-146.3875
Jul-20	2020	7	0.0000	11.2847	-59.2903
Aug-20	2020	8	0.0000	11.4198	-59.2903
Sep-20	2020	9	0.0000	8.7677	-59.2903

Southwestern Public Service Company

Weather Normalization of Test Year and Updated Test Year Peak Demand

			Full Req Wholesale Peak Demand				GSEC Full Load Peak Demand			
			Model Coefficients					Model Coefficients		
Date	Year	Month	PD HDD	PD Avg Temp	Precip 1WKB4	Year	Month	PD HDD	PD Avg Temp	Precip 1WKB4
Oct-19	2019	10	0.0000	2.5646	0.0000	2019	10	0.0000	0.7029	0.0000
Nov-19	2019	11	2.7551	0.0000	0.0000	2019	11	0.0000	0.0000	0.0000
Dec-19	2019	12	3.2048	0.0000	0.0000	2019	12	0.0000	0.0000	0.0000
Jan-20	2020	1	3.1009	0.0000	0.0000	2020	1	0.0000	0.0000	0.0000
Feb-20	2020	2	3.4292	0.0000	0.0000	2020	2	0.0000	0.0000	0.0000
Mar-20	2020	3	3.3903	0.0000	0.0000	2020	3	0.0000	1.8678	0.0000
Apr-20	2020	4	0.0000	2.5665	-45.1343	2020	4	0.0000	3.6356	-112.5108
May-20	2020	5	0.0000	3.9073	-45.1343	2020	5	0.0000	4.4172	-112.5108
Jun-20	2020	6	0.0000	5.0488	-45.1343	2020	6	0.0000	6.0680	-112.5108
Jul-20	2020	7	0.0000	5.3514	-45.1343	2020	7	0.0000	8.0075	-54.9530
Aug-20	2020	8	0.0000	5.5589	-45.1343	2020	8	0.0000	8.1012	-54.9530
Sep-20	2020	9	0.0000	4.7475	-45.1343	2020	9	0.0000	4.5212	-54.9530