BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S APPLICATION FOR: (1) REVISION OF ITS RETAIL RATES UNDER ADVICE NOTICE NO. 292; (2) AUTHORIZATION AND APPROVAL TO ABANDON ITS PLANT X UNIT 3 GENERATING STATION; AND (3) OTHER ASSOCIATED RELIEF,	)	**CASE NO. 20-00238-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

DIRECT TESTIMONY

of

JOHN M. GOODENOUGH

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

TABLE OF CONTENTS

GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
Base Period	October 1, 2019 through September 30, 2020
DW	Durbin-Watson
Golden Spread	Golden Spread Electric Cooperative, Inc.
MW	Megawatt
MWh	Megawatt-hour
NOAA	National Oceanic and Atmospheric Administration
Operating Companies	Northern States Power Company, a Minnesota corporation; Northern States Power Company, a Wisconsin corporation; Public Service Company of Colorado, a Colorado corporation, and SPS
R^2 statistic	Coefficient of determination
RFP	Rate Filing Package
SPS	Southwestern Public Service Company, a New Mexico corporation
Test Year	Historical Test Year Period consisting of the Base Period, incorporating all proper adjustments
Tri-County	Tri-County Electric Cooperative, Inc.
Xcel Energy	Xcel Energy Inc.

LIST OF ATTACHMENTS

Attachment	**Description**
JMG-1	Weather Normalization of New Mexico Retail Base Period Sales (*Filename:* JMG-1.xlsx)
JMG-2	Weather Normalization of Texas Retail Base Period Sales (*Filename:* JMG-2.xlsx)
JMG-3	Weather Normalization of Firm Wholesale Base Period Sales (*Filename:* JMG-3.xlsx)
JMG-4	Weather Normalization of SPS Base Period Peak Demand (*Filename:* JMG-4.xlsx)
JMG-5	Regression Models and Associated Statistics (*Filename:* JMG-5.xlsx)

Case No. 20-00238-UT
Direct Testimony
of
John M. Goodenough

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is John M. Goodenough. 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 Manager, Energy Forecasting.

Q. Please briefly outline your responsibilities as Manager, Energy 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 developing and implementing forecasting and planning studies for regulatory proceedings.

Q. Please describe your educational background.

A. I graduated from the University of Delaware with a Doctor of Philosophy degree in Economics. I also hold a Masters of Arts degree in Economics from the University of Delaware and a Bachelor of Arts degree in Economics from the University of Maryland.

Q. Please describe your professional experience.

A. I have worked in a sales forecasting role since 2007. I began my career in forecasting as a Regulatory Affairs Analyst at Pepco Holdings, Inc. from 2007-2010, followed by a role as a Principal Analyst at Baltimore Gas and Electric from 2010-2014. I worked as an Energy Markets Specialist at Southern California Edison from 2014-2016 and as a Manager, Energy and Revenue Forecasting and Analysis at Arizona Public Service from 2016-2019. I started my current role as Manager, Energy Forecasting for Xcel Energy in October 2019.

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

A. Yes. I have attended Itron's Load Forecasting Workshops. I am also a member of Itron's Energy Forecasting Group and Edison Electric Institute's Load Forecasting Group. Membership in these groups helps me to stay up-to-date on industry standards in energy forecasting (including weather normalization).

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 how SPS adjusted sales and demand for the period October 1, 2019 through September 30, 2020 ("Base Period") to minimize the impact of abnormal weather patterns experienced during the Base Period on the sales and demand used to set rates for the future. I 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 Base Period to determine the sales and demand for the Test Year.[1]

In addition, I sponsor or co-sponsor Schedules P-1, P-5, and P-6 of SPS's Rate Filing Package ("RFP").

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

A. SPS has calculated the effects of abnormal weather on Base Period sales. Normal daily weather was based on the average of the last 30 years of historical heating degree days, cooling degree days, and precipitation data. The Base Period heating

[1] The Test Year is the Historical Test Year Period consisting of the Base Period, incorporating all proper adjustments.

degree days were 7.9% below normal; cooling degree days were 26.8% above normal; and precipitation was 2.2% above normal. SPS calculated the effects of abnormal weather on Base Period sales for customer classes whose consumption patterns are affected by the weather using weather normalization regression coefficients derived from econometric models. In total, warmer-than-normal winter weather, hotter-than-normal summer weather, and higher-than-normal precipitation combined resulted in actual sales being 46,386 megawatt-hours ("MWh") or 0.6% higher than normal. Therefore, Base Period sales were adjusted (decreased) by 46,386 MWh.

Similarly, SPS also calculated the effects of abnormal weather on the coincident peak demands in the Base Period for total retail and full requirements wholesale at both the transmission and production level. Taken together, the weather deviations resulted in an average of 27 megawatts ("MW"), or 0.8%, more retail peak demand per month and an average of 20 MW, or 4.9%, more full requirements wholesale peak demand per month at the transmission level and 13 MW, or 5.0%, more wholesale peak demand per month at the production level from June through September of the Base Period.

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 through September of the Base Period was 16 MW per month.

I provided the MWh and MW impacts of abnormal weather to SPS witness Richard M. Luth, who uses 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. 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 New Mexico Public Regulation Commission approve the adjusted sales and demand amounts resulting from the weather normalization discussed in this testimony.

Q. How is your testimony organized?

A. Section III discusses the weather's effect on Base Period sales. Section IV discusses the weather's effect on Base Period peak demand. An overview of the weather normalization methodology is provided in Section V.

Q. Were Attachments JMG-1 through JMG-5 prepared by you or under your direct supervision and control?

A. Yes.

Q. Were the RFP schedules that you sponsor or co-sponsor prepared by you or under your direct supervision and control?

A. Yes.

Q. Do you incorporate the RFP schedules that are sponsored or co-sponsored by you into your testimony?

A. Yes.

III. WEATHER'S EFFECT ON BASE PERIOD SALES

Q. Did SPS calculate the effects on sales of abnormal weather for the Base Period?

A. Yes. SPS performed weather normalization to ensure that its Base Period sales and the present revenues calculated using those sales are adjusted to eliminate the effects of abnormal weather. 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 Base Period were hotter than the 30-year average in SPS's New Mexico service area during the cooling season and warmer than the 30-year average during the heating season, and precipitation was higher than the 30-year average, SPS calculated the effects of abnormal weather, as it has done in prior cases. The Base Period heating degree days were 7.9% below normal; the Base Period cooling degree days were 26.8% above normal; and the Base Period precipitation was 2.2% above 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 JMG-1.

SPS calculated the effects on sales of abnormal weather during the Base Period for the following customer classes:

- Residential Service;
- Residential Space Heating Service;
- Small General Service;
- Secondary General Service;
- Irrigation Service;
- Small Municipal and School Service; and
- Large Municipal and School Service.

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

Taken together, the weather deviations resulted in 46,386 MWh more being consumed in the Base Period than would have been consumed in the Base Period with normal weather, which amounts to 0.6% of total New Mexico retail sales. The calculation of the 0.6% appears on page 2 of Attachment JMG-1.

Q. How did SPS define the normal weather?

A. SPS used a 30-year average to define normal weather for purposes of this rate case. This aligns with the National Oceanic and Atmospheric Administration's

("NOAA") view that normal weather should be measured based on a 30-year period of time.

Q. What 30-year period did SPS use for weather normalization of sales?

A. SPS used actual weather data from January 1, 1989 through December 31, 2018.

Q. Did SPS include the Base Period in the 30-year period used to derive normal weather?

A. No. It is standard practice not to include the Base Period being normalized in the calculation of normal weather. Using actual weather data from the 12-month period used as the Base Period in the calculation of the "normal" weather may create a bias toward the actual Base Period weather, which would potentially misstate the variance of the Base Period weather from normal weather conditions. SPS applied this methodology for weather normalization adjustments in its most recent historical test year case, Case No. 19-00170-UT.[2] In addition, NOAA also excludes the current year's weather when calculating its 30-year normal weather statistics for purposes of comparing and analyzing the weather for a particular month.

[2] *In the Matter of Southwestern Public Service Company's Application for Revision of its Retail Electric Rates Pursuant to Advice Notice No. 272*, Case No. 17-00255-UT, New Final Order on Partial Mandate from the New Mexico Supreme Court (Mar. 6, 2019).

Q. How did SPS determine the normal weather?

A. Normal daily weather was based on the average of the last 30 years of historical heating degree days, cooling degree days, and precipitation data used to develop the weather adjustment coefficients for the Base Period. The Base Period actual and normal cooling degree days, heating degree days, and precipitation are reflected on page 1 of Attachment JMG-1.

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

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 NOAA for Roswell, New Mexico.

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, 10 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 was the Base Period 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 developed the billing-month coefficients for each weather-sensitive class using econometric models.[3] SPS then converted the billing-month coefficients to a calendar-month basis by prorating the modeled weather coefficients based on the

[3] 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.

number of billing days in each billing month that occur in a particular calendar month. Page 4 of Attachment JMG-1 reflects the conversion of modeled weather coefficients to a calendar-month basis.

The data used in the models are:

- Historical billing-month sales by weather-sensitive class;
- Real personal income per household for the SPS New Mexico service territory;
- Non-farm employment for the SPS New Mexico service territory;
- Weather (heating or cooling degree days);
- Seasonal binary variables;
- Precipitation variables;
- Customer counts;
- Number of billing days in each month;
- Population for the SPS New Mexico service territory;
- Other binary variables; and
- Autoregressive 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.

The 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 irrigation and municipals and schools rate classes.

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 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 Base Period revenues with the relevant Base Period 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 Base Period 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 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 Base Period. The numbers used as examples in the six steps recounted below appear on page 3 of Attachment JMG-1:

- Step 1 – I calculated the difference between the 30-year average heating degree days in a particular month and the heating degree days in that month of the Base Period. For example, the 30-year average number of heating degree days in October 2019 is 133, whereas the number of heating degree days in October of the Base Period was 206, for a difference of 73.

- Step 2 – I multiplied the difference calculated in Step 1 by the number of customers in each class. For example, the Residential Service class had 61,167 customers in October 2019, so I multiplied 73 by 61,167, for a total of 4,465,191.

- Step 3 – I then multiplied the result from Step 2 by the heating degree day coefficient for that class to determine the number of MWh resulting from the abnormal weather. Multiplying 4,465,191 by the October 2019 coefficient for the Residential Service class, which is 0.0000031, yields 14 MWh.

- Step 4 – I then performed Steps 1-3 using the cooling degree data. For October 2019, that calculation results in 44 MWh.

- Step 5 – I netted the heating degree MWh against the cooling degree MWh for each class by month. That produces a total of 58 MWh for the Residential Service class for October 2019 (14 MWh + 44 MWh = 58 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 46,386 MWh attributable to abnormal weather. In other words, actual weather resulted in total Base Period retail sales being 46,386 MWh higher than if weather had been normal.

Q. How did SPS use the weather adjustments?

A. After calculating the weather adjustments by class, I supplied those sales adjustments to Mr. Luth, who used them to calculate present revenues. The numbers that I provided to Mr. Luth are summarized on page 2 of Attachment JMG-1.

Q. Did SPS adjust its Texas retail sales during the Base Period to account for the effects of abnormal weather on Texas retail sales?

A. Yes. SPS adjusted the Base Period sales for the weather-sensitive Texas retail classes using the same process described for New Mexico retail sales. These calculations are provided in Attachment JMG-2. SPS relied on NOAA weather data for the Texas Panhandle, using the weather stations in Amarillo and Lubbock, Texas. The weather data is aggregated to create the Texas Panhandle weather by weighting the individual weather station data by the share of load in the Amarillo and Lubbock regions of the Texas service area.[4]

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

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

A. Yes. SPS adjusted the Base Period 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. The calculations of the weather adjustment for firm wholesale sales are provided in Attachment JMG-3.

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 Test Year.

Q. Did SPS adjust its partial requirements wholesale sales during the Base Period 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 Texas retail sales and its firm wholesale sales for purposes of this New Mexico 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 one weather station in New Mexico and two weather stations in Texas?

A. SPS uses these three weather stations because they 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.

IV. WEATHER'S EFFECT ON BASE PERIOD PEAK DEMAND

Q. Did SPS calculate the effects of abnormal weather on its Base Period system peak demand?

A. Yes. Because weather varied from normal during the Base Period, it was necessary to adjust the Base Period coincident peak demand[5] 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 III of my 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 Test Year.

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

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.

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 Roswell, Amarillo, and Lubbock. The total SPS weather is an average of the Roswell, Amarillo, and Lubbock weather station data weighted by sales associated with the respective regions of the SPS service area.[6]

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

[6] 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.

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.

Q. How did SPS calculate precipitation?

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. As noted earlier, SPS agrees with NOAA's definition that normal weather is representative of typical weather based on a 30-year period. The normal peak day weather was based on the average of the 30-year period from January 1989 to December 2018 for the peak day of each month for historical average daily temperature, heating degree days, and precipitation. The Base Period and normal

weather for average temperatures, heating degree days, and precipitation are summarized on page 1 of Attachment JMG-4.

Q. How was the Base Period 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 and sales for each customer group, as well as the weather concept variables (average temperature, heating degree days, and precipitation for the week prior to the peak day). 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.

Q. What dependent variables does SPS use in the regression models?

A. The dependent variables used to develop peak demand weather coefficients are the monthly coincident peak demands for each customer class. The first explanatory variable in each regression model is a 12-month moving average for the respective sales for each customer class. The next set of explanatory variables in each regression model uses the following weather concept variables:

- 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.

Q. How did the Base Period peak day weather for the June through September period compare to normal weather?

A. For retail customers, average peak day temperatures were hotter than normal in June, July, and August, and cooler than normal in September. Accumulated precipitation was less than normal in June, July, and August and greater than normal in September. As shown on page 2 of Attachment JMG-4, taken together these weather deviations resulted in an average of 27 MW, or 0.8%, more retail peak demand per month. For full-requirements wholesale customers, average peak day temperatures were hotter than normal in June, July, August, and September.

Accumulated precipitation was less than normal in June, July and August and greater than normal in September. Taken together, these weather deviations resulted in an average of 20 MW, or 4.9%, more full requirements wholesale peak demand per month at the transmission level and 13 MW, or 5.0% more full requirements wholesale peak demand at the production level from June, July, August, and September in the Base Period compared to normal weather. Because weather affected the level of peak demand, SPS adjusted the Base Period peak demand for deviations of the actual Base Period weather from the 30-year average weather.

Q. Please explain the steps you went through 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 normal conditions during the Base Period. The numbers used as examples in the four steps recounted below are for the retail peak demand and appear on page 3 of Attachment JMG-4:

- Step 1 – I calculated the difference between: (i) the normal weather concepts (as measured in peak day average temperature, peak day heating degree days, and precipitation) in a particular month, and (ii) the actual weather concepts in that month of the Base Period. For example, for the retail peak demand, the normal peak day average temperature in July is 84.4 degrees Fahrenheit, whereas the actual peak day average temperature in July of the Base Period was 92.5 degrees Fahrenheit, a

difference of 8.1 degrees Fahrenheit. This step is repeated for each weather concept. The normal precipitation for the week preceding the peak day in July is 0.27 of an inch of precipitation, whereas the actual precipitation for the week preceding the peak day in July of the Base Period was 0.24 of an inch, for a difference of -0.03 of an inch of precipitation. The normal heating degree days on the peak day in July is 0.0, and the actual peak day heating degree days in July of the Base Period was also 0.0, resulting in no difference from normal.

- Step 2 – The variance in weather from the normal 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 normal 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 peak day average temperature of 8.1 degrees Fahrenheit by the July coefficient for average peak day temperature, which is 11.22847, yields 91.8 MW. This step is repeated for each weather concept. Multiplying the variance in precipitation of -0.03 by the July precipitation coefficient which is -59.29032, yields 2.0 MW. Because there is no weather adjustment coefficient in July for heating degree days, this weather concept does 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 94 MW for the total retail peak demand for July (91.8 MW + 2.0 MW = 93.8 MW). In other words, weather normalized peak demand for July is 94 MW lower than the actual peak demand.

- Step 4 – Finally, I averaged the weather adjusted MW for the summer months of the Base Period to arrive at a 4-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 Base Period was 27 MW per month. Using the same methodology

described in Step 1 through Step 4, the average weather adjustment for the full requirements wholesale peak demand for the four months of June, July, August, and September of the Base Period was 13 MW per month. Pages 3, 4, and 5 of Attachment JMG-4 contain the weather adjustment calculations for the retail peak demand and the full requirements wholesale peak demand at the transmission and production level.

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 Panhandle region. As I explained earlier, the Texas Panhandle 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, average peak day temperatures were hotter than normal

in June, July, and August and cooler than normal in September. Accumulated precipitation was less than normal in June, July, and August and greater than normal in September.

Q. What is the weather adjustment for the Golden Spread full load peak demand coincident with the SPS system peak demand for the Base Period?

A. As shown on page 2 of Attachment JMG-4, 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 Base Period was 16 MW per month. In other words, Golden Spread's actual peak demand was 16 MW higher than the weather normalized peak demand. Page 6 of Attachment JMG-4 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 New Mexico 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 numbers that I provided to Mr. Luth are on page 2 of Attachment JMG-4.

V. WEATHER NORMALIZATION METHODOLOGY

Q. Please describe the data and data sources SPS relied on to develop the Base Period weather adjustment coefficients.

A. SPS uses econometric models to develop the weather coefficients used in the weather normalization process. These coefficients quantify the impact of a one-unit change in weather on sales per customer. The inputs to the econometric models include historical billing-month sales and monthly number of customers by rate class, which were obtained from SPS billing system reports.

Q. What measure of weather did SPS use for the weather normalization of New Mexico Base Period retail sales?

A. As explained in Section III, the measure of weather used was heating degree days and cooling degree days, using a 65- degree Fahrenheit temperature base, and rainfall equivalent precipitation, measured in inches. This information was obtained from the NOAA and was measured at the Roswell, New Mexico weather station. The workpaper for Schedule P-6 provides the historical data and the calculations applied to develop the weather variables used to weather normalize New Mexico Base Period retail sales.

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 heating degree days, cooling degree days, and precipitation data were weighted by the number of times a particular day was included in a particular billing month. These weighted heating degree days and cooling degree days were divided by the total billing cycle days to arrive at average heating degree days and cooling degree days for a billing month.

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

A. Historical economic and demographic variables for the six-county New Mexico service territory, the state of New Mexico, and the nation were obtained from IHS Markit.[7] The variables used in the models were service territory non-farm employment, population, and real personal income per household. This information is used to determine the historical relationship between customers and sales measures, and economic and demographic measures.

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 Attachment JMG-5. Specifically,

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

Attachment JMG-5 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. There are a number of quantitative and qualitative validity tests that are applicable to multiple regression analysis. Several of the more common tests SPS uses are as follows:

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 78%, 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 94% confidence level.

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 0.0 and 4.0, 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' sales that were statistically modeled.

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

A. Yes.

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S APPLICATION FOR: (1) REVISION OF ITS RETAIL RATES UNDER ADVICE NOTICE NO. 292; (2) AUTHORIZATION AND APPROVAL TO ABANDON ITS PLANT X UNIT 3 GENERATING STATION; AND (3) OTHER ASSOCIATED RELIEF,	)	**CASE NO. 20-00238-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

VERIFICATION

On this day, December 23, 2020, I, John M. Goodenough, swear and affirm under penalty of perjury under the law of the State of New Mexico, that my testimony contained in Direct Testimony of John M. Goodenough is true and correct.

/s/ John M. Goodenough
JOHN M. GOODENOUGH

Southwestern Public Service Company

Weather Normalization of New Mexico Base Period Sales

Roswell Weather Data
Normal Weather Based on a 30-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	206	57	4.83	133	55	1.16	73	2	3.67
Nov	2019	459	0	1.38	448	1	0.42	11	-1	0.96
Dec	2019	604	0	0.11	737	0	0.56	-133	0	-0.45
Jan	2020	604	0	0.44	724	0	0.37	-120	0	0.07
Feb	2020	559	0	0.57	525	1	0.35	34	-1	0.22
Mar	2020	240	9	2.07	336	6	0.48	-96	3	1.59
Apr	2020	111	76	0.23	134	52	0.57	-23	24	-0.34
May	2020	2	328	0.20	25	221	1.15	-23	107	-0.95
Jun	2020	0	530	0.39	0	459	1.23	0	71	-0.84
Jul	2020	0	707	0.81	0	525	1.81	0	182	-1.00
Aug	2020	0	624	0.57	0	474	1.74	0	150	-1.17
Sep	2020	41	268	0.09	9	260	1.58	32	8	-1.49
Annual - Update		**2,826**	**2,599**	**11.69**	**3,070**	**2,053**	**11.43**	**-244**	**546**	**0.26**
Annual Dev %								**-7.9%**	**26.6%**	**2.2%**

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Rate Case HTY - Calendar Month Weather Normal Sales
30-Year Normal Weather

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	81,246	161,769	299,217	1,033	11,530	554,795	80,658	161,743	299,217	1,033	11,505	554,155
Nov-19	92,902	154,465	317,417	1,023	9,395	575,203	92,498	154,452	317,417	1,023	9,395	574,786
Dec-19	114,894	155,940	332,288	1,015	9,313	613,450	122,974	156,296	332,288	1,015	9,313	621,885
Jan-20	118,998	154,248	342,216	998	10,228	626,688	126,858	154,632	342,216	998	10,228	634,932
Feb-20	98,607	148,960	317,282	987	9,121	574,957	96,733	149,151	317,282	987	9,217	573,370
Mar-20	82,057	181,009	343,805	985	9,830	617,686	85,073	183,845	343,805	985	10,998	624,706
Apr-20	68,677	144,743	309,741	978	9,653	533,792	68,835	144,444	309,741	978	9,468	533,467
May-20	89,487	155,940	323,897	972	9,925	580,222	84,639	153,336	323,896	972	9,211	572,054
Jun-20	115,618	153,470	294,294	963	9,962	574,307	109,670	150,462	294,292	963	9,487	564,874
Jul-20	139,705	170,446	346,996	949	13,351	671,446	122,567	162,993	346,992	949	12,454	645,954
Aug-20	131,943	171,778	362,494	909	15,219	682,343	118,221	165,150	362,491	909	13,703	660,474
Sep-20	93,747	151,216	348,264	881	11,023	605,131	93,165	150,281	348,264	881	10,383	602,974
Total	**1,227,880**	**1,903,984**	**3,937,910**	**11,693**	**128,551**	**7,210,019**	**1,201,892**	**1,886,783**	**3,937,900**	**11,693**	**125,363**	**7,163,633**

YEAR TO DATE 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	81,246	161,769	299,217	1,033	11,530	554,795	80,658	161,743	299,217	1,033	11,505	554,155
Nov-19	174,148	316,234	616,634	2,057	20,925	1,129,998	173,156	316,194	616,634	2,057	20,900	1,128,941
Dec-19	289,042	472,174	948,922	3,072	30,238	1,743,448	296,130	472,490	948,922	3,072	30,213	1,750,827
Jan-20	408,039	626,422	1,291,138	4,070	40,466	2,370,135	422,988	627,122	1,291,138	4,070	40,441	2,385,759
Feb-20	506,646	775,382	1,608,420	5,057	49,587	2,945,092	519,721	776,273	1,608,420	5,057	49,658	2,959,129
Mar-20	588,703	956,391	1,952,225	6,042	59,418	3,562,778	604,794	960,118	1,952,225	6,042	60,656	3,583,835
Apr-20	657,380	1,101,134	2,261,966	7,020	69,071	4,096,570	673,629	1,104,562	2,261,966	7,020	70,125	4,117,302
May-20	746,867	1,257,074	2,585,863	7,991	78,996	4,676,792	758,269	1,257,898	2,585,862	7,991	79,336	4,689,356
Jun-20	862,485	1,410,544	2,880,157	8,955	88,958	5,251,099	867,939	1,408,360	2,880,154	8,955	88,823	5,254,230
Jul-20	1,002,190	1,580,990	3,227,152	9,903	102,309	5,922,545	990,506	1,571,352	3,227,146	9,903	101,277	5,900,184
Aug-20	1,134,133	1,752,768	3,589,646	10,812	117,528	6,604,887	1,108,727	1,736,503	3,589,636	10,812	114,981	6,560,658
Sep-20	1,227,880	1,903,984	3,937,910	11,693	128,551	7,210,019	1,201,892	1,886,783	3,937,900	11,693	125,363	7,163,633

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Rate Case HTY - Calendar Month Weather Normal
30-Year Normal Weather

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	588	27	0	0	25	640	0.73%	0.02%	0.00%	0.00%	0.22%	0.1%
Nov-19	403	13	0	0	0	416	0.44%	0.01%	0.00%	0.00%	0.00%	0.1%
Dec-19	(8,080)	(356)	0	0	0	(8,436)	-6.57%	-0.23%	0.00%	0.00%	0.00%	-1.4%
Jan-20	(7,860)	(384)	0	0	(0)	(8,245)	-6.20%	-0.25%	0.00%	0.00%	0.00%	-1.3%
Feb-20	1,873	(191)	0	0	(96)	1,587	1.94%	-0.13%	0.00%	0.00%	-1.04%	0.3%
Mar-20	(3,016)	(2,837)	0	0	(1,168)	(7,020)	-3.55%	-1.54%	0.00%	0.00%	-10.62%	-1.1%
Apr-20	(158)	299	0	0	185	325	-0.23%	0.21%	0.00%	0.00%	1.95%	0.1%
May-20	4,848	2,604	1	0	714	8,168	5.73%	1.70%	0.00%	0.00%	7.76%	1.4%
Jun-20	5,948	3,008	1	0	475	9,432	5.42%	2.00%	0.00%	0.00%	5.01%	1.7%
Jul-20	17,139	7,453	4	0	897	25,492	13.98%	4.57%	0.00%	0.00%	7.20%	3.9%
Aug-20	13,721	6,628	3	0	1,515	21,868	11.61%	4.01%	0.00%	0.00%	11.06%	3.3%
Sep-20	582	935	0	0	640	2,157	0.62%	0.62%	0.00%	0.00%	6.17%	0.4%
Total	**25,988**	**17,201**	**10**	**0**	**3,188**	**46,386**	**2.16%**	**0.91%**	**0.00%**	**0.00%**	**2.54%**	**0.6%**

YEAR TO DATE 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	588	27	0	0	25	640	0.73%	0.02%	0.00%	0.00%	0.22%	0.1%
Nov-19	992	40	0	0	25	1,056	0.57%	0.01%	0.00%	0.00%	0.12%	0.1%
Dec-19	(7,088)	(316)	0	0	25	(7,379)	-2.39%	-0.07%	0.00%	0.00%	0.08%	-0.4%
Jan-20	(14,948)	(700)	0	0	25	(15,624)	-3.53%	-0.11%	0.00%	0.00%	0.06%	-0.7%
Feb-20	(13,075)	(891)	0	0	(71)	(14,037)	-2.52%	-0.11%	0.00%	0.00%	-0.14%	-0.5%
Mar-20	(16,091)	(3,727)	0	0	(1,239)	(21,057)	-2.66%	-0.39%	0.00%	0.00%	-2.04%	-0.6%
Apr-20	(16,250)	(3,429)	0	0	(1,054)	(20,732)	-2.41%	-0.31%	0.00%	0.00%	-1.50%	-0.5%
May-20	(11,402)	(824)	1	0	(340)	(12,564)	-1.50%	-0.07%	0.00%	0.00%	-0.43%	-0.3%
Jun-20	(5,454)	2,184	3	0	135	(3,132)	-0.63%	0.16%	0.00%	0.00%	0.15%	-0.1%
Jul-20	11,685	9,637	7	0	1,032	22,360	1.18%	0.61%	0.00%	0.00%	1.02%	0.4%
Aug-20	25,406	16,265	10	0	2,547	44,229	2.29%	0.94%	0.00%	0.00%	2.22%	0.7%
Sep-20	25,988	17,201	10	0	3,188	**46,386**	2.16%	0.91%	0.00%	0.00%	2.54%	**0.6%**

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Weather Impacted Sales Calculation
Using Roswell Weather (Normal Period 1989-2018)

New Mexico Retail Weather Adjustment Summary													
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Total
Heating Degree Days 30-yr normal	133	448	737	724	525	336	134	25	0	0	0	9	3,070
Heating Degree Days Actual	206	459	604	604	559	240	111	2	0	0	0	41	2,826
Variance from Normal	73	11	(133)	(120)	34	(96)	(23)	(23)	(0)	(0)	0	32	(244)
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Total
Cooling Degree Days 30-yr normal	55	1	0	0	1	6	52	221	459	525	474	260	2,053
Cooling Degree Days Actual	57	0	0	0	0	9	76	328	530	707	624	268	2,599
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8	546
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Total
Precipitation 30-yr normal	1.16	0.42	0.56	0.37	0.35	0.48	0.57	1.15	1.23	1.81	1.74	1.58	11.43
Precipitation Actual	4.83	1.38	0.11	0.44	0.57	2.07	0.23	0.20	0.39	0.81	0.57	0.09	11.69
Variance from Normal	3.67	0.96	(0.45)	0.07	0.22	1.59	(0.34)	(0.95)	(0.84)	(1.00)	(1.17)	(1.49)	0.26
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Total
New Mexico Residential Service **(1)**	58	145	(3,236)	(2,887)	612	(696)	6	3,094	3,752	10,601	8,524	372	20,342
New Mexico Residential Space Heat **(2)**	531	259	(4,844)	(4,974)	1,262	(2,320)	(164)	1,754	2,196	6,538	5,198	210	5,645
New Mexico Small General Service **(3)**	7	13	(356)	(382)	105	(136)	1	460	564	1,562	1,257	55	3,150
New Mexico Secondary General Service **(4) & (5)**	19	0	0	0	0	0	3	1,624	1,986	5,425	4,484	185	13,726
New Mexico Irrigation Service **(6)**	0	0	0	(2)	(295)	(2,701)	295	522	459	470	891	696	335
Large Municipal and School Service **(7)**	23	0	0	(0)	(87)	(1,056)	169	645	433	820	1,392	593	2,931
Small Municipal and School Service **(8)**	2	0	0	(0)	(9)	(111)	16	69	42	77	123	47	257
New Mexico Retail Weather Adjustment Total	640	416	(8,436)	(8,245)	1,587	(7,020)	325	8,168	9,432	25,492	21,868	2,157	46,386

New Mexico Residential Service												
Heating Degree Days Weather Adjustment (30-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
Variance from Normal	73	11	(133)	(120)	34	(96)	(23)	(23)	(0)	(0)	0	32
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	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	61,875	61,829
Heating Degree Days Weather Adjustment (MWh)	14	145	(3,236)	(2,887)	612	(696)	0	0	0	0	0	0
Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	0.0003114	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000037	0.0004696	0.0008575	0.0009445	0.0009155	0.0007458
Res Service Customers	61,167	61,227	61,324	61,453	61,505	61,590	61,602	61,668	61,741	61,817	61,875	61,829
Cooling Degree Days Weather Adjustment (MWh)	44	0	0	0	0	0	6	3,094	3,752	10,601	8,524	372
NM Residential Service Weather Adjustment (1)	58	145	(3,236)	(2,887)	612	(696)	6	3,094	3,752	10,601	8,524	372

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Weather Impacted Sales Calculation
Using Roswell Weather (Normal Period 1989-2018)

New Mexico Residential Space Heat												
Heating Degree Days Weather Adjustment (30-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
Variance from Normal	73	11	(133)	(120)	34	(96)	(23)	(23)	(0)	(0)	0	32
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	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	29,742	29,711
Heating Degree Days Weather Adjustment (MWh)	507	259	(4,844)	(4,974)	1,262	(2,320)	(167)	0	0	0	0	0
Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
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	0.0011615	0.0008743
Res Space Heat Customers	29,755	29,763	29,757	29,776	29,772	29,764	29,751	29,746	29,740	29,752	29,742	29,711
Cooling Degree Days Weather Adjustment (MWh)	24	0	0	0	0	0	3	1,754	2,196	6,538	5,198	210
NM Residential Space Heat Weather Adjustment (2)	531	259	(4,844)	(4,974)	1,262	(2,320)	(164)	1,754	2,196	6,538	5,198	210

New Mexico Small General Service												
Heating Degree Days Weather Adjustment (30-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
Variance from Normal	73	11	(133)	(120)	34	(96)	(23)	(23)	(0)	(0)	0	32
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	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	11,869	11,888
Heating Degree Days Weather Adjustment (MWh)	1	13	-356	-382	105	-136	0	0	0	0	0	0
Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
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	0.0007038	0.0005696
Small General Service Customers	11,886	11,871	11,884	11,889	11,880	11,889	11,891	11,864	11,868	11,889	11,869	11,888
Cooling Degree Days Weather Adjustment (MWh)	6	0	0	0	0	0	1	460	564	1,562	1,257	55
NM Small General Service Weather Adjustment (3)	7	13	(356)	(382)	105	(136)	1	460	564	1,562	1,257	55

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Weather Impacted Sales Calculation
Using Roswell Weather (Normal Period 1989-2018)

New Mexico Small Secondary General Service												
Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	0.0021236	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000299	0.0037853	0.0069446	0.0073849	0.0073216	0.0056091
Small Secondary General Customers	3,905	3,929	3,943	3,969	3,979	4,003	4,002	4,014	4,033	4,043	4,067	4,079
Cooling Degree Days Weather Adjustment (MWh)	19	0	0	0	0	0	3	1,623	1,985	5,421	4,480	185
NM Small Secondary General Service Weather Adjustment (	19	0	0	0	0	0	3	1,623	1,985	5,421	4,480	185

New Mexico Large Secondary General Service												
Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	0.0021236	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000299	0.0037853	0.0069446	0.0073849	0.0073216	0.0056091
Large Secondary General Customers	3	3	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	3	0
NM Large Secondary General Service Weather Adjustment (	0	0	0	0	0	0	0	1	1	4	3	0

New Mexico Irrigation Service												
Precipitation Weather Adjustment (30-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
Variance from Normal	3.67	0.96	(0.45)	0.07	0.22	1.59	(0.34)	(0.95)	(0.84)	(1.00)	(1.17)	(1.49)
Precipitation Weather Coefficients	0.00000	0.00000	0.00000	-0.02100	-1.35418	-1.71468	-0.86955	-0.55101	-0.54790	-0.47182	-0.75834	-0.46651
Irrigation Customers	1,001	1,001	998	999	996	993	994	996	997	999	1,000	1,002
Precipitation Weather Adjustment (MWh)	0	0	0	(2)	(295)	(2,701)	295	522	459	470	891	696
NM Irrigation Weather Adjustment (6)	0	0	0	(2)	(295)	(2,701)	295	522	459	470	891	696

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Weather Impacted Sales Calculation
Using Roswell Weather (Normal Period 1989-2018)

New Mexico Municipal and School Service												
Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
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	0.0038688	0.0092081
Municipal & School Customers	1,734	1,735	1,737	1,738	1,744	1,742	1,742	1,742	1,742	1,742	1,745	1,749
Cooling Degree Days Weather Adjustment (MWh)	25	0	0	0	0	0	1	365	339	895	1,016	130
Precipitation Weather Adjustment (30-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
Variance from Normal	3.67	0.96	(0.45)	0.07	0.22	1.59	(0.34)	(0.95)	(0.84)	(1.00)	(1.17)	(1.49)
Precipitation Weather Coefficients	0.00000	0.00000	0.00000	-0.00389	-0.25117	-0.42254	-0.30958	-0.21075	-0.09300	-0.00068	-0.24376	-0.19591
Municipal & School Customers	1,734	1,735	1,737	1,738	1,744	1,742	1,742	1,742	1,742	1,742	1,745	1,749
Precipitation Weather Adjustment (MWh)	0	0	0	(0)	(96)	(1,168)	184	349	136	1	500	510
Municipal & School Weather Adjustment	25	0	0	(0)	(96)	(1,168)	185	714	475	897	1,515	640
New Mexico - Municipal and School Weather Impact Allocation												
Billed Sales in KWh	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
LMSNM	13,396	9,262	9,158	9,818	8,430	9,645	7,375	7,073	9,991	11,073	10,718	12,403
SMSNM	1,076	803	985	1,036	875	1,017	709	761	975	1,037	950	988
Total	14,472	10,065	10,143	10,853	9,305	10,662	8,084	7,834	10,967	12,110	11,668	13,391
Allocation Factors	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
LMSNM	92.56%	92.02%	90.29%	90.46%	90.60%	90.46%	91.23%	90.29%	91.11%	91.43%	91.86%	92.62%
SMSNM	7.44%	7.98%	9.71%	9.54%	9.40%	9.54%	8.77%	9.71%	8.89%	8.57%	8.14%	7.38%
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%
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	Jun-20	Jun-20	Jun-20
LMSNM **(7)**	23	0	0	(0)	(87)	(1,056)	169	645	433	820	1,392	593
SMSNM **(8)**	2	0	0	(0)	(9)	(111)	16	69	42	77	123	47

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Residential Service Coefficients (Modeled with MWH)

			Model Coefficients		Monthly weights Model to calendar			Calendar Month	
Year	Month	Date	RES HDD	RES CDD	Current	1st Future	2nd Future	RES HDD	RES CDD
2019	10	Oct-19	0.000000	0.000644	48.39%	50.69%	0.92%	0.0000031	0.0003114
2019	11	Nov-19	0.000000	0.000000	36.35%	63.02%	0.63%	0.0002134	0.0000000
2019	12	Dec-19	0.000334	0.000000	43.32%	56.68%	0.00%	0.0003967	0.0000000
2020	1	Jan-20	0.000445	0.000000	49.62%	49.46%	0.92%	0.0003929	0.0000000
2020	2	Feb-20	0.000344	0.000000	40.56%	59.44%	0.00%	0.0002923	0.0000000
2020	3	Mar-20	0.000257	0.000000	45.93%	54.07%	0.00%	0.0001182	0.0000000
2020	4	Apr-20	0.000000	0.000000	46.67%	52.86%	0.48%	0.0000000	0.0000037
2020	5	May-20	0.000000	0.000000	39.63%	60.37%	0.00%	0.0000000	0.0004696
2020	6	Jun-20	0.000000	0.000778	44.13%	55.87%	0.00%	0.0000000	0.0008575
2020	7	Jul-20	0.000000	0.000920	49.31%	50.54%	0.15%	0.0000000	0.0009445
2020	8	Aug-20	0.000000	0.000968	44.55%	55.30%	0.15%	0.0000000	0.0009155
2020	9	Sep-20	0.000000	0.000874	44.44%	55.56%	0.00%	0.0000000	0.0007458
2020	10	Oct-20	0.000000	0.000644	46.39%	52.23%	1.38%		
2020	11	Nov-20	0.000000	0.000000	34.76%	65.08%	0.16%		

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Residential Space Heat Coefficients (Modeled with MWH)

		Model Coefficients		Monthly weights Model to calendar			Calendar Month	
Year	Month	RES HDD	RES CDD	Current	1st Future	2nd Future	RES HDD	RES CDD
2019	10	0.000000	0.000718	48.39%	50.69%	0.92%	0.0002327	0.0003472
2019	11	0.000441	0.000000	36.35%	63.02%	0.63%	0.0007858	0.0000000
2019	12	0.000978	0.000000	43.32%	56.68%	0.00%	0.0012239	0.0000000
2020	1	0.001412	0.000000	49.62%	49.46%	0.92%	0.0013970	0.0000000
2020	2	0.001387	0.000000	40.56%	59.44%	0.00%	0.0012457	0.0000000
2020	3	0.001149	0.000000	45.93%	54.07%	0.00%	0.0008153	0.0000000
2020	4	0.000532	0.000000	46.67%	52.86%	0.48%	0.0002481	0.0000044
2020	5	0.000000	0.000000	39.63%	60.37%	0.00%	0.0000000	0.0005519
2020	6	0.000000	0.000914	44.13%	55.87%	0.00%	0.0000000	0.0010420
2020	7	0.000000	0.001143	49.31%	50.54%	0.15%	0.0000000	0.0012103
2020	8	0.000000	0.001276	44.55%	55.30%	0.15%	0.0000000	0.0011615
2020	9	0.000000	0.001070	44.44%	55.56%	0.00%	0.0000000	0.0008743
2020	10	0.000000	0.000718	46.39%	52.23%	1.38%		
2020	11	0.000441	0.000000	34.76%	65.08%	0.16%		

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Small General Service Coefficients (Modeled with MWH)

		Model Coefficients		Monthly weights Model to calendar			Calendar Month	
Year	Month	RES HDD	RES CDD	Current	1st Future	2nd Future	RES HDD	RES CDD
2019	10	0.000000	0.000472	48.39%	50.69%	0.92%	0.0000014	0.0002286
2019	11	0.000000	0.000000	36.35%	63.02%	0.63%	0.0000987	0.0000000
2019	12	0.000154	0.000000	43.32%	56.68%	0.00%	0.0002251	0.0000000
2020	1	0.000280	0.000000	49.62%	49.46%	0.92%	0.0002689	0.0000000
2020	2	0.000258	0.000000	40.56%	59.44%	0.00%	0.0002591	0.0000000
2020	3	0.000260	0.000000	45.93%	54.07%	0.00%	0.0001193	0.0000000
2020	4	0.000000	0.000000	46.67%	52.86%	0.48%	0.0000000	0.0000029
2020	5	0.000000	0.000000	39.63%	60.37%	0.00%	0.0000000	0.0003627
2020	6	0.000000	0.000601	44.13%	55.87%	0.00%	0.0000000	0.0006711
2020	7	0.000000	0.000727	49.31%	50.54%	0.15%	0.0000000	0.0007235
2020	8	0.000000	0.000720	44.55%	55.30%	0.15%	0.0000000	0.0007038
2020	9	0.000000	0.000691	44.44%	55.56%	0.00%	0.0000000	0.0005696
2020	10	0.000000	0.000472	46.39%	52.23%	1.38%		
2020	11	0.000000	0.000000	34.76%	65.08%	0.16%		

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Secondary General Service Coefficients (Modeled with MWH)

		Model Coefficients		Monthly weights Model to calendar			Calendar Month			
Year	Month	RES HDD	RES CDD	Current	1st Future	2nd Future	RES HDD	RES CDD	Actual Cust	RES CDD per Cst
2019	10	0.000000	17.151096	48.39%	50.69%	0.92%	0.0000000	8.2989172	3,908	0.0021236
2019	11	0.000000	0.000000	36.35%	63.02%	0.63%	0.0000000	0.0000000	3,932	0.0000000
2019	12	0.000000	0.000000	43.32%	56.68%	0.00%	0.0000000	0.0000000	3,946	0.0000000
2020	1	0.000000	0.000000	49.62%	49.46%	0.92%	0.0000000	0.0000000	3,972	0.0000000
2020	2	0.000000	0.000000	40.56%	59.44%	0.00%	0.0000000	0.0000000	3,982	0.0000000
2020	3	0.000000	0.000000	45.93%	54.07%	0.00%	0.0000000	0.0000000	4,006	0.0000000
2020	4	0.000000	0.000000	46.67%	52.86%	0.48%	0.0000000	0.1199435	4,005	0.0000299
2020	5	0.000000	0.000000	39.63%	60.37%	0.00%	0.0000000	15.2057406	4,017	0.0037853
2020	6	0.000000	25.188135	44.13%	55.87%	0.00%	0.0000000	28.0284695	4,036	0.0069446
2020	7	0.000000	30.271688	49.31%	50.54%	0.15%	0.0000000	29.8791683	4,046	0.0073849
2020	8	0.000000	29.495588	44.55%	55.30%	0.15%	0.0000000	29.7987588	4,070	0.0073216
2020	9	0.000000	30.078112	44.44%	55.56%	0.00%	0.0000000	22.8964361	4,082	0.0056091
2020	10	0.000000	17.151096	46.39%	52.23%	1.38%				
2020	11	0.000000	0.000000	34.76%	65.08%	0.16%				

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

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

		Model Coefficients			Monthly weights Model to calendar			Calendar Month		
Year	Month	RES HDD	RES CDD	Precip	Current	1st Future	2nd Future	RES HDD	RES CDD	Precip
2019	10	0.000000	0.013136	0.000000	48.39%	50.69%	0.92%	0.0000000	0.006356	0.0000000
2019	11	0.000000	0.000000	0.000000	36.35%	63.02%	0.63%	0.0000000	0.000000	0.0000000
2019	12	0.000000	0.000000	0.000000	43.32%	56.68%	0.00%	0.0000000	0.000000	0.0000000
2020	1	0.000000	0.000000	0.000000	49.62%	49.46%	0.92%	0.0000000	0.000000	-0.0038944
2020	2	0.000000	0.000000	0.000000	40.56%	59.44%	0.00%	0.0000000	0.000000	-0.2511664
2020	3	0.000000	0.000000	-0.422542	45.93%	54.07%	0.00%	0.0000000	0.000000	-0.4225423
2020	4	0.000000	0.000000	-0.422542	46.67%	52.86%	0.48%	0.0000000	0.000015	-0.3095842
2020	5	0.000000	0.000000	-0.210746	39.63%	60.37%	0.00%	0.0000000	0.001964	-0.2107459
2020	6	0.000000	0.003253	-0.210746	44.13%	55.87%	0.00%	0.0000000	0.002744	-0.0929958
2020	7	0.000000	0.002342	0.000000	49.31%	50.54%	0.15%	0.0000000	0.002831	-0.0006771
2020	8	0.000000	0.003304	0.000000	44.55%	55.30%	0.15%	0.0000000	0.003869	-0.2437637
2020	9	0.000000	0.004298	-0.440806	44.44%	55.56%	0.00%	0.0000000	0.009208	-0.1959138
2020	10	0.000000	0.01314	0.000000	46.39%	52.23%	1.38%			
2020	11	0.000000	0.00000	0.000000	34.76%	65.08%	0.16%			

Southwestern Public Service Company

Weather Normalization of New Mexico Retail Base Period Sales

New Mexico Irrigation Service Coefficients (Modeled with MWH)

		Model Coefficients			Monthly weights Model to calendar			Calendar Month		
Year	Month	RES HDD	RES CDD	Precip	Current	1st Future	2nd Future	RES HDD	RES CDD	Precip
2019	10	0.000000	0.000000	0.000000	48.39%	50.69%	0.92%	0.0000000	0.0000000	0.0000000
2019	11	0.000000	0.000000	0.000000	36.35%	63.02%	0.63%	0.0000000	0.0000000	0.0000000
2019	12	0.000000	0.000000	0.000000	43.32%	56.68%	0.00%	0.0000000	0.0000000	0.0000000
2020	1	0.000000	0.000000	0.000000	49.62%	49.46%	0.92%	0.0000000	0.0000000	-0.0209970
2020	2	0.000000	0.000000	0.000000	40.56%	59.44%	0.00%	0.0000000	0.0000000	-1.3541831
2020	3	0.000000	0.000000	-2.278170	45.93%	54.07%	0.00%	0.0000000	0.0000000	-1.7146845
2020	4	0.000000	0.000000	-1.236042	46.67%	52.86%	0.48%	0.0000000	0.0000000	-0.8695468
2020	5	0.000000	0.000000	-0.548831	39.63%	60.37%	0.00%	0.0000000	0.0000000	-0.5510122
2020	6	0.000000	0.000000	-0.552444	44.13%	55.87%	0.00%	0.0000000	0.0000000	-0.5478954
2020	7	0.000000	0.000000	-0.544303	49.31%	50.54%	0.15%	0.0000000	0.0000000	-0.4718172
2020	8	0.000000	0.000000	-0.399337	44.55%	55.30%	0.15%	0.0000000	0.0000000	-0.7583426
2020	9	0.000000	0.000000	-1.049648	44.44%	55.56%	0.00%	0.0000000	0.0000000	-0.4665101
2020	10	0.000000	0.000000	0.000000	46.39%	52.23%	1.38%			
2020	11	0.000000	0.000000	0.000000	34.76%	65.08%	0.16%			

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Panhandle Weather Data (Amarillo TX and Lubbock TX)
Using Panhandle Weather (Normal Period 1989-2018)
Normal Weather Based on a 30-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	367	35	4.69	202	42	1.53	165	-7	3.16
Nov	2019	576	0	0.92	516	1	0.74	60	-1	0.17
Dec	2019	687	0	0.91	815	0	0.68	-128	0	0.23
Jan	2020	705	0	0.04	810	0	0.71	-105	0	-0.67
Feb	2020	727	0	0.22	658	0	0.65	69	0	-0.43
Mar	2020	344	7	1.86	460	6	1.18	-116	1	0.68
Apr	2020	250	25	1.67	235	31	1.42	15	-6	0.25
May	2020	49	181	3.76	72	149	2.32	-23	32	1.44
Jun	2020	0	415	2.60	3	348	2.81	-3	67	-0.20
Jul	2020	0	562	3.30	0	449	2.58	0	113	0.73
Aug	2020	0	518	3.18	0	402	2.63	0	116	0.55
Sep	2020	62	178	2.34	30	202	1.96	32	-24	0.38
Annual (Oct19 - Sep20)		**3,767**	**1,921**	**25.49**	**3,803**	**1,632**	**19.21**	**-36**	**289**	**6.29**
Annual Dev %								**-0.9%**	**17.7%**	**32.7%**

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

SPS Texas Base Period Calendar Month Weather Normalized Sales
30-Year Normal Weather

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	170,208	252,835	679,476	2,360	31,103	1,135,981	169,984	253,157	679,476	2,360	31,294	1,136,270
Nov-19	186,326	247,889	649,574	2,361	27,843	1,113,993	183,567	246,499	649,572	2,361	27,843	1,109,841
Dec-19	227,344	254,897	659,230	2,348	29,326	1,173,145	237,610	259,106	659,236	2,348	29,326	1,187,625
Jan-20	228,222	228,759	668,009	2,305	27,130	1,154,426	236,801	230,522	668,012	2,305	27,130	1,164,771
Feb-20	195,177	206,707	627,488	2,271	23,881	1,055,525	190,728	204,621	627,488	2,271	23,881	1,048,990
Mar-20	168,419	224,110	657,094	2,266	31,750	1,083,639	172,577	229,396	657,094	2,266	32,188	1,093,522
Apr-20	137,558	207,480	597,713	2,254	23,384	968,388	137,723	208,591	597,752	2,254	23,633	969,953
May-20	191,651	246,586	556,748	2,233	26,375	1,023,593	185,566	246,137	556,967	2,233	26,264	1,017,167
Jun-20	259,671	262,404	564,981	2,211	26,014	1,115,281	241,259	252,714	564,594	2,211	25,340	1,086,118
Jul-20	319,146	326,932	622,088	2,196	37,538	1,307,900	286,052	309,393	621,463	2,196	36,424	1,255,529
Aug-20	293,505	318,191	656,427	2,147	42,621	1,312,891	260,251	298,743	655,828	2,147	40,701	1,257,670
Sep-20	189,415	234,634	606,984	2,093	26,636	1,059,761	195,484	238,169	607,194	2,093	27,592	1,070,532
Total	**2,566,641**	**3,011,424**	**7,545,813**	**27,046**	**353,600**	**13,504,525**	**2,497,602**	**2,977,048**	**7,544,676**	**27,046**	**351,615**	**13,397,988**

YEAR TO DATE 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	170,208	252,835	679,476	2,360	31,103	1,135,981	169,984	253,157	679,476	2,360	31,294	1,136,270
Nov-19	356,533	500,724	1,329,050	4,721	58,946	2,249,974	353,551	499,656	1,329,048	4,721	59,137	2,246,112
Dec-19	583,878	755,621	1,988,279	7,069	88,272	3,423,119	591,161	758,761	1,988,284	7,069	88,463	3,433,737
Jan-20	812,100	984,380	2,656,289	9,374	115,402	4,577,545	827,962	989,284	2,656,295	9,374	115,593	4,598,508
Feb-20	1,007,277	1,191,087	3,283,777	11,645	139,283	5,633,070	1,018,690	1,193,904	3,283,784	11,645	139,474	5,647,497
Mar-20	1,175,696	1,415,197	3,940,871	13,912	171,034	6,716,709	1,191,267	1,423,301	3,940,878	13,912	171,662	6,741,019
Apr-20	1,313,253	1,622,677	4,538,583	16,166	194,417	7,685,097	1,328,990	1,631,892	4,538,629	16,166	195,295	7,710,972
May-20	1,504,904	1,869,263	5,095,332	18,399	220,792	8,708,690	1,514,557	1,878,029	5,095,596	18,399	221,558	8,728,139
Jun-20	1,764,575	2,131,667	5,660,313	20,610	246,806	9,823,972	1,755,816	2,130,743	5,660,190	20,610	246,898	9,814,257
Jul-20	2,083,722	2,458,599	6,282,402	22,806	284,344	11,131,872	2,041,867	2,440,137	6,281,653	22,806	283,322	11,069,786
Aug-20	2,377,226	2,776,790	6,938,829	24,953	326,965	12,444,763	2,302,118	2,738,879	6,937,481	24,953	324,023	12,327,455
Sep-20	2,566,641	3,011,424	7,545,813	27,046	353,600	13,504,525	2,497,602	2,977,048	7,544,676	27,046	351,615	13,397,988

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

SPS Texas Base Period Calendar Month Weather Normalized Sales
30-Year Normal Weather

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	224	(322)	(0)	0	(191)	(289)	0.1%	-0.1%	0.0%	0.0%	-0.6%	0.0%
Nov-19	2,759	1,390	2	0	0	4,151	1.5%	0.6%	0.0%	0.0%	0.0%	0.4%
Dec-19	(10,265)	(4,208)	(6)	0	0	(14,480)	-4.3%	-1.6%	0.0%	0.0%	0.0%	-1.2%
Jan-20	(8,579)	(1,764)	(2)	0	0	(10,345)	-3.6%	-0.8%	0.0%	0.0%	0.0%	-0.9%
Feb-20	4,448	2,087	0	0	0	6,535	2.3%	1.0%	0.0%	0.0%	0.0%	0.6%
Mar-20	(4,158)	(5,286)	0	0	(438)	(9,883)	-2.4%	-2.3%	0.0%	0.0%	-1.4%	-0.9%
Apr-20	(165)	(1,112)	(39)	0	(249)	(1,565)	-0.1%	-0.5%	0.0%	0.0%	-1.1%	-0.2%
May-20	6,084	449	(219)	0	112	6,426	3.3%	0.2%	0.0%	0.0%	0.4%	0.6%
Jun-20	18,412	9,690	388	0	674	29,164	7.6%	3.8%	0.1%	0.0%	2.7%	2.7%
Jul-20	33,095	17,539	625	0	1,114	52,372	11.6%	5.7%	0.1%	0.0%	3.1%	4.2%
Aug-20	33,254	19,449	599	0	1,920	55,221	12.8%	6.5%	0.1%	0.0%	4.7%	4.4%
Sep-20	(6,069)	(3,535)	(210)	0	(957)	(10,771)	-3.1%	-1.5%	0.0%	0.0%	-3.5%	-1.0%
Total	**69,039**	**34,376**	**1,137**	**0**	**1,985**	**106,537**	**2.8%**	**1.2%**	**0.0%**	**0.0%**	**0.6%**	**0.8%**

YEAR TO DATE 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	224	(322)	(0)	0	(191)	(289)	0.13%	-0.13%	0.00%	0.00%	-0.61%	0.0%
Nov-19	2,983	1,069	2	0	(191)	3,862	0.84%	0.21%	0.00%	0.00%	-0.32%	0.2%
Dec-19	(7,283)	(3,140)	(5)	0	(191)	(10,618)	-1.23%	-0.41%	0.00%	0.00%	-0.22%	-0.3%
Jan-20	(15,862)	(4,903)	(7)	0	(191)	(20,962)	-1.92%	-0.50%	0.00%	0.00%	-0.16%	-0.5%
Feb-20	(11,413)	(2,817)	(7)	0	(191)	(14,427)	-1.12%	-0.24%	0.00%	0.00%	-0.14%	-0.3%
Mar-20	(15,571)	(8,103)	(7)	0	(629)	(24,310)	-1.31%	-0.57%	0.00%	0.00%	-0.37%	-0.4%
Apr-20	(15,737)	(9,215)	(46)	0	(878)	(25,875)	-1.18%	-0.56%	0.00%	0.00%	-0.45%	-0.3%
May-20	(9,652)	(8,766)	(265)	0	(766)	(19,449)	-0.64%	-0.47%	-0.01%	0.00%	-0.35%	-0.2%
Jun-20	8,760	924	123	0	(92)	9,715	0.50%	0.04%	0.00%	0.00%	-0.04%	0.1%
Jul-20	41,854	18,462	748	0	1,022	62,087	2.05%	0.76%	0.01%	0.00%	0.36%	0.6%
Aug-20	75,108	37,911	1,347	0	2,942	117,308	3.26%	1.38%	0.02%	0.00%	0.91%	1.0%
Sep-20	69,039	34,376	1,137	0	1,985	**106,537**	2.76%	1.15%	0.02%	0.00%	0.56%	**0.8%**

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Weather Impacted Sales Calculation
Using Panhandle Weather (Normal Period 1989-2018)

Texas Retail Weather Adjustment Summary													
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Total
Heating Degree Days 30-yr normal	202	516	815	810	658	460	235	72	3	0	0	30	3,803
Heating Degree Days Actual	367	576	687	705	727	344	250	49	0	0	0	62	3,767
Variance from Normal	165	60	(128)	(105)	69	(116)	15	(23)	(3)	(0)	(0)	32	(36)
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Total
Cooling Degree Days 30-yr normal	42	1	0	0	0	6	31	149	348	449	402	202	1,632
Cooling Degree Days Actual	35	0	0	0	0	7	25	181	415	562	518	178	1,921
Variance from Normal	(7)	(1)	0	0	(0)	1	(6)	32	67	113	116	(24)	289
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20				Total
Precipitation 30-yr normal	1.53	0.74	0.68	0.71	0.65	1.18	1.42	2.32	2.81	2.58	2.63	1.96	19.21
Precipitation Actual	4.69	0.92	0.91	0.04	0.22	1.86	1.67	3.76	2.60	3.30	3.18	2.34	25.49
Variance from Normal	3.16	0.17	0.23	(0.67)	(0.43)	0.68	0.25	1.44	(0.20)	0.73	0.55	0.38	6.29
	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Total
Texas Residential Service **(1)**	(636)	1,395	(6,019)	(5,000)	2,408	(1,665)	(278)	5,456	15,984	28,627	28,809	(6,069)	63,011
Texas Residential Space Heat **(2)**	860	1,364	(4,246)	(3,579)	2,040	(2,493)	112	629	2,428	4,468	4,445	0	6,028
Texas Small General Service **(3)**	(61)	173	(753)	(600)	304	(233)	(0)	312	1,282	2,630	2,972	(546)	5,480
Texas Secondary General Service **(4) & (5)**	(261)	1,220	(3,462)	(1,166)	1,782	(5,054)	(1,111)	141	8,422	14,938	16,508	(2,994)	28,964
CRMWA Weather Adjustment **(6)**	0	0	0	0	0	0	(39)	(223)	373	596	567	(205)	1,069
Small Municipal and School Service **(7)**	(9)	0	0	0	0	(24)	(14)	6	33	60	109	(59)	103
Large Municipal and School Service **(8)**	(88)	0	0	0	0	(192)	(142)	74	397	661	1,078	(538)	1,250
Large School Service **(9)**	(94)	0	0	0	0	(222)	(92)	31	243	393	733	(360)	633
Texas Retail Weather Adjustment Total	(289)	4,151	(14,480)	(10,345)	6,535	(9,883)	(1,565)	6,426	29,164	52,372	55,221	(10,771)	106,537

Texas Residential Service												
Heating Degree Days Weather Adjustment (30-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
Variance from Normal	165	60	(128)	(105)	69	(116)	15	(23)	(3)	(0)	(0)	32
Heating Degree Days Weather Coefficients	0.0000019	0.0001297	0.0002619	0.0002648	0.0001942	0.0000798	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Res Service Customers	178,500	178,874	178,961	179,339	179,320	179,661	179,831	180,151	180,528	180,897	181,211	207,072
Heating Degree Days Weather Adjustment (MWh)	55	1,395	-6,019	-5,000	2,408	-1,665	0	0	0	0	0	0
Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	(7)	(1)	0	0	(0)	1	(6)	32	67	113	116	(24)
Cooling Degree Days Weather Coefficients	0.0005265	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0002792	0.0009575	0.0013225	0.0014035	0.0013731	0.0011968
Res Service Customers	178,500	178,874	178,961	179,339	179,320	179,661	179,831	180,151	180,528	180,897	181,211	207,072
Cooling Degree Days Weather Adjustment (MWh)	(691)	0	0	0	0	0	(278)	5,456	15,984	28,627	28,809	(6,069)
TX Residential Service Weather Adjustment (1)	(636)	1,395	(6,019)	(5,000)	2,408	(1,665)	(278)	5,456	15,984	28,627	28,809	(6,069)

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Weather Impacted Sales Calculation
Using Panhandle Weather (Normal Period 1989-2018)

Texas Residential Space Heat												
Heating Degree Days Weather Adjustment (30-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
Variance from Normal	165	60	(128)	(105)	69	(116)	15	(23)	(3)	(0)	(0)	32
Heating Degree Days Weather Coefficients	0.0002141	0.0008336	0.0012214	0.0012621	0.0010998	0.0008051	0.0002852	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Res Space Heat Customers	27,371	27,218	27,074	26,930	26,826	26,667	26,533	26,397	26,261	26,083	25,890	0
Heating Degree Days Weather Adjustment (MWh)	967	1,364	-4,246	-3,579	2,040	-2,493	113	0	0	0	0	0
Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	(7)	(1)	0	0	(0)	1	(6)	32	67	113	116	(24)
Cooling Degree Days Weather Coefficients	0.0005338	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000059	0.0007533	0.0013809	0.0015191	0.0014828	0.0012478
Res Space Heat Customers	27,371	27,218	27,074	26,930	26,826	26,667	26,533	26,397	26,261	26,083	25,890	0
Cooling Degree Days Weather Adjustment (MWh)	(107)	0	0	0	0	0	(1)	629	2,428	4,468	4,445	0
TX Residential Space Heat Weather Adjustment (2)	860	1,364	(4,246)	(3,579)	2,040	(2,493)	112	629	2,428	4,468	4,445	0

Texas Small General Service												
Heating Degree Days Weather Adjustment (30-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
Variance from Normal	165	60	(128)	(105)	69	(116)	15	(23)	(3)	(0)	(0)	32
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
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
Heating Degree Days Weather Adjustment (MWh)	7	173	-753	-600	304	-233	0	0	0	0	0	0
Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	(7)	(1)	0	0	(0)	1	(6)	32	67	113	116	(24)
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
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
Cooling Degree Days Weather Adjustment (MWh)	(68)	0	0	0	0	0	(0)	312	1,282	2,630	2,972	(546)
TX Small General Service Weather Adjustment	(61)	173	(753)	(600)	304	(233)	(0)	312	1,282	2,630	2,972	(546)

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Weather Impacted Sales Calculation
Using Panhandle Weather (Normal Period 1989-2018)

Texas Small Secondary General Service

Heating Degree Days Weather Adjustment (30-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
Variance from Normal	165	60	(128)	(105)	69	(116)	15	(23)	(3)	(0)	(0)	32
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
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
Heating Degree Days Weather Adjustment (MWh)	49	1,217	-3,455	-1,206	0	0	0	0	0	0	0	0

Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	(7)	(1)	0	0	(0)	1	(6)	32	67	113	116	(24)
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
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
Cooling Degree Days Weather Adjustment (MWh)	-309	0	0	0	0	0	-3	2,183	8,119	15,943	17,257	-2,748

Precipitation Weather Adjustment (30-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
Variance from Normal	3.16	0.17	0.23	(0.67)	(0.43)	0.68	0.25	1.44	(0.20)	0.73	0.55	0.38
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
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
Precipitation Weather Adjustment (MWh)	0	0	0	43	1,782	(5,054)	(1,108)	(2,046)	288	(1,034)	(780)	(241)

TX Small Secondary General Service Weather Adjustment (4)	(261)	1,217	(3,455)	(1,164)	1,782	(5,054)	(1,111)	137	8,407	14,909	16,477	(2,989)

Texas Large Secondary General Service

Heating Degree Days Weather Adjustment (30-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
Variance from Normal	165	60	(128)	(105)	69	(116)	15	(23)	(3)	(0)	(0)	32
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
Large Secondary General Customers	22	22	22	22	23	22	22	22	22	22	22	22
Heating Degree Days Weather Adjustment (MWh)	0	2	-6	-2	0	0	0	0	0	0	0	0

Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	(7)	(1)	0	0	(0)	1	(6)	32	67	113	116	(24)
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
Large Secondary General Customers	22	22	22	22	23	22	22	22	22	22	22	22
Cooling Degree Days Weather Adjustment (MWh)	-1	0	0	0	0	0	0	4	15	29	32	-5

Precipitation Weather Adjustment (30-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
Variance from Normal												
Precipitation Weather Coefficients												
Small Secondary General Customers												
Precipitation Weather Adjustment (MWh)												

Large SG customer usage is not impacted by precipitation

TX Large Secondary General Service Weather Adjustment (5)	(0)	2	(6)	(2)	0	0	(0)	4	15	29	32	(5)

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Weather Impacted Sales Calculation
Using Panhandle Weather (Normal Period 1989-2018)

Canadian River Municipal Water Authority (CRMWA)												
Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	(7)	(1)	0	0	(0)	1	(6)	32	67	113	116	(24)
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
CRMWA Customers	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	342	708	652	(146)
Precipitation Weather Adjustment (30-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
Variance from Normal	3.16	0.17	0.23	(0.67)	(0.43)	0.68	0.25	1.44	(0.20)	0.73	0.55	0.38
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
Small Secondary General Customers	1	1	1	1	1	1	1	1	1	1	1	1
Precipitation Weather Adjustment (MWh)	0	0	0	0	0	0	(39)	(223)	31	(113)	(85)	(59)
CRMWA Weather Adjustment (6)	0	0	0	0	0	0	(39)	(223)	373	596	567	(205)

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Weather Impacted Sales Calculation
Using Panhandle Weather (Normal Period 1989-2018)

Texas Municipal and School Service

Cooling Degree Days Weather Adjustment (30-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
Variance from Normal	(7)	(1)	0	0	(0)	1	(6)	32	67	113	116	(24)
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
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
Cooling Degree Days Weather Adjustment (MWh)	(191)	0	0	0	0	0	(42)	401	674	1,114	1,920	(957)

Precipitation Weather Adjustment (30-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
Variance from Normal	3.16	0.17	0.23	(0.67)	(0.43)	0.68	0.25	1.44	(0.20)	0.73	0.55	0.38
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
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
Precipitation Weather Adjustment (MWh)	0	0	0	0	0	(438)	(207)	(290)	0	0	0	0
Weather Adjustment	(191)	0	0	0	0	(438)	(249)	112	674	1,114	1,920	(957)

Texas - Municipal and School Weather Impact Allocation (Billed Sales in KWh)

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-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
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
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
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

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-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%
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%
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%
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%

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
SMSTX **(7)**	(9)	0	0	0	0	(24)	(14)	6	33	60	109	(59)
LMSTX **(8)**	(88)	0	0	0	0	(192)	(142)	74	397	661	1,078	(538)
LSSTX **(9)**	(94)	0	0	0	0	(222)	(92)	31	243	393	733	(360)

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Residential Service Coefficients (Modeled with MWH)

			Model Coefficients		Monthly weights Model to calendar			Calendar Month	
Year	Month	Date	RES HDD	RES CDD	Current	1st Future	2nd Future	RES HDD	RES CDD
2019	10	Oct-19	0.000000	0.001088	48.39%	50.69%	0.92%	0.0000019	0.0005265
2019	11	Nov-19	0.000000	0.000000	36.35%	63.02%	0.63%	0.0001297	0.0000000
2019	12	Dec-19	0.000203	0.000000	43.32%	56.68%	0.00%	0.0002619	0.0000000
2020	1	Jan-20	0.000307	0.000000	49.62%	49.46%	0.92%	0.0002648	0.0000000
2020	2	Feb-20	0.000224	0.000000	40.56%	59.44%	0.00%	0.0001942	0.0000000
2020	3	Mar-20	0.000174	0.000000	45.93%	54.07%	0.00%	0.0000798	0.0000000
2020	4	Apr-20	0.000000	0.000000	46.67%	52.86%	0.48%	0.0000000	0.0002792
2020	5	May-20	0.000000	0.000517	39.63%	60.37%	0.00%	0.0000000	0.0009575
2020	6	Jun-20	0.000000	0.001247	44.13%	55.87%	0.00%	0.0000000	0.0013225
2020	7	Jul-20	0.000000	0.001382	49.31%	50.54%	0.15%	0.0000000	0.0014035
2020	8	Aug-20	0.000000	0.001424	44.55%	55.30%	0.15%	0.0000000	0.0013731
2020	9	Sep-20	0.000000	0.001333	44.44%	55.56%	0.00%	0.0000000	0.0011968
2020	10	Oct-20	0.000000	0.001088	46.39%	52.23%	1.38%		
2020	11	Nov-20	0.000000	0.000000	34.76%	65.08%	0.16%		

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Residential Space Heat Coefficients (Modeled with MWH)

		Model Coefficients		Monthly weights Model to calendar			Calendar Month	
Year	Month	RES HDD	RES CDD	Current	1st Future	2nd Future	RES HDD	RES CDD
2019	10	0.000000	0.001103	48.39%	50.69%	0.92%	0.0002141	0.0005338
2019	11	0.000403	0.000000	36.35%	63.02%	0.63%	0.0008336	0.0000000
2019	12	0.001077	0.000000	43.32%	56.68%	0.00%	0.0012214	0.0000000
2020	1	0.001332	0.000000	49.62%	49.46%	0.92%	0.0012621	0.0000000
2020	2	0.001197	0.000000	40.56%	59.44%	0.00%	0.0010998	0.0000000
2020	3	0.001034	0.000000	45.93%	54.07%	0.00%	0.0008051	0.0000000
2020	4	0.000611	0.000000	46.67%	52.86%	0.48%	0.0002852	0.0000059
2020	5	0.000000	0.000000	39.63%	60.37%	0.00%	0.0000000	0.0007533
2020	6	0.000000	0.001248	44.13%	55.87%	0.00%	0.0000000	0.0013809
2020	7	0.000000	0.001486	49.31%	50.54%	0.15%	0.0000000	0.0015191
2020	8	0.000000	0.001552	44.55%	55.30%	0.15%	0.0000000	0.0014828
2020	9	0.000000	0.001428	44.44%	55.56%	0.00%	0.0000000	0.0012478
2020	10	0.000000	0.001103	46.39%	52.23%	1.38%		
2020	11	0.000403	0.000000	34.76%	65.08%	0.16%		

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Small General Service Coefficients (Modeled with MWH)

		Model Coefficients			Monthly weights Model to calendar			Calendar Month		
Year	Month	RES HDD	RES CDD	Precip	Current	1st Future	2nd Future	RES HDD	RES CDD	Precip
2019	10	0.000000	0.000596	0.000000	48.39%	50.69%	0.92%	0.0000013	0.0002886	0.0000000
2019	11	0.000000	0.000000	0.000000	36.35%	63.02%	0.63%	0.0000896	0.0000000	0.0000000
2019	12	0.000140	0.000000	0.000000	43.32%	56.68%	0.00%	0.0001827	0.0000000	0.0000000
2020	1	0.000215	0.000000	0.000000	49.62%	49.46%	0.92%	0.0001764	0.0000000	0.0000000
2020	2	0.000138	0.000000	0.000000	40.56%	59.44%	0.00%	0.0001364	0.0000000	0.0000000
2020	3	0.000135	0.000000	0.000000	45.93%	54.07%	0.00%	0.0000621	0.0000000	0.0000000
2020	4	0.000000	0.000000	0.000000	46.67%	52.86%	0.48%	0.0000000	0.0000024	0.0000000
2020	5	0.000000	0.000000	0.000000	39.63%	60.37%	0.00%	0.0000000	0.0003064	0.0000000
2020	6	0.000000	0.000507	0.000000	44.13%	55.87%	0.00%	0.0000000	0.0005941	0.0000000
2020	7	0.000000	0.000663	0.000000	49.31%	50.54%	0.15%	0.0000000	0.0007232	0.0000000
2020	8	0.000000	0.000782	0.000000	44.55%	55.30%	0.15%	0.0000000	0.0007961	0.0000000
2020	9	0.000000	0.000808	0.000000	44.44%	55.56%	0.00%	0.0000000	0.0006904	0.0000000
2020	10	0.000000	0.000596	0.000000	46.39%	52.23%	1.38%			
2020	11	0.000000	0.000000	0.000000	34.76%	65.08%	0.16%			

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Secondary General Service Coefficients (Modeled with MWH)

		Model Coefficients			Monthly weights Model to calendar		
Year	Month	RES HDD	RES CDD	Precip	Current	1st Future	2nd Future
2019	10	0.000000	87.047367	0.000000	48.39%	50.69%	0.92%
2019	11	0.000000	0.000000	0.000000	36.35%	63.02%	0.63%
2019	12	31.965111	0.000000	0.000000	43.32%	56.68%	0.00%
2020	1	23.133329	0.000000	0.000000	49.62%	49.46%	0.92%
2020	2	0.000000	0.000000	0.000000	40.56%	59.44%	0.00%
2020	3	0.000000	0.000000	-6959.833282	45.93%	54.07%	0.00%
2020	4	0.000000	0.000000	-7891.053667	46.67%	52.86%	0.48%
2020	5	0.000000	0.000000	-1426.554230	39.63%	60.37%	0.00%
2020	6	0.000000	114.565266	-1426.554230	44.13%	55.87%	0.00%
2020	7	0.000000	126.966168	-1426.554230	49.31%	50.54%	0.15%
2020	8	0.000000	155.975749	-1426.554230	44.55%	55.30%	0.15%
2020	9	0.000000	144.144646	-1426.554230	44.44%	55.56%	0.00%
2020	10	0.000000	87.047367	0.000000	46.39%	52.23%	1.38%
2020	11	0.000000	0.000000	0.000000	34.76%	65.08%	0.16%

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Secondary General Service Coefficients (Modeled with MWH)

Calendar Month						
RES HDD	RES CDD	Precip	Actual Cust	RES HDD	RES CDD	Precip
0.2946093	42.1196936	0.0000000	12,126	0.0000243	0.0034735	0.0000000
20.2899720	0.0000000	0.0000000	12,125	0.0016734	0.0000000	0.0000000
26.9590777	0.0000000	0.0000000	12,110	0.0022262	0.0000000	0.0000000
11.4778267	0.0000000	-64.1459289	11,901	0.0009644	0.0000000	-0.0053900
0.0000000	0.0000000	-4137.0437568	11,947	0.0000000	0.0000000	-0.3462831
0.0000000	0.0000000	-7463.3502949	11,964	0.0000000	0.0000000	-0.6238173
0.0000000	0.5455489	-4443.3206341	11,968	0.0000000	0.0000456	-0.3712668
0.0000000	69.1615199	-1426.5542303	11,978	0.0000000	0.0057740	-0.1190979
0.0000000	121.4940240	-1426.5542303	11,980	0.0000000	0.0101414	-0.1190780
0.0000000	141.6533120	-1426.5542303	11,989	0.0000000	0.0118153	-0.1189886
0.0000000	149.3273230	-1424.3629027	11,996	0.0000000	0.0124481	-0.1187365
0.0000000	112.4239355	-634.0241023	11,989	0.0000000	0.0093773	-0.0528838

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas CRMWA Coefficients (Modeled with MWH)

		Model Coefficients (Calendar)			Monthly weights Model to calendar			Revenue Month		
Year	Month	RES HDD	RES CDD	Precip	Current	1st Future	2nd Future	RES HDD	RES CDD	Precip
2019	10	0.000000	0.000000	0.000000	48.39%	50.69%	0.92%	0.0000000	0.0000000	0.0000000
2019	11	0.000000	0.000000	0.000000	36.35%	63.02%	0.63%	0.0000000	0.0000000	0.0000000
2019	12	0.000000	0.000000	0.000000	43.32%	56.68%	0.00%	0.0000000	0.0000000	0.0000000
2020	1	0.000000	0.000000	0.000000	49.62%	49.46%	0.92%	0.0000000	0.0000000	0.0000000
2020	2	0.000000	0.000000	0.000000	40.56%	59.44%	0.00%	0.0000000	0.0000000	0.0000000
2020	3	0.000000	0.000000	0.000000	45.93%	54.07%	0.00%	0.0000000	0.0000000	-155.1887401
2020	4	0.000000	0.000000	-155.188740	46.67%	52.86%	0.48%	0.0000000	0.0000000	-155.1887401
2020	5	0.000000	0.000000	-155.188740	39.63%	60.37%	0.00%	0.0000000	5.1028412	-155.1887401
2020	6	0.000000	5.102841	-155.188740	44.13%	55.87%	0.00%	0.0000000	6.2818395	-155.1887401
2020	7	0.000000	6.281839	-155.188740	49.31%	50.54%	0.15%	0.0000000	5.6352651	-155.1887401
2020	8	0.000000	5.635265	-155.188740	44.55%	55.30%	0.15%	0.0000000	5.9612807	-155.1887401
2020	9	0.000000	5.961281	-155.188740	44.44%	55.56%	0.00%	0.0000000	0.0000000	0.0000000
2020	10	0.000000	0.000000	0.000000	46.39%	52.23%	1.38%			
2020	11	0.000000	0.000000	0.000000	34.76%	65.08%	0.16%			

Southwestern Public Service Company

Weather Normalization of Texas Retail Base Period Sales

Texas Municipals and Schools Coefficients (Modeled with MWH)

		Model Coefficients			Monthly weights Model to calendar			Calendar Month		
Year	Month	RES HDD	RES CDD	Precip	Current	1st Future	2nd Future	RES HDD	RES CDD	Precip
2019	10	0.000000	0.011962	0.000000	48.39%	50.69%	0.92%	0.0000000	0.0057879	0.0000000
2019	11	0.000000	0.000000	0.000000	36.35%	63.02%	0.63%	0.0000000	0.0000000	0.0000000
2019	12	0.000000	0.000000	0.000000	43.32%	56.68%	0.00%	0.0000000	0.0000000	0.0000000
2020	1	0.000000	0.000000	0.000000	49.62%	49.46%	0.92%	0.0000000	0.0000000	0.0000000
2020	2	0.000000	0.000000	0.000000	40.56%	59.44%	0.00%	0.0000000	0.0000000	0.0000000
2020	3	0.000000	0.000000	0.000000	45.93%	54.07%	0.00%	0.0000000	0.0000000	-0.1444194
2020	4	0.000000	0.000000	-0.267094	46.67%	52.86%	0.48%	0.0000000	0.0017161	-0.1848261
2020	5	0.000000	0.003223	-0.113858	39.63%	60.37%	0.00%	0.0000000	0.0028399	-0.0451236
2020	6	0.000000	0.002588	0.000000	44.13%	55.87%	0.00%	0.0000000	0.0022550	0.0000000
2020	7	0.000000	0.001992	0.000000	49.31%	50.54%	0.15%	0.0000000	0.0022107	0.0000000
2020	8	0.000000	0.002417	0.000000	44.55%	55.30%	0.15%	0.0000000	0.0037106	0.0000000
2020	9	0.000000	0.004730	0.000000	44.44%	55.56%	0.00%	0.0000000	0.0087476	0.0000000
2020	10	0.000000	0.011962	0.000000	46.39%	52.23%	1.38%			
2020	11	0.000000	0.000000	0.000000	34.76%	65.08%	0.16%			

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

Roswell Weather Data
Normal Weather Based on a 30-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	206	57	4.83	133	55	1.16	73	2	3.67
Nov	2019	459	0	1.38	448	1	0.42	11	-1	0.96
Dec	2019	604	0	0.11	737	0	0.56	-133	0	-0.45
Jan	2020	604	0	0.44	724	0	0.37	-120	0	0.07
Feb	2020	559	0	0.57	525	1	0.35	34	-1	0.22
Mar	2020	240	9	2.07	336	6	0.48	-96	3	1.59
Apr	2020	111	76	0.23	134	52	0.57	-23	24	-0.34
May	2020	2	328	0.20	25	221	1.15	-23	107	-0.95
Jun	2020	0	530	0.39	0	459	1.23	0	71	-0.84
Jul	2020	0	707	0.81	0	525	1.81	0	182	-1.00
Aug	2020	0	624	0.57	0	474	1.74	0	150	-1.17
Sep	2020	41	268	0.09	9	260	1.58	32	8	-1.49
Annual		**2,826**	**2,599**	**11.69**	**3,070**	**2,053**	**11.43**	**-244**	**546**	**0.26**
Annual Dev %								**-7.9%**	**26.6%**	**2.2%**

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

SPS Wholesale Weather Impacted Sales - Transmission Level

Sales (In MWh) Calendar Month						Sales WN Calendar Month					**Weather Impacted Sales 30-Year Normal**				
	Central Valley	Farmers	Lea County	Roosevelt	Total	Central Valley	Farmers	Lea County	Roosevelt	Total	Central Valley	Farmers	Lea County	Roosevelt	Total
Oct-19	67,865	20,168	95,843	11,272	195,148	67,865	20,115	95,843	11,272	195,096	0	52	0	0	52
Nov-19	66,564	21,743	61,955	11,598	161,860	66,564	21,743	61,955	11,598	161,860	0	0	0	0	0
Dec-19	68,333	22,062	70,686	12,007	173,088	68,333	22,062	70,686	12,007	173,088	0	0	0	0	0
Jan-20	69,444	23,115	69,032	12,317	173,908	69,444	23,115	69,032	12,317	173,908	0	0	0	0	0
Feb-20	63,586	22,922	89,495	11,859	187,862	63,586	22,922	89,495	11,859	187,862	0	0	0	0	0
Mar-20	65,976	24,866	91,053	14,025	195,920	65,976	24,866	91,053	14,025	195,920	0	0	0	0	0
Apr-20	63,987	26,158	86,799	13,808	190,752	63,987	26,158	86,799	13,808	190,752	0	0	0	0	0
May-20	56,068	29,030	88,653	14,036	187,787	54,197	26,349	81,897	12,524	174,967	1,871	2,681	6,756	1,512	12,820
Jun-20	65,442	31,700	100,926	16,009	214,078	64,290	30,354	97,978	15,124	207,745	1,151	1,346	2,949	886	6,332
Jul-20	72,604	38,889	117,951	17,664	247,108	68,587	33,567	107,446	14,738	224,338	4,017	5,322	10,505	2,926	22,770
Aug-20	71,403	37,811	113,397	17,330	239,941	68,251	33,674	103,281	14,979	220,186	3,152	4,136	10,116	2,350	19,755
Sep-20	61,169	30,417	95,345	14,198	201,130	61,118	30,279	95,090	14,127	200,614	51	138	255	71	515
Total	**792,441**	**328,881**	**1,081,135**	**166,124**	**2,368,581**	**782,198**	**315,206**	**1,050,555**	**158,377**	**2,306,336**	**10,243**	**13,675**	**30,580**	**7,746**	**62,245**
															2.7%

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

SPS Wholesale Weather Impacted Sales - Production Level

Sales (In MWh) Calendar Month						Sales WN Calendar Month					Weather Impacted Sales 30-Year Normal				
	Central Valley	Farmers	Lea County	Roosevelt	Total	Central Valley	Farmers	Lea County	Roosevelt	Total	Central Valley	Farmers	Lea County	Roosevelt	Total
Oct-19	46,260	10,085	66,317	6,595	129,256	46,260	10,059	66,317	6,595	129,230	0	26	0	0	26
Nov-19	45,474	11,353	32,180	6,791	95,798	45,474	11,353	32,180	6,791	95,798	0	0	0	0	0
Dec-19	46,588	11,585	40,299	7,291	105,764	46,588	11,585	40,299	7,291	105,764	0	0	0	0	0
Jan-20	47,839	13,033	39,125	6,896	106,893	47,839	13,033	39,125	6,896	106,893	0	0	0	0	0
Feb-20	43,065	12,816	61,199	7,817	124,898	43,065	12,816	61,199	7,817	124,898	0	0	0	0	0
Mar-20	43,377	14,116	59,143	8,650	125,287	43,377	14,116	59,143	8,650	125,287	0	0	0	0	0
Apr-20	40,275	15,348	54,028	8,232	117,883	40,275	15,348	54,028	8,232	117,883	0	0	0	0	0
May-20	31,373	17,608	54,697	8,275	111,952	30,326	15,982	50,528	7,384	104,220	1,047	1,626	4,168	892	7,733
Jun-20	39,330	19,341	64,206	9,567	132,443	38,638	18,520	62,330	9,037	128,525	692	821	1,876	529	3,919
Jul-20	43,247	24,664	77,800	11,004	156,715	40,855	21,289	70,871	9,181	142,195	2,393	3,375	6,929	1,823	14,520
Aug-20	43,526	24,429	74,462	10,755	153,173	41,604	21,757	67,819	9,297	140,477	1,922	2,673	6,643	1,459	12,695
Sep-20	38,495	20,288	64,262	8,623	131,668	38,463	20,196	64,090	8,579	131,329	32	92	172	43	339
Total	**508,851**	**194,667**	**687,716**	**100,496**	**1,491,731**	**502,766**	**186,054**	**667,929**	**95,750**	**1,452,499**	**6,086**	**8,613**	**19,787**	**4,746**	**39,232**
															2.7%

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

New Mexico Wholesale Weather Impacted Sales Calculation
Using Roswell Weather (Normal Period 1989-2018)

New Mexico Wholesale Weather Adjustment Summary													
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020	Total
Heating Degree Days 30-yr normal	133	448	737	724	525	336	134	25	0	0	0	9	3,070
Heating Degree Days Actual	206	459	604	604	559	240	111	2	0	0	0	41	2,826
Variance from Normal	73	11	(133)	(120)	34	(96)	(23)	(23)	(0)	(0)	0	32	(244)
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020	Total
Cooling Degree Days 30-yr normal	55	1	0	0	1	6	52	221	459	525	474	260	2,053
Cooling Degree Days Actual	57	0	0	0	0	9	76	328	530	707	624	268	2,599
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8	546
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020	Total
Precipitation 30-yr normal	1.16	0.42	0.56	0.37	0.35	0.48	0.57	1.15	1.23	1.81	1.74	1.58	11.43
Precipitation Actual	4.83	1.38	0.11	0.44	0.57	2.07	0.23	0.20	0.39	0.81	0.57	0.09	11.69
Variance from Normal	3.67	0.96	(0.45)	0.07	0.22	1.59	(0.34)	(0.95)	(0.84)	(1.00)	(1.17)	(1.49)	0.26
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020	Total
Central Valley **(1)**	0	0	0	0	0	0	0	1,871	1,151	4,017	3,152	51	10,243
Farmers **(2)**	52	0	0	0	0	0	0	2,681	1,346	5,322	4,136	138	13,675
Lea County **(3)**	0	0	0	0	0	0	0	6,756	2,949	10,505	10,116	255	30,580
Roosevelt **(4)**	0	0	0	0	0	0	0	1,512	886	2,926	2,350	71	7,746
New Mexico Wholesale Weather Adjustment Total	52	0	0	0	0	0	0	12,820	6,332	22,770	19,755	515	62,245

Central Valley												
Cooling Degree Days Weather Adjustment (30-yr normal)												
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.512	16.249	22.124	20.950	6.373
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	1,871	1,151	4,017	3,152	51
Central Valley Weather Adjustment (1)	0	0	0	0	0	0	0	1,871	1,151	4,017	3,152	51

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

New Mexico Wholesale Weather Impacted Sales Calculation
Using Roswell Weather (Normal Period 1989-2018)

Farmers

Cooling Degree Days Weather Adjustment (30-yr normal)

	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	22.718	0.000	0.000	0.000	0.000	0.000	0.000	25.091	18.998	29.309	27.490	17.078
Cooling Degree Days Weather Adjustment (MWh)	52	0	0	0	0	0	0	2,681	1,346	5,322	4,136	138
Farmers Weather Adjustment (2)	52	0	0	0	0	0	0	2,681	1,346	5,322	4,136	138

Lea County

Cooling Degree Days Weather Adjustment (30-yr normal)

	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	63.241	41.607	57.857	67.230	31.593
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	6,756	2,949	10,505	10,116	255
Lea County Weather Adjustment (3)	0	0	0	0	0	0	0	6,756	2,949	10,505	10,116	255

Roosevelt

Cooling Degree Days Weather Adjustment (30-yr normal)

	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.046	9.689	14.814	13.768	8.832
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	1,287	687	2,690	2,072	71

Precipitation Weather Adjustment (30-yr normal)

	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020
Variance from Normal	3.67	0.96	-0.45	0.07	0.22	1.59	-0.34	-0.95	-0.84	-1.00	-1.17	-1.49
Precipitation Weather Coefficients	0	0	0	0	0	0	0	-237	-237	-237	-237	0
Precipitation Weather Adjustment (MWh)	0	0	0	0	0	0	0	225	199	237	279	0
Roosevelt Weather Adjustment (4)	0	0	0	0	0	0	0	1,512	886	2,926	2,350	71

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

New Mexico Wholesale Weather Impacted Sales Calculation
Using Roswell Weather (Normal Period 1989-2018)

New Mexico Wholesale Weather Adjustment Summary													
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020	Total
Heating Degree Days 30-yr normal	133	448	737	724	525	336	134	25	0	0	0	9	3,070
Heating Degree Days Actual	206	459	604	604	559	240	111	2	0	0	0	41	2,826
Variance from Normal	73	11	(133)	(120)	34	(96)	(23)	(23)	(0)	(0)	0	32	(244)
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020	Total
Cooling Degree Days 30-yr normal	55	1	0	0	1	6	52	221	459	525	474	260	2,053
Cooling Degree Days Actual	57	0	0	0	0	9	76	328	530	707	624	268	2,599
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8	546
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020	Total
Precipitation 30-yr normal	1.16	0.42	0.56	0.37	0.35	0.48	0.57	1.15	1.23	1.81	1.74	1.58	11.43
Precipitation Actual	4.83	1.38	0.11	0.44	0.57	2.07	0.23	0.20	0.39	0.81	0.57	0.09	11.69
Variance from Normal	3.67	0.96	(0.45)	0.07	0.22	1.59	(0.34)	(0.95)	(0.84)	(1.00)	(1.17)	(1.49)	0.26
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020	Total
Central Valley **(1)**	0	0	0	0	0	0	0	1,047	692	2,393	1,922	32	6,086
Farmers **(2)**	26	0	0	0	0	0	0	1,626	821	3,375	2,673	92	8,613
Lea County **(3)**	0	0	0	0	0	0	0	4,168	1,876	6,929	6,643	172	19,787
Roosevelt **(4)**	0	0	0	0	0	0	0	892	529	1,823	1,459	43	4,746
New Mexico Wholesale Weather Adjustment Total	26	0	0	0	0	0	0	7,733	3,919	14,520	12,695	339	39,232

Central Valley												
Cooling Degree Days Weather Adjustment (30-yr normal)												
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.799	9.765	13.179	12.771	4.011
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	1,047	692	2,393	1,922	32
Central Valley Weather Adjustment (1)	0	0	0	0	0	0	0	1,047	692	2,393	1,922	32

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

New Mexico Wholesale Weather Impacted Sales Calculation
Using Roswell Weather (Normal Period 1989-2018)

Farmers												
Cooling Degree Days Weather Adjustment (30-yr normal)												
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	11.361	0.000	0.000	0.000	0.000	0.000	0.000	15.219	11.591	18.588	17.762	11.391
Cooling Degree Days Weather Adjustment (MWh)	26	0	0	0	0	0	0	1,626	821	3,375	2,673	92
Farmers Weather Adjustment (2)	26	0	0	0	0	0	0	1,626	821	3,375	2,673	92

Lea County												
Cooling Degree Days Weather Adjustment (30-yr normal)												
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.018	26.469	38.162	44.146	21.293
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	4,168	1,876	6,929	6,643	172
Lea County Weather Adjustment (3)	0	0	0	0	0	0	0	4,168	1,876	6,929	6,643	172

Roosevelt												
Cooling Degree Days Weather Adjustment (30-yr normal)												
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020
Variance from Normal	2	(1)	(0)	0	(1)	3	24	107	71	182	150	8
Cooling Degree Days Weather Coefficients	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.102	5.790	9.229	8.545	5.364
Cooling Degree Days Weather Adjustment (MWh)	0	0	0	0	0	0	0	759	410	1,676	1,286	43
Precipitation Weather Adjustment (30-yr normal)												
	Oct2019	Nov2019	Dec2019	Jan2020	Feb2020	Mar2020	Apr2020	May2020	Jun2020	Jul2020	Aug2020	Sep2020
Variance from Normal	3.67	0.96	-0.45	0.07	0.22	1.59	-0.34	-0.95	-0.84	-1.00	-1.17	-1.49
Precipitation Weather Coefficients	0	0	0	0	0	0	0	-140	-142	-148	-147	0
Precipitation Weather Adjustment (MWh)	0	0	0	0	0	0	0	133	119	147	173	0
Roosevelt Weather Adjustment (4)	0	0	0	0	0	0	0	892	529	1,823	1,459	43

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

Central Valley Coefficients (Modeled with MWH)

			Model Coefficients		
Year	Month	Date	HDD	CDD	Precip
2019	Oct	Oct2019	0.0000	0.0000	0.0000
2019	Nov	Nov2019	0.0000	0.0000	0.0000
2019	Dec	Dec2019	0.0000	0.0000	0.0000
2020	Jan	Jan2020	0.0000	0.0000	0.0000
2020	Feb	Feb2020	0.0000	0.0000	0.0000
2020	Mar	Mar2020	0.0000	0.0000	0.0000
2020	Apr	Apr2020	0.0000	0.0000	0.0000
2020	May	May2020	0.0000	17.5116	0.0000
2020	Jun	Jun2020	0.0000	16.2488	0.0000
2020	Jul	Jul2020	0.0000	22.1242	0.0000
2020	Aug	Aug2020	0.0000	20.9498	0.0000
2020	Sep	Sep2020	0.0000	6.3734	0.0000
2020	Oct	Oct2020	0.0000	0.0000	0.0000
2020	Nov	Nov2020	0.0000	0.0000	0.0000
2020	Dec	Dec2020	0.0000	0.0000	0.0000
2021	Jan	Jan2021	0.0000	0.0000	0.0000
2021	Feb	Feb2021	0.0000	0.0000	0.0000
2021	Mar	Mar2021	0.0000	0.0000	0.0000

Farmers Coefficients (Modeled with MWH)

			Model Coefficients		
Year	Month	Date	HDD	CDD	Precip
2019	Oct	Oct2019	0.0000	22.7185	0.0000
2019	Nov	Nov2019	0.0000	0.0000	0.0000
2019	Dec	Dec2019	0.0000	0.0000	0.0000
2020	Jan	Jan2020	0.0000	0.0000	0.0000
2020	Feb	Feb2020	0.0000	0.0000	0.0000
2020	Mar	Mar2020	0.0000	0.0000	0.0000
2020	Apr	Apr2020	0.0000	0.0000	0.0000
2020	May	May2020	0.0000	25.0908	0.0000
2020	Jun	Jun2020	0.0000	18.9980	0.0000
2020	Jul	Jul2020	0.0000	29.3091	0.0000
2020	Aug	Aug2020	0.0000	27.4904	0.0000
2020	Sep	Sep2020	0.0000	17.0778	0.0000
2020	Oct	Oct2020	0.0000	22.7185	0.0000
2020	Nov	Nov2020	0.0000	0.0000	0.0000
2020	Dec	Dec2020	0.0000	0.0000	0.0000
2021	Jan	Jan2021	0.0000	0.0000	0.0000
2021	Feb	Feb2021	0.0000	0.0000	0.0000
2021	Mar	Mar2021	0.0000	0.0000	0.0000

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

Lea County Coefficients (Modeled with MWH)

			Model Coefficients		
Year	Month	Date	HDD	CDD	Precip
2019	Oct	Oct2019	0.0000	0.0000	0.0000
2019	Nov	Nov2019	0.0000	0.0000	0.0000
2019	Dec	Dec2019	0.0000	0.0000	0.0000
2020	Jan	Jan2020	0.0000	0.0000	0.0000
2020	Feb	Feb2020	0.0000	0.0000	0.0000
2020	Mar	Mar2020	0.0000	0.0000	0.0000
2020	Apr	Apr2020	0.0000	0.0000	0.0000
2020	May	May2020	0.0000	63.2413	0.0000
2020	Jun	Jun2020	0.0000	41.6071	0.0000
2020	Jul	Jul2020	0.0000	57.8572	0.0000
2020	Aug	Aug2020	0.0000	67.2298	0.0000
2020	Sep	Sep2020	0.0000	31.5926	0.0000
2020	Oct	Oct2020	0.0000	0.0000	0.0000
2020	Nov	Nov2020	0.0000	0.0000	0.0000
2020	Dec	Dec2020	0.0000	0.0000	0.0000
2021	Jan	Jan2021	0.0000	0.0000	0.0000
2021	Feb	Feb2021	0.0000	0.0000	0.0000
2021	Mar	Mar2021	0.0000	0.0000	0.0000

Roosevelt Coefficients (Modeled with MWH)

			Model Coefficients		
Year	Month	Date	HDD	CDD	Precip
2019	Oct	Oct2019	0.0000	0.0000	0.0000
2019	Nov	Nov2019	0.0000	0.0000	0.0000
2019	Dec	Dec2019	0.0000	0.0000	0.0000
2020	Jan	Jan2020	0.0000	0.0000	0.0000
2020	Feb	Feb2020	0.0000	0.0000	0.0000
2020	Mar	Mar2020	0.0000	0.0000	0.0000
2020	Apr	Apr2020	0.0000	0.0000	0.0000
2020	May	May2020	0.0000	12.0458	-237.2387
2020	Jun	Jun2020	0.0000	9.6889	-237.2387
2020	Jul	Jul2020	0.0000	14.8140	-237.2387
2020	Aug	Aug2020	0.0000	13.7681	-237.2387
2020	Sep	Sep2020	0.0000	8.8316	0.0000
2020	Oct	Oct2020	0.0000	0.0000	0.0000
2020	Nov	Nov2020	0.0000	0.0000	0.0000
2020	Dec	Dec2020	0.0000	0.0000	0.0000
2021	Jan	Jan2021	0.0000	0.0000	0.0000
2021	Feb	Feb2021	0.0000	0.0000	0.0000
2021	Mar	Mar2021	0.0000	0.0000	0.0000

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

Central Valley Coefficients (Modeled with MWH)

			Model Coefficients		
Year	Month	Date	HDD	CDD	Precip
2019	Oct	Oct2019	0.0000	0.0000	0.0000
2019	Nov	Nov2019	0.0000	0.0000	0.0000
2019	Dec	Dec2019	0.0000	0.0000	0.0000
2020	Jan	Jan2020	0.0000	0.0000	0.0000
2020	Feb	Feb2020	0.0000	0.0000	0.0000
2020	Mar	Mar2020	0.0000	0.0000	0.0000
2020	Apr	Apr2020	0.0000	0.0000	0.0000
2020	May	May2020	0.0000	9.7987	0.0000
2020	Jun	Jun2020	0.0000	9.7654	0.0000
2020	Jul	Jul2020	0.0000	13.1785	0.0000
2020	Aug	Aug2020	0.0000	12.7705	0.0000
2020	Sep	Sep2020	0.0000	4.0109	0.0000
2020	Oct	Oct2020	0.0000	0.0000	0.0000
2020	Nov	Nov2020	0.0000	0.0000	0.0000
2020	Dec	Dec2020	0.0000	0.0000	0.0000
2021	Jan	Jan2021	0.0000	0.0000	0.0000
2021	Feb	Feb2021	0.0000	0.0000	0.0000
2021	Mar	Mar2021	0.0000	0.0000	0.0000

Farmers Coefficients (Modeled with MWH)

			Model Coefficients		
Year	Month	Date	HDD	CDD	Precip
2019	Oct	Oct2019	0.0000	11.3608	0.0000
2019	Nov	Nov2019	0.0000	0.0000	0.0000
2019	Dec	Dec2019	0.0000	0.0000	0.0000
2020	Jan	Jan2020	0.0000	0.0000	0.0000
2020	Feb	Feb2020	0.0000	0.0000	0.0000
2020	Mar	Mar2020	0.0000	0.0000	0.0000
2020	Apr	Apr2020	0.0000	0.0000	0.0000
2020	May	May2020	0.0000	15.2185	0.0000
2020	Jun	Jun2020	0.0000	11.5913	0.0000
2020	Jul	Jul2020	0.0000	18.5881	0.0000
2020	Aug	Aug2020	0.0000	17.7615	0.0000
2020	Sep	Sep2020	0.0000	11.3910	0.0000
2020	Oct	Oct2020	0.0000	11.3608	0.0000
2020	Nov	Nov2020	0.0000	0.0000	0.0000
2020	Dec	Dec2020	0.0000	0.0000	0.0000
2021	Jan	Jan2021	0.0000	0.0000	0.0000
2021	Feb	Feb2021	0.0000	0.0000	0.0000
2021	Mar	Mar2021	0.0000	0.0000	0.0000

Southwestern Public Service Company

Weather Normalization of Firm Wholesale Base Period Sales

Lea County Coefficients (Modeled with MWH)

			Model Coefficients		
Year	Month	Date	HDD	CDD	Precip
2019	Oct	Oct2019	0.0000	0.0000	0.0000
2019	Nov	Nov2019	0.0000	0.0000	0.0000
2019	Dec	Dec2019	0.0000	0.0000	0.0000
2020	Jan	Jan2020	0.0000	0.0000	0.0000
2020	Feb	Feb2020	0.0000	0.0000	0.0000
2020	Mar	Mar2020	0.0000	0.0000	0.0000
2020	Apr	Apr2020	0.0000	0.0000	0.0000
2020	May	May2020	0.0000	39.0183	0.0000
2020	Jun	Jun2020	0.0000	26.4688	0.0000
2020	Jul	Jul2020	0.0000	38.1622	0.0000
2020	Aug	Aug2020	0.0000	44.1461	0.0000
2020	Sep	Sep2020	0.0000	21.2931	0.0000
2020	Oct	Oct2020	0.0000	0.0000	0.0000
2020	Nov	Nov2020	0.0000	0.0000	0.0000
2020	Dec	Dec2020	0.0000	0.0000	0.0000
2021	Jan	Jan2021	0.0000	0.0000	0.0000
2021	Feb	Feb2021	0.0000	0.0000	0.0000
2021	Mar	Mar2021	0.0000	0.0000	0.0000

Roosevelt Coefficients (Modeled with MWH)

			Model Coefficients		
Year	Month	Date	HDD	CDD	Precip
2019	Oct	Oct2019	0.0000	0.0000	0.0000
2019	Nov	Nov2019	0.0000	0.0000	0.0000
2019	Dec	Dec2019	0.0000	0.0000	0.0000
2020	Jan	Jan2020	0.0000	0.0000	0.0000
2020	Feb	Feb2020	0.0000	0.0000	0.0000
2020	Mar	Mar2020	0.0000	0.0000	0.0000
2020	Apr	Apr2020	0.0000	0.0000	0.0000
2020	May	May2020	0.0000	7.1015	-139.8626
2020	Jun	Jun2020	0.0000	5.7897	-141.7653
2020	Jul	Jul2020	0.0000	9.2288	-147.7957
2020	Aug	Aug2020	0.0000	8.5448	-147.2369
2020	Sep	Sep2020	0.0000	5.3635	0.0000
2020	Oct	Oct2020	0.0000	0.0000	0.0000
2020	Nov	Nov2020	0.0000	0.0000	0.0000
2020	Dec	Dec2020	0.0000	0.0000	0.0000
2021	Jan	Jan2021	0.0000	0.0000	0.0000
2021	Feb	Feb2021	0.0000	0.0000	0.0000
2021	Mar	Mar2021	0.0000	0.0000	0.0000

Southwestern Public Service Company

Weather Normalization of SPS Base Period Peak Demand

Test Year Peak Day Weather Variance from the 30-yr Average by Concept (Retail)

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Summer 4-mth Avg
Norm Avg Peak Day Temperature	70.9	35.3	26.5	26.7	27.6	44.4	69.6	77.6	83.3	84.4	83.5	78.9	82.5
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	76.4	85.2
Variance	-36.0	-5.8	8.6	7.0	4.0	-3.5	-0.1	-0.4	2.3	8.1	2.9	-2.5	2.7
% Variance	-50.8%	-16.5%	32.4%	26.1%	14.4%	-7.9%	-0.2%	-0.5%	2.8%	9.6%	3.5%	-3.2%	3.3%
Norm Peak Day Heating Degree Days	0.1	29.8	38.5	38.3	37.4	20.9	0.7	0.0	0.0	0.0	0.0	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	0.0
Variance	30.0	5.7	-8.6	-7.0	-4.0	3.2	-0.7	0.0	0.0	0.0	0.0	0.0	0.0
% Variance	23739.1%	19.1%	-22.3%	-18.2%	-10.6%	15.3%	-100.0%						0.0%
Norm Precipitation for the week prior to the Peak Day	0.11	0.14	0.12	0.13	0.13	0.15	0.07	0.34	0.27	0.22	0.51	0.21	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	1.18	0.4
Variance	0.20	0.08	-0.12	-0.11	-0.02	1.19	-0.07	-0.13	-0.03	-0.03	-0.50	0.97	0.1
% Variance	179.7%	59.1%	-100.0%	-86.2%	-11.5%	818.1%	-100.0%	-36.7%	-12.7%	-14.8%	-99.0%	466.9%	32.5%

Test Year Peak Day Weather Variance from the 30-yr Average by Concept (Full Req Wholesale)

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Summer 4-mth Avg
Norm Avg Peak Day Temperature	71.0	40.1	32.1	31.6	33.5	48.3	70.4	78.8	85.3	85.3	84.3	79.6	83.6
Act Avg Peak Day Temperature	37.0	34.0	35.5	40.5	37.5	46.5	71.5	81.0	85.5	92.5	86.5	83.0	86.9
Variance	-34.0	-6.1	3.4	8.9	4.0	-1.8	1.1	2.2	0.2	7.2	2.2	3.4	3.2
% Variance	-47.9%	-15.2%	10.7%	28.2%	11.9%	-3.6%	1.6%	2.8%	0.3%	8.4%	2.6%	4.2%	3.9%
Norm Peak Day Heating Degree Days	0.0	0.0	0.2	24.6	32.7	33.4	31.5	17.0	0.5	0.0	0.0	0.0	0.1
Act Peak Day Heating Degree Days	0.0	0.0	28.0	31.0	29.5	24.5	27.5	18.5	0.0	0.0	0.0	0.0	0.0
Variance	0.0	0.0	27.8	6.5	-3.2	-8.9	-4.0	1.6	-0.5	0.0	0.0	0.0	-0.1
% Variance			15172.7%	26.3%	-9.7%	-26.7%	-12.7%	9.1%	-100.0%				0.0%
Norm Precipitation for the week prior to the Peak Day	0.13	0.13	0.11	0.09	0.11	0.04	0.06	0.13	0.15	0.13	0.28	0.11	0.2
Act Precipitation for the week prior to the Peak Day	0.00	0.40	0.00	0.04	0.35	0.98	0.00	0.00	0.37	0.00	0.02	0.00	0.1
Variance	-0.13	0.27	-0.11	-0.05	0.24	0.94	-0.06	-0.13	0.22	-0.13	-0.26	-0.11	-0.1
% Variance	-100.0%	209.3%	-100.0%	-57.3%	220.1%	2456.5%	-100.0%	-100.0%	143.4%	-100.0%	-92.8%	-100.0%	-41.9%

Test Year Peak Day Weather Variance from the 30-yr Average by Concept (GSEC)

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Summer 4-mth Avg
Norm Avg Peak Day Temperature	70.9	33.8	24.8	25.1	25.7	43.2	69.3	77.2	82.7	84.1	83.2	78.7	82.2
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	74.3	84.7
Variance	-36.6	-5.8	10.3	6.3	4.0	-4.1	-0.5	-1.3	3.0	8.4	3.2	-4.4	2.5
% Variance	-51.7%	-17.2%	41.4%	25.2%	15.4%	-9.4%	-0.8%	-1.7%	3.6%	10.0%	3.8%	-5.6%	3.1%
Norm Precipitation for the week prior to the Peak Day	0.12	0.15	0.12	0.14	0.14	0.18	0.07	0.41	0.31	0.26	0.59	0.24	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	1.55	0.5
Variance	0.29	0.02	-0.12	-0.13	-0.08	1.26	-0.07	-0.13	-0.12	0.00	-0.59	1.32	0.2
% Variance	249.0%	11.3%	-100.0%	-92.6%	-52.7%	699.3%	-100.0%	-30.4%	-37.0%	-1.5%	-100.0%	551.8%	43.7%

Southwestern Public Service Company

Weather Normalization of SPS Base Period Peak Demand

Test Year Peak Demand Weather Adjustment Summary by Customer Class

Summary Table of Retail Peak Weather Normal Adjustment

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	4-mth Avg *
WN Peak	3,071	2,899	3,043	2,980	2,960	2,639	2,601	2,893	3,412	3,667	3,638	3,439	3,539
Weather Adj	-135	42	-75	-58	-29	17	10	15	30	94	64	-79	27
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	3,566
Percent Chg	4.6%	-1.4%	2.5%	2.0%	1.0%	-0.7%	-0.4%	-0.5%	-0.9%	-2.5%	-1.7%	2.4%	0.8%

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

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	4-mth Avg *
WN Peak	445	352	269	331	362	353	320	329	408	389	392	374	391
Weather Adj	-87	0	89	20	-11	-30	6	14	-9	44	24	21	20
Actual Peak	358	352	358	351	351	323	325	343	399	433	416	395	411
Percent Chg	24.3%	0.0%	-24.9%	-5.7%	3.1%	9.4%	-1.7%	-4.2%	2.2%	-10.3%	-5.7%	-5.3%	4.9%

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

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	4-mth Avg *
WN Peak	330	249	202	244	265	240	219	223	233	235	231	282	245
Weather Adj	-65	0	67	15	-8	-20	4	10	-5	27	14	16	13
Actual Peak	266	249	270	259	257	219	223	232	228	262	245	298	258
Percent Chg	24.3%	0.0%	-24.9%	-5.7%	3.1%	9.4%	-1.7%	-4.2%	2.2%	-10.3%	-5.7%	-5.3%	5.0%

Summary Table of Golden Spread Full Load Peak Weather Normal Adjustment

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	4-mth Avg *
WN Peak	601	590	573	536	552	598	915	938	1,127	1,319	1,282	1,194	1,231
Weather Adj	-26	0	0	0	0	-8	6	8	31	68	58	-92	16
Actual Peak	575	590	573	536	552	591	922	947	1,158	1,386	1,340	1,102	1,247
Percent Chg	4.5%	0.0%	0.0%	0.0%	0.0%	1.3%	-0.7%	-0.9%	-2.7%	-4.9%	-4.3%	8.4%	1.3%

** the four month average is of June through September 2020*

Southwestern Public Service Company

Weather Normalization of SPS Base Period Peak Demand

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

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-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

Average Temperature Weather Adjustment (30-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
Average Temperature Normal	70.9	35.3	26.5	26.7	27.6	44.4	69.6	77.6	83.3	84.4	83.5	78.9
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	76.4
Variance from Normal	-36.0	-5.8	8.6	7.0	4.0	-3.5	-0.1	-0.4	2.3	8.1	2.9	-2.5
Average Temperature Weather Coefficients	3.75	0.00	0.00	0.00	0.00	0.00	3.44	8.18	10.77	11.28	11.42	8.77
Average Temperature Weather Adjustment (MW)	(135)	-	-	-	-	-	(0)	(3)	25	92	34	(22)

Heating Degree Days Weather Adjustment (30-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
Heating Degree Days Normal	0.1	29.8	38.5	38.3	37.4	20.9	0.7	0.0	0.0	0.0	0.0	0.0
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
Variance from Normal	30.0	5.7	-8.6	-7.0	-4.0	3.2	-0.7	0.0	0.0	0.0	0.0	0.0
Heating Degree Days Weather Coefficients	0.00	7.35	8.78	8.27	7.27	5.42	0.00	0.00	0.00	0.00	0.00	0.00
Heating Degree Days Weather Adjustment (MW)	-	42	(75)	(58)	(29)	17	-	-	-	-	-	-

Precipitation 1 week before Peak Day Weather Adjustment (30-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
Precipitation Normal	0.11	0.14	0.12	0.13	0.13	0.15	0.07	0.34	0.27	0.22	0.51	0.21
Precipitation Actual	0.31	0.22	0.00	0.02	0.12	1.34	0.00	0.22	0.24	0.19	0.00	1.18
Variance from Normal	0.20	0.08	-0.12	-0.11	-0.02	1.19	-0.07	-0.13	-0.03	-0.03	-0.50	0.97
Precipitation Weather Coefficients	0	0	0	0	0	0	-146.39	-146.39	-146.39	-59.29	-59.29	-59.29
Precipitation Weather Adjustment (MW)	-	-	-	-	-	-	10	18	5	2	30	(57)

Southwestern Public Service Company

Weather Normalization of SPS Base Period Peak Demand

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

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
Test year	358	352	358	351	351	323	325	343	399	433	416	395

Average Temperature Weather Adjustment (30-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
Average Temperature Normal	71.0	40.1	32.1	31.6	33.5	48.3	70.4	78.8	85.3	85.3	84.3	79.6
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
Variance from Normal	-34.0	-6.1	3.4	8.9	4.0	-1.8	1.1	2.2	0.2	7.2	2.2	3.4
Average Temperature Weather Coefficients	2.56	0.00	0.00	0.00	0.00	0.00	2.57	3.91	5.05	5.35	5.56	4.75
Average Temperature Weather Adjustment (MW)	(87.1)	-	-	-	-	-	2.9	8.6	1.2	38.4	12.0	16.1

Heating Degree Days Weather Adjustment (30-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
Heating Degree Days Normal	0.0	0.0	0.2	24.6	32.7	33.4	31.5	17.0	0.5	0.0	0.0	0.0
Heating Degree Days Actual	0.0	0.0	28.0	31.0	29.5	24.5	27.5	18.5	0.0	0.0	0.0	0.0
Variance from Normal	-	-	27.8	6.5	(3.2)	(8.9)	(4.0)	1.6	(0.5)	-	-	-
Heating Degree Days Weather Coefficients	0.00	2.76	3.20	3.10	3.43	3.39	0.00	0.00	0.00	0.00	0.00	0.00
Heating Degree Days Weather Adjustment (MW)	-	-	89.1	20.0	(10.9)	(30.2)	-	-	-	-	-	-

Precipitation 1 week before Peak Day Weather Adjustment (30-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
Precipitation Normal	0.13	0.13	0.11	0.09	0.11	0.04	0.06	0.13	0.15	0.13	0.28	0.11
Precipitation Actual	0.00	0.40	0.00	0.04	0.35	0.98	0.00	0.00	0.37	0.00	0.02	0.00
Variance from Normal	-0.13	0.27	-0.11	-0.05	0.24	0.94	-0.06	-0.13	0.22	-0.13	-0.26	-0.11
Precipitation Weather Coefficients	0.00	0.00	0.00	0.00	0.00	0.00	-45.13	-45.13	-45.13	-45.13	-45.13	-45.13
Precipitation Weather Adjustment (MW)	-	-	-	-	-	-	3	6	(10)	6	12	5

Southwestern Public Service Company

Weather Normalization of SPS Base Period Peak Demand

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

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
Test year	266	249	270	259	257	219	223	232	228	262	245	298

Average Temperature Weather Adjustment (30-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
Average Temperature Normal	71.0	40.1	32.1	31.6	33.5	48.3	70.4	78.8	85.3	85.3	84.3	79.6
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
Variance from Normal	-34.0	-6.1	3.4	8.9	4.0	-1.8	1.1	2.2	0.2	7.2	2.2	3.4
Average Temperature Weather Coefficients	1.91	0.00	0.00	0.00	0.00	0.00	1.76	2.64	2.89	3.24	3.27	3.58
Average Temperature Weather Adjustment (MW)	(64.7)	-	-	-	-	-	2.0	5.8	0.7	23.3	7.1	12.1

Heating Degree Days Weather Adjustment (30-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
Heating Degree Days Normal	0.0	0.0	0.2	24.6	32.7	33.4	31.5	17.0	0.5	0.0	0.0	0.0
Heating Degree Days Actual	0.0	0.0	28.0	31.0	29.5	24.5	27.5	18.5	0.0	0.0	0.0	0.0
Variance from Normal	-	-	27.8	6.5	(3.2)	(8.9)	(4.0)	1.6	(0.5)	-	-	-
Heating Degree Days Weather Coefficients	0.00	1.95	2.42	2.29	2.51	2.30	0.00	0.00	0.00	0.00	0.00	0.00
Heating Degree Days Weather Adjustment (MW)	-	-	67.2	14.8	(8.0)	(20.5)	-	-	-	-	-	-

Precipitation 1 week before Peak Day Weather Adjustment (30-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
Precipitation Normal	0.13	0.13	0.11	0.09	0.11	0.04	0.06	0.13	0.15	0.13	0.28	0.11
Precipitation Actual	0.00	0.40	0.00	0.04	0.35	0.98	0.00	0.00	0.37	0.00	0.02	0.00
Variance from Normal	-0.13	0.27	-0.11	-0.05	0.24	0.94	-0.06	-0.13	0.22	-0.13	-0.26	-0.11
Precipitation Weather Coefficients	0.00	0.00	0.00	0.00	0.00	0.00	-30.97	-30.54	-25.80	-27.31	-26.57	-34.05
Precipitation Weather Adjustment (MW)	-	-	-	-	-	-	2	4	(6)	4	7	4

Southwestern Public Service Company

Weather Normalization of SPS Base Period Peak Demand

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

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

Average Temperature Weather Adjustment (30-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
Average Temperature Normal	70.9	33.8	24.8	25.1	25.7	43.2	69.3	77.2	82.7	84.1	83.2	78.7
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	74.3
Variance from Normal	-36.6	-5.8	10.3	6.3	4.0	-4.1	-0.5	-1.3	3.0	8.4	3.2	-4.4
Average Temperature Weather Coefficients	0.70	0.00	0.00	0.00	0.00	1.87	3.64	4.42	6.07	8.01	8.10	4.52
Average Temperature Weather Adjustment (MW)	(26)	-	-	-	-	(8)	(2)	(6)	18	67	26	(20)

Precipitation 1 week before Peak Day Weather Adjustment (30-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
Precipitation Normal	0.12	0.15	0.12	0.14	0.14	0.18	0.07	0.41	0.31	0.26	0.59	0.24
Precipitation Actual	0.40	0.17	0.00	0.01	0.07	1.44	0.00	0.29	0.20	0.25	0.00	1.55
Variance from Normal	0.29	0.02	-0.12	-0.13	-0.08	1.26	-0.07	-0.13	-0.12	0.00	-0.59	1.32
Precipitation Weather Coefficients	0.00	0.00	0.00	0.00	0.00	0.00	-112.51	-112.51	-112.51	-54.95	-54.95	-54.95
Precipitation Weather Adjustment (MW)	-	-	-	-	-	-	8	14	13	0	32	(72)

Southwestern Public Service Company

Weather Normalization of SPS Base Period Peak Demand

Retail Peak Demand

Model Coefficients

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

Full Req Wholesale Peak Demand

Model Coefficients

Year	Month	PD_HDD	PD_Avg_Temp	Precip 1WKB4
2019	10	0.0000	2.5646	0.0000
2019	11	2.7551	0.0000	0.0000
2019	12	3.2048	0.0000	0.0000
2020	1	3.1009	0.0000	0.0000
2020	2	3.4292	0.0000	0.0000
2020	3	3.3903	0.0000	0.0000
2020	4	0.0000	2.5665	-45.1343
2020	5	0.0000	3.9073	-45.1343
2020	6	0.0000	5.0488	-45.1343
2020	7	0.0000	5.3514	-45.1343
2020	8	0.0000	5.5589	-45.1343
2020	9	0.0000	4.7475	-45.1343

GSEC Full Load Peak Demand

Model Coefficients

Year	Month	PD_HDD	PD_Avg_Temp	Precip 1WKB4
2019	10	0.0000	0.7029	0.0000
2019	11	0.0000	0.0000	0.0000
2019	12	0.0000	0.0000	0.0000
2020	1	0.0000	0.0000	0.0000
2020	2	0.0000	0.0000	0.0000
2020	3	0.0000	1.8678	0.0000
2020	4	0.0000	3.6356	-112.5108
2020	5	0.0000	4.4172	-112.5108
2020	6	0.0000	6.0680	-112.5108
2020	7	0.0000	8.0075	-54.9530
2020	8	0.0000	8.1012	-54.9530
2020	9	0.0000	4.5212	-54.9530

Southwestern Public Service Company

Regression Models and Associated Statistics

New Mexico Residential Service

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	CONST	-26451.774	4456.647	-5.935	Constant term
3	CYPperHH_NM	314.351	28.000	11.227	Real Personal Income per Household New Mexico
4	H65_bill_ResSvc_NM_Jan	0.000	0.000	23.923	Heating degree days (January) multiplied by customers
5	H65_bill_ResSvc_NM_Feb	0.000	0.000	16.508	Heating degree days (February) multiplied by customers
6	H65_bill_ResSvc_NM_Mar	0.000	0.000	10.391	Heating degree days (March) multiplied by customers
7	H65_bill_ResSvc_NM_Dec	0.000	0.000	15.658	Heating degree days (December) multiplied by customers
8	C65_bill_ResSvc_NM_Jun	0.001	0.000	24.020	Cooling degree days (June) multiplied by customers
9	C65_bill_ResSvc_NM_Jul	0.001	0.000	36.336	Cooling degree days (July) multiplied by customers
10	C65_bill_ResSvc_NM_Aug	0.001	0.000	37.851	Cooling degree days (August) multiplied by customers
11	C65_bill_ResSvc_NM_Sep	0.001	0.000	25.830	Cooling degree days (September) multiplied by customers
12	C65_bill_ResSvc_NM_Oct	0.001	0.000	9.289	Cooling degree days (October) multiplied by customers
13	BILLINGDAYS	902.455	107.099	8.426	Number of billing days
14	Bin0509	4715.565	2099.647	2.246	Binary variable for May 2009=1, otherwise=0
15	Bin1210	-5717.819	2164.346	-2.642	Binary variable for December 2010=1, otherwise=0
16	AR(1)	0.438	0.069	6.310	First Order Auto Regressive Term

17	Model Statistics	
18	Iterations	8
19	Adjusted Observations	179
20	Deg. of Freedom for Error	164
21	R-Squared	0.964
22	Adjusted R-Squared	0.961
23	AIC	15.536
24	BIC	15.803
25	F-Statistic	317.371
26	Prob (F-Statistic)	0.0000
27	Log-Likelihood	-1,629.49
28	Model Sum of Squares	22,921,582,193.88
29	Sum of Squared Errors	846,043,946.92
30	Mean Squared Error	5,158,804.55
31	Std. Error of Regression	2,271.30
32	Mean Abs. Dev. (MAD)	1,694.80
33	Mean Abs. % Err. (MAPE)	3.84%
34	Durbin-Watson Statistic	1.943
35	Durbin-H Statistic	
36	Ljung-Box Statistic	81.89
37	Prob (Ljung-Box)	0.0000
38	Skewness	0.579
39	Kurtosis	4.181
40	Jarque-Bera	20.401
41	Prob (Jarque-Bera)	0.0000

Southwestern Public Service Company

Regression Models and Associated Statistics

New Mexico Residential Space Heat

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	CONST	-16975.65049	4205.33462	-4.037	Constant term
3	CYPperHH_NM	88.69756	24.16007	3.671	Real Personal Income per Household New Mexico
4	H65_bill_ResSpHt_NM_Jan	0.00141	0.00004	39.163	Heating degree days (January) multiplied by customers
5	H65_bill_ResSpHt_NM_Feb	0.00139	0.00004	32.231	Heating degree days (February) multiplied by customers
6	H65_bill_ResSpHt_NM_Mar	0.00115	0.00005	20.986	Heating degree days (March) multiplied by customers
7	H65_bill_ResSpHt_NM_Apr	0.00053	0.00010	5.294	Heating degree days (April) multiplied by customers
8	H65_bill_ResSpHt_NM_Nov	0.00044	0.00011	3.879	Heating degree days (November) multiplied by customers
9	H65_bill_ResSpHt_NM_Dec	0.00098	0.00005	20.667	Heating degree days (December) multiplied by customers
10	C65_bill_ResSpHt_NM_Jun	0.00091	0.00006	14.527	Cooling degree days (June) multiplied by customers
11	C65_bill_ResSpHt_NM_Jul	0.00114	0.00005	23.564	Cooling degree days (July) multiplied by customers
12	C65_bill_ResSpHt_NM_Aug	0.00128	0.00005	26.252	Cooling degree days (August) multiplied by customers
13	C65_bill_ResSpHt_NM_Sep	0.00107	0.00007	16.009	Cooling degree days (September) multiplied by customers
14	C65_bill_ResSpHt_NM_Oct	0.00072	0.00015	4.827	Cooling degree days (October) multiplied by customers
15	BILLINGDAYS	1151.88201	110.26387	10.447	Number of Billing Days
16	Bin1210	-4077.47075	2029.07324	-2.010	Binary variable for December 2010=1, otherwise=0
17	Bin1213	7524.82695	2030.49502	3.706	Binary variable for December 2013=1, otherwise=0
18	AR(1)	0.37104	0.07573	4.899	First Order Auto Regressive Term

19	Model Statistics	
20	Iterations	11
21	Adjusted Observations	174
22	Deg. of Freedom for Error	157
23	R-Squared	0.969
24	Adjusted R-Squared	0.966
25	AIC	15.353
26	BIC	15.661
27	F-Statistic	303.918
28	Prob (F-Statistic)	0.0000
29	Log-Likelihood	-1,565.59
30	Model Sum of Squares	20,621,609,230.94
31	Sum of Squared Errors	665,802,371.81
32	Mean Squared Error	4,240,779.44
33	Std. Error of Regression	2,059.32
34	Mean Abs. Dev. (MAD)	1,466.50
35	Mean Abs. % Err. (MAPE)	3.73%
36	Durbin-Watson Statistic	2.165
37	Durbin-H Statistic	
38	Ljung-Box Statistic	51.90
39	Prob (Ljung-Box)	0.0008
40	Skewness	0.254
41	Kurtosis	3.515
42	Jarque-Bera	3.795
43	Prob (Jarque-Bera)	0.1499

Southwestern Public Service Company

Regression Models and Associated Statistics

New Mexico Small General Service

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	CONST	-7341.696135	2066.404	-3.553	Constant term
3	EE_NM	71.759278	18.519	3.875	Non-farm employment, New Mexico service area
4	BILLINGDAYS	248.421686	25.837	9.615	Number of Billing Days
5	H65_bill_SGS_NM_Jan	0.000280	0.000	10.783	Heating degree days (January) multiplied by customers
6	H65_bill_SGS_NM_Feb	0.000258	0.000	9.015	Heating degree days (February) multiplied by customers
7	H65_bill_SGS_NM_Mar	0.000260	0.000	7.447	Heating degree days (March) multiplied by customers
8	H65_bill_SGS_NM_Dec	0.000154	0.000	5.199	Heating degree days (December) multiplied by customers
9	C65_bill_SGS_NM_Jun	0.000601	0.000	12.844	Cooling degree days (June) multiplied by customers
10	C65_bill_SGS_NM_Jul	0.000727	0.000	20.781	Cooling degree days (July) multiplied by customers
11	C65_bill_SGS_NM_Aug	0.000720	0.000	20.597	Cooling degree days (August) multiplied by customers
12	C65_bill_SGS_NM_Sep	0.000691	0.000	15.321	Cooling degree days (September) multiplied by customers
13	C65_bill_SGS_NM_Oct	0.000472	0.000	5.338	Cooling degree days (October) multiplied by customers
14	RateShiftSGtoSGS	6209.262298	247.465	25.091	Rate change SG to SGS due to demand req change
15	RateShift	-3655.582054	272.509	-13.415	SGS customers moved to the SG rate effective June 2012
16	Bin0401	-2454.815923	524.231	-4.683	Binary for April 2001=1, otherwise=0
17	Bin0102	-2759.741820	531.200	-5.195	Binary for January 2002=1, otherwise=0
18	Bin0304	-3233.200430	538.360	-6.006	Binary for March 2004=1, otherwise=0
19	Bin0606	4363.982469	543.549	8.029	Binary for June 2006=1, otherwise=0
20	Bin0806	-3881.404013	535.902	-7.243	Binary for August 2006=1, otherwise=0
21	Bin1209	-1856.622160	546.406	-3.398	Binary for December 2009=1, otherwise=0
22	AR(1)	0.459585	0.066	6.975	First order autoregressive term

23	Model Statistics	
24	Iterations	12
25	Adjusted Observations	215
26	Deg. of Freedom for Error	194
27	R-Squared	0.960
28	Adjusted R-Squared	0.955
29	AIC	12.786
30	BIC	13.115
31	F-Statistic	229.835
32	Prob (F-Statistic)	0.0000
33	Log-Likelihood	-1,658.54
34	Model Sum of Squares	1,496,361,767.82
35	Sum of Squared Errors	63,152,687.99
36	Mean Squared Error	325,529.32
37	Std. Error of Regression	570.55
38	Mean Abs. Dev. (MAD)	401.74
39	Mean Abs. % Err. (MAPE)	4.61%
40	Durbin-Watson Statistic	2.087
41	Durbin-H Statistic	
42	Ljung-Box Statistic	32.03
43	Prob (Ljung-Box)	0.1263
44	Skewness	0.669
45	Kurtosis	4.107
46	Jarque-Bera	27.025
47	Prob (Jarque-Bera)	0.0000

Southwestern Public Service Company

Regression Models and Associated Statistics

New Mexico Secondary General Service

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
1					
2	EE_NM	169.921	30.309	5.606	Non-farm employment, New Mexico service area
3	C65_bill_ROS_NM_Jun	25.188	2.106	11.957	Cooling degree days (June)
4	C65_bill_ROS_NM_Jul	30.272	1.485	20.381	Cooling degree days (July)
5	C65_bill_ROS_NM_Aug	29.496	1.375	21.446	Cooling degree days (August)
6	C65_bill_ROS_NM_Sep	30.078	1.891	15.908	Cooling degree days (September)
7	C65_bill_ROS_NM_Oct	17.151	4.160	4.123	Cooling degree days (October)
8	BILLINGDAYS	1944.151	107.329	18.114	Number of Billing Days
9	RateShiftJan09	-20575.010	590.696	-34.832	Rate Shift January 2009
10	RateShiftSGtoSGS	-4277.046	488.290	-8.759	Rate change SG to SGS due to demand req change
11	Bin0107	5415.836	2499.052	2.167	Binary variable for January 2007=1, otherwise=0
12	Bin0109	21281.765	2434.187	8.743	Binary variable for January 2009=1, otherwise=0
13	Bin0309	20778.476	2405.449	8.638	Binary variable for March 2009=1, otherwise=0
14	Bin0409	21473.844	2401.973	8.940	Binary variable for April 2009=1, otherwise=0
15	Bin0509	16132.415	2399.001	6.725	Binary variable for May 2009=1, otherwise=0
16	Bin0709	11325.284	2505.965	4.519	Binary variable for July 2009=1, otherwise=0
17	Bin1210	-8856.261	2427.904	-3.648	Binary variable for December 2010=1, otherwise=0
18	Bin0212	-71341.120	2400.510	-29.719	Binary variable for February 2012=1, otherwise=0
19	Bin0312	-8432.522	2399.164	-3.515	Binary variable for March 2012=1, otherwise=0
20	Bin0412	-22732.210	2401.201	-9.467	Binary variable for April 2012=1, otherwise=0
21	Bin1216	-8025.919	2427.567	-3.306	Binary variable for December 2016=1, otherwise=0

22	Model Statistics	
23	Iterations	1
24	Adjusted Observations	144
25	Deg. of Freedom for Error	124
26	R-Squared	0.974
27	Adjusted R-Squared	0.970
28	AIC	15.671
29	BIC	16.083
30	F-Statistic	
31	Prob (F-Statistic)	
32	Log-Likelihood	-1,312.62
33	Model Sum of Squares	26,413,042,946.70
34	Sum of Squared Errors	697,329,245.01
35	Mean Squared Error	5,623,622.94
36	Std. Error of Regression	2,371.42
37	Mean Abs. Dev. (MAD)	1,608.27
38	Mean Abs. % Err. (MAPE)	2.55%
39	Durbin-Watson Statistic	1.978
40	Durbin-H Statistic	
41	Ljung-Box Statistic	20.61
42	Prob (Ljung-Box)	0.6615
43	Skewness	-0.203
44	Kurtosis	3.768
45	Jarque-Bera	4.526
46	Prob (Jarque-Bera)	0.1041

Southwestern Public Service Company

Regression Models and Associated Statistics

New Mexico Muni & School Service

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	NR_NM	37.903	0.507	74.691	Population in New Mexico service area
3	C65_bill_MuniSch_NM_Jun	0.003	0.001	6.021	Cooling degree days (June)
4	C65_bill_MuniSch_NM_Jul	0.002	0.000	7.415	Cooling degree days (July)
5	C65_bill_MuniSch_NM_Aug	0.003	0.000	9.460	Cooling degree days (August)
6	C65_bill_MuniSch_NM_Sep	0.004	0.000	9.790	Cooling degree days (September)
7	C65_bill_MuniSch_NM_Oct	0.013	0.001	11.560	Cooling degree days (October)
8	PrecipB_Mun_Sch_MarApr	-0.423	0.185	-2.290	Precipitation inches (March, April)
9	PrecipB_Mun_Sch_MayJun	-0.211	0.076	-2.783	Precipitation inches (May, June)
10	Bin0409	-1638.169	727.685	-2.251	Binary variable for April 2009=1, otherwise=0
11	Bin0911	1709.768	783.294	2.183	Binary variable for September 2011=1, otherwise =0
12	Bin0414	1593.433	751.921	2.119	Binary variable for April 2014=1, otherwise=0
13	Bin0815	-1659.975	849.371	-1.954	Binary variable for August 2015=1, otherwise=0
14	Bin1015	-2997.368	902.225	-3.322	Binary variable for October 2015=1, otherwise=0
15	Bin1017	-2376.478	811.303	-2.929	Binary variable for October 2017=1, otherwise=0
16	AR(1)	-0.317	0.099	-3.201	First order autoregressive term
17	AR(2)	0.366	0.097	3.792	Second order autoregressive term
18	AR(3)	0.294	0.098	2.993	Third order autoregressive term

19	Model Statistics	
20	Iterations	20
21	Adjusted Observations	117
22	Deg. of Freedom for Error	100
23	R-Squared	0.784
24	Adjusted R-Squared	0.749
25	AIC	13.592
26	BIC	13.993
27	F-Statistic	
28	Prob (F-Statistic)	
29	Log-Likelihood	-944.15
30	Model Sum of Squares	253,638,122.29
31	Sum of Squared Errors	69,977,290.58
32	Mean Squared Error	699,772.91
33	Std. Error of Regression	836.52
34	Mean Abs. Dev. (MAD)	605.53
35	Mean Abs. % Err. (MAPE)	5.52%
36	Durbin-Watson Statistic	2.065
37	Durbin-H Statistic	
38	Ljung-Box Statistic	47.03
39	Prob (Ljung-Box)	0.0033
40	Skewness	0.214
41	Kurtosis	2.824
42	Jarque-Bera	1.044
43	Prob (Jarque-Bera)	0.5933

Southwestern Public Service Company

Regression Models and Associated Statistics

New Mexico Irrigation Service

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
1	CONST	2042.770	351.226	5.816	Constant term
2	PrecipB_Irr_Mar	-2.278	0.654	-3.482	precipitation inches (March) multiplied by customer
3	PrecipB_Irr_Apr	-1.236	0.529	-2.335	precipitation inches (April) multiplied by customer
4	PrecipB_Irr_May	-0.549	0.240	-2.291	precipitation inches (May) multiplied by customer
5	PrecipB_Irr_Jun	-0.552	0.159	-3.471	precipitation inches (June) multiplied by customer
6	PrecipB_Irr_Jul	-0.544	0.188	-2.898	precipitation inches (July) multiplied by customer
7	PrecipB_Irr_Aug	-0.399	0.201	-1.989	precipitation inches (August) multiplied by customer
8	PrecipB_Irr_Sep	-1.050	0.142	-7.399	precipitation inches (September) multiplied by customer
9	Jan	-937.194	275.165	-3.406	Seasonal binary variable, January=1, otherwise=0
10	Feb	-670.051	314.719	-2.129	Seasonal binary variable, February=1, otherwise=0
11	Mar	3315.739	402.827	8.231	Seasonal binary variable, March=1, otherwise=0
12	Apr	7273.652	412.677	17.626	Seasonal binary variable, April=1, otherwise=0
13	May	7256.631	429.421	16.899	Seasonal binary variable, May=1, otherwise=0
14	Jun	8651.344	439.660	19.677	Seasonal binary variable, June=1, otherwise=0
15	Jul	11261.839	485.601	23.192	Seasonal binary variable, July=1, otherwise=0
16	Aug	11520.077	530.887	21.700	Seasonal binary variable, August=1, otherwise=0
17	Sep	9681.456	449.255	21.550	Seasonal binary variable, September=1, otherwise=0
18	Oct	3848.491	311.305	12.362	Seasonal binary variable, October=1, otherwise=0
19	Nov	1155.282	266.413	4.336	Seasonal binary variable, November=1, otherwise=0
20	Bin0607	-1590.980	835.025	-1.905	Binary variable for June 2007=1, otherwise=0
21	Bin0809	-2949.975	786.049	-3.753	Binary variable for August 2009=1, otherwise=0
22	Bin0610	3013.701	804.373	3.747	Binary variable for June 2010=1, otherwise=0
23	Bin1014	-3127.574	789.307	-3.962	Binary variable for October 2014=1, otherwise=0
24	AR(1)	0.540	0.087	6.219	First order autoregressive term
25	AR(2)	0.200	0.088	2.287	Second order autoregressive term

	Model Statistics	
26	Iterations	15
27	Adjusted Observations	154
28	Deg. of Freedom for Error	129
29	R-Squared	0.965
30	Adjusted R-Squared	0.958
31	AIC	13.690
32	BIC	14.183
33	F-Statistic	146.953
34	Prob (F-Statistic)	0.0000
35	Log-Likelihood	-1,247.62
36	Model Sum of Squares	2,683,196,876.48
37	Sum of Squared Errors	98,141,258.27
38	Mean Squared Error	760,784.95
39	Std. Error of Regression	872.23
40	Mean Abs. Dev. (MAD)	626.36
41	Mean Abs. % Err. (MAPE)	19.12%
42	Durbin-Watson Statistic	1.995
43	Durbin-H Statistic	
44	Ljung-Box Statistic	45.72
45	Prob (Ljung-Box)	0.0048
46	Skewness	0.024
47	Kurtosis	3.086
48	Jarque-Bera	0.063
49	Prob (Jarque-Bera)	0.9691

Southwestern Public Service Company

Regression Models and Associated Statistics

Texas Residential Service

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
1					
2	CONST	-30422.086	9500.014	-3.202	Constant term
3	CYPperHH_TX	529.569	51.364	10.310	Real Personal Income per Household (Texas service area)
4	H65_bill_ResSrv_TX_Jan	0.000	0.000	18.570	Heating degree days (January) multiplied by customers
5	H65_bill_ResSrv_TX_Feb	0.000	0.000	14.882	Heating degree days (February) multiplied by customers
6	H65_bill_ResSrv_TX_Mar	0.000	0.000	10.545	Heating degree days (March) multiplied by customers
7	H65_bill_ResSrv_TX_Dec	0.000	0.000	10.955	Heating degree days (December) multiplied by customers
8	C65_bill_ResSrv_TX_May	0.001	0.000	4.447	Cooling degree days (May) multiplied by customers
9	C65_bill_ResSrv_TX_Jun	0.001	0.000	30.645	Cooling degree days (June) multiplied by customers
10	C65_bill_ResSrv_TX_Jul	0.001	0.000	53.201	Cooling degree days (July) multiplied by customers
11	C65_bill_ResSrv_TX_Aug	0.001	0.000	58.551	Cooling degree days (August) multiplied by customers
12	C65_bill_ResSrv_TX_Sep	0.001	0.000	41.806	Cooling degree days (September) multiplied by customers
13	C65_bill_ResSrv_TX_Oct	0.001	0.000	14.774	Cooling degree days (October) multiplied by customers
14	ResSvcSalesShift2012	10081.119	2309.961	4.364	Winter Sales Increased - caused by space heat customer moving to res svc
15	BILLINGDAYS	2361.553	256.035	9.224	Number of Billing Days
16	Bin1103	108050.031	5001.605	21.603	Binary variable for November 2003=1, otherwise=0
17	Bin0604	12555.848	5108.355	2.458	Binary variable for June 2004=1, otherwise=0
18	Bin0407	23549.248	5372.880	4.383	Binary variable for April 2007=1, otherwise=0
19	Bin0507	44619.407	5728.040	7.790	Binary variable for May 2007=1, otherwise=0
20	Bin0607	21983.375	5359.260	4.102	Binary variable for June 2007=1, otherwise=0
21	Bin0118	22212.679	5230.978	4.246	Binary variable for January 2018=1, otherwise=0
22	AR(1)	0.403	0.069	5.862	First Order Auto Regressive Term

	Model Statistics	
23		
24	Iterations	13
25	Adjusted Observations	202
26	Deg. of Freedom for Error	181
27	R-Squared	0.981
28	Adjusted R-Squared	0.979
29	AIC	17.256
30	BIC	17.599
31	F-Statistic	476.428
32	Prob (F-Statistic)	0.0000
33	Log-Likelihood	-2,008.44
34	Model Sum of Squares	269,396,864,362.29
35	Sum of Squared Errors	5,117,333,794.35
36	Mean Squared Error	28,272,562.40
37	Std. Error of Regression	5,317.19
38	Mean Abs. Dev. (MAD)	3,765.56
39	Mean Abs. % Err. (MAPE)	2.96%
40	Durbin-Watson Statistic	2.055
41	Durbin-H Statistic	
42	Ljung-Box Statistic	35.62
43	Prob (Ljung-Box)	0.0598
44	Skewness	0.556
45	Kurtosis	4.196
46	Jarque-Bera	22.443
47	Prob (Jarque-Bera)	0.0000

Southwestern Public Service Company

Regression Models and Associated Statistics

Texas Residential Space Heating

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	CONST	-16176.971204	4151.00679	-3.897	Constant term
3	TX_ResSpaceHeat_Cust	0.770748	0.05863	13.146	Customer population for Residential Space Heat
4	H65_bill_ResSpHt_TX_Jan	0.001332	0.00002	55.073	Heating degree days (January) multiplied by customers
5	H65_bill_ResSpHt_TX_Feb	0.001197	0.00003	45.487	Heating degree days (February) multiplied by customers
6	H65_bill_ResSpHt_TX_Mar	0.001034	0.00003	33.704	Heating degree days (March) multiplied by customers
7	H65_bill_ResSpHt_TX_Apr	0.000611	0.00005	13.215	Heating degree days (April) multiplied by customers
8	H65_bill_ResSpHt_TX_Nov	0.000403	0.00007	5.779	Heating degree days (November) multiplied by customers
9	H65_bill_ResSpHt_TX_Dec	0.001077	0.00003	34.489	Heating degree days (December) multiplied by customers
10	C65_bill_ResSpHt_TX_Jun	0.001248	0.00006	21.139	Cooling degree days (June) multiplied by customers
11	C65_bill_ResSpHt_TX_Jul	0.001486	0.00004	34.858	Cooling degree days (July) multiplied by customers
12	C65_bill_ResSpHt_TX_Aug	0.001552	0.00004	39.001	Cooling degree days (August) multiplied by customers
13	C65_bill_ResSpHt_TX_Sep	0.001428	0.00005	26.409	Cooling degree days (September) multiplied by customers
14	C65_bill_ResSpHt_TX_Oct	0.001103	0.00013	8.548	Cooling degree days (October) multiplied by customers
15	ResSpHtRateChg2012	-2912.723163	603.62085	-4.825	Residential Space Heat customers moving to Residential Service rate
16	BILLINGDAYS	813.996802	110.78484	7.348	Number of Billing Days
17	Bin1103	44149.442812	2229.55032	19.802	Binary variable for November 2003=1, otherwise=0
18	Bin0304	7496.123221	2257.61193	3.320	Binary variable for March 2004=1, otherwise=0
19	Bin0407	-22525.170214	2470.71887	-9.117	Binary variable for April 2007=1, otherwise=0
20	Bin0507	-41865.650028	2647.29180	-15.815	Binary variable for May 2007=1, otherwise=0
21	Bin0607	-27391.539834	2439.85580	-11.227	Binary variable for June 2007=1, otherwise=0
22	Bin0513	7510.367871	2295.35519	3.272	Binary variable for May 2013=1, otherwise=0
23	Bin1213	9099.708285	2309.18377	3.941	Binary variable for December 2013=1, otherwise=0
24	AR(1)	0.447357	0.06205	7.210	First Order Auto Regressive Term

25	Model Statistics	
26	Iterations	10
27	Adjusted Observations	227
28	Deg. of Freedom for Error	204
29	R-Squared	0.982
30	Adjusted R-Squared	0.980
31	AIC	15.675
32	BIC	16.022
33	F-Statistic	510.810
34	Prob (F-Statistic)	0.0000
35	Log-Likelihood	-2,078.22
36	Model Sum of Squares	65,563,821,788.10
37	Sum of Squared Errors	1,190,180,262.50
38	Mean Squared Error	5,834,216.97
39	Std. Error of Regression	2,415.41
40	Mean Abs. Dev. (MAD)	1,835.41
41	Mean Abs. % Err. (MAPE)	3.35%
42	Durbin-Watson Statistic	1.991
43	Durbin-H Statistic	
44	Ljung-Box Statistic	15.15
45	Prob (Ljung-Box)	0.9162
46	Skewness	0.073
47	Kurtosis	2.705
48	Jarque-Bera	1.025
49	Prob (Jarque-Bera)	0.5989

Southwestern Public Service Company

Regression Models and Associated Statistics

Texas Small General Service

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
1					
2	EE_TX_Log	780.769	330.015	2.366	Log of non-farm employment, Texas service area
3	H65_bill_SGS_TX_Jan	0.000	0.000	10.494	Heating degree days (January) multiplied by customers
4	H65_bill_SGS_TX_Feb	0.000	0.000	6.282	Heating degree days (February) multiplied by customers
5	H65_bill_SGS_TX_Mar	0.000	0.000	5.965	Heating degree days (March) multiplied by customers
6	H65_bill_SGS_TX_Dec	0.000	0.000	6.363	Heating degree days (December) multiplied by customers
7	C65_bill_SGS_TX_Jun	0.001	0.000	10.832	Cooling degree days (June) multiplied by customers
8	C65_bill_SGS_TX_Jul	0.001	0.000	18.581	Cooling degree days (July) multiplied by customers
9	C65_bill_SGS_TX_Aug	0.001	0.000	22.171	Cooling degree days (August) multiplied by customers
10	C65_bill_SGS_TX_Sep	0.001	0.000	17.264	Cooling degree days (September) multiplied by customers
11	C65_bill_SGS_TX_Oct	0.001	0.000	5.763	Cooling degree days (October) multiplied by customers
12	RateShiftJun12	-5028.367	885.588	-5.678	SGS customers moved to the SG rate effective June 2012=1, prior values=0
13	RateShiftFeb14	5709.729	952.522	5.994	SG customers moved to the SGS rate effective February 2014=1, prior values=0
14	BILLINGDAYS	479.191	59.018	8.119	Number of billing days
15	Bin0405	5993.202	1317.536	4.549	Binary for April 2005=1, otherwise=0
16	Bin0505	-5354.112	1314.212	-4.074	Binary for May 2005=1, otherwise=0
17	Bin1106	-7032.985	1165.176	-6.036	Binary for November 2006=1, otherwise=0
18	Bin0507	-4526.103	1157.090	-3.912	Binary for May 2007=1, otherwise=0
19	bin0109	5030.735	1182.723	4.254	Binary for January 2009=1, otherwise=0
20	Bin0214	4627.086	1309.877	3.532	Binary for February 2014=1, otherwise=0
21	Bin1016	-9416.998	1246.788	-7.553	Binary for October 2016=1, otherwise=0
22	AR(1)	0.683	0.061	11.107	First order autoregressive term

23	**Model Statistics**	
24	Iterations	10
25	Adjusted Observations	179
26	Deg. of Freedom for Error	158
27	R-Squared	0.921
28	Adjusted R-Squared	0.911
29	AIC	14.588
30	BIC	14.961
31	F-Statistic	
32	Prob (F-Statistic)	
33	Log-Likelihood	-1,538.57
34	Model Sum of Squares	3,566,653,463.88
35	Sum of Squared Errors	306,353,211.98
36	Mean Squared Error	1,938,944.38
37	Std. Error of Regression	1,392.46
38	Mean Abs. Dev. (MAD)	990.82
39	Mean Abs. % Err. (MAPE)	4.58%
40	Durbin-Watson Statistic	1.819
41	Durbin-H Statistic	
42	Ljung-Box Statistic	42.27
43	Prob (Ljung-Box)	0.0120
44	Skewness	0.216
45	Kurtosis	4.855
46	Jarque-Bera	27.064
47	Prob (Jarque-Bera)	0.0000

Southwestern Public Service Company

Regression Models and Associated Statistics

Texas Secondary General Service

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
1					
2	NR_TX	326.647	3.183	102.616	Population in Texas service area
3	Feb	-19540.871	3052.518	-6.402	Seasonal binary variable, February=1, otherwise=0
4	H65_bill_Pan_TX_Jan	23.133	3.449	6.707	Heating degree days (January)
5	H65_bill_Pan_TX_Dec	31.965	4.597	6.954	Heating degree days (December)
6	C65_bill_Pan_TX_Jun	114.565	10.894	10.516	Cooling degree days (June)
7	C65_bill_Pan_TX_Jul	126.966	7.118	17.838	Cooling degree days (July)
8	C65_bill_Pan_TX_Aug	155.976	6.490	24.032	Cooling degree days (August)
9	C65_bill_Pan_TX_Sep	144.145	8.939	16.125	Cooling degree days (September)
10	C65_bill_Pan_TX_Oct	87.047	21.287	4.089	Cooling degree days (October)
11	PAN_TX_PRECIPB_Mar	-6959.833	2586.569	-2.691	Precipitation inches (March)
12	PAN_TX_PRECIPB_Apr	-7891.054	1830.132	-4.312	Precipitation inches (April)
13	Pan_TX_PrecipB_MayJunJulAug Sep	-1426.554	605.861	-2.355	Precipitation inches (May, June, July, August, September)
14	SGtoSGSRateChg	-9631.565	2176.268	-4.426	SG to SGS change (10-25KW)
15	RateShiftMay11	-15458.913	2027.673	-7.624	Binary for customers moving from secondary general to primary general, starting May 2011=1, otherwise=0
16	Bin0604	-31348.744	10232.984	-3.063	Binary variable for June 2004=1, otherwise=0
17	Bin0205	29447.332	10204.363	2.886	Binary variable for February 2005=1, otherwise=0
18	Bin0505	-22295.701	9965.383	-2.237	Binary variable for May 2005=1, otherwise=0
19	Bin0105	49321.680	10117.104	4.875	Binary variable for January 2005=1, otherwise=0
20	Bin1108	-26636.797	9989.165	-2.667	Binary variable for November 2008=1, otherwise=0
21	Bin0210	-54510.253	10206.412	-5.341	Binary variable for February 2010=1, otherwise=0
22	Bin0510	-24402.395	10016.899	-2.436	Binary variable for May 2010=1, otherwise=0
23	Bin0311	-24628.577	9970.196	-2.470	Binary variable for March 2011=1, otherwise=0
24	Bin0112	-37757.949	10282.042	-3.672	Binary variable for January 2012=1, otherwise=0

25	**Model Statistics**	
26	Iterations	1
27	Adjusted Observations	192
28	Deg. of Freedom for Error	169
29	R-Squared	0.902
30	Adjusted R-Squared	0.889
31	AIC	18.499
32	BIC	18.889
33	F-Statistic	
34	Prob (F-Statistic)	
35	Log-Likelihood	-2,025.34
36	Model Sum of Squares	150,112,658,489.32
37	Sum of Squared Errors	16,340,442,070.54
38	Mean Squared Error	96,689,006.33
39	Std. Error of Regression	9,833.06
40	Mean Abs. Dev. (MAD)	7,192.80
41	Mean Abs. % Err. (MAPE)	3.91%
42	Durbin-Watson Statistic	1.760
43	Durbin-H Statistic	
44	Ljung-Box Statistic	36.64
45	Prob (Ljung-Box)	0.0475
46	Skewness	-0.018
47	Kurtosis	2.749
48	Jarque-Bera	0.516
49	Prob (Jarque-Bera)	0.7724

Southwestern Public Service Company

Regression Models and Associated Statistics

Canadian River Municipal Water Authority

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
1					
2	NR_TX	17.684	0.551	32.103	Population in Texas service area
3	Jan	-1890.881	364.634	-5.186	Seasonal binary variable, January=1, otherwise=0
4	Feb	-1603.914	336.963	-4.760	Seasonal binary variable, February=1, otherwise=0
5	Mar	1617.277	329.317	4.911	Seasonal binary variable, March=1, otherwise=0
6	Dec	-1484.086	327.612	-4.530	Seasonal binary variable, December=1, otherwise=0
7	C65_Cal_Pan_TX_Jun	5.103	0.873	5.842	Cooling degree days (June)
8	C65_Cal_Pan_TX_Jul	6.282	0.780	8.052	Cooling degree days (July)
9	C65_Cal_Pan_TX_Aug	5.635	0.824	6.836	Cooling degree days (August)
10	C65_Cal_Pan_TX_Sep	5.961	1.431	4.166	Cooling degree days (September)
11	Pan_TX_PrecipCal_AprtoSep	-155.189	59.757	-2.597	Precipitation inches (March, April, May, June, July, August, September)
12	SalesShift	1318.308	340.527	3.871	Binary variable for sales shift starting January 2010=1, otherwise=0
13	Bin0506	3084.293	972.753	3.171	Binary variable for May 2006=1, otherwise=0
14	Bin1206	-1856.155	979.987	-1.894	Binary variable for December 2006=1, otherwise=0
15	Bin0108	-8210.733	979.925	-8.379	Binary variable for January 2008=1, otherwise=0
16	Bin0308	8886.046	946.245	9.391	Binary variable for March 2008=1, otherwise=0
17	Bin1009	-9936.055	943.840	-10.527	Binary variable for October 2009=1, otherwise=0
18	Bin0210	-2939.936	1071.442	-2.744	Binary variable for February 2010=1, otherwise=0
19	Bin0310	-3018.037	1023.438	-2.949	Binary variable for March 2010=1, otherwise=0
20	Bin1110	-2217.045	1030.366	-2.152	Binary variable for November 2010=1, otherwise=0
21	Bin1210	-2692.954	1152.664	-2.336	Binary variable for December 2010=1, otherwise=0
22	Bin0111	-2540.335	1072.769	-2.368	Binary variable for January 2011=1, otherwise=0
23	Bin0213	-1826.381	981.696	-1.860	Binary variable for February 2013=1, otherwise=0
24	Bin1013	2173.259	948.934	2.290	Binary variable for October 2013=1, otherwise=0
25	Bin1115	-1817.329	943.041	-1.927	Binary variable for November 2015=1, otherwise=0
26	Bin0116	-2787.306	1081.778	-2.577	Binary variable for January 2016=1, otherwise=0
27	Bin0216	-5912.673	1158.706	-5.103	Binary variable for February 2016=1, otherwise=0
28	Bin0316	-6878.362	1033.423	-6.656	Binary variable for March 2016=1, otherwise=0
29	AR(1)	0.459	0.086	5.343	First Order Auto Regressive Term

30	Model Statistics	
31	Iterations	9
32	Adjusted Observations	156
33	Deg. of Freedom for Error	128
34	R-Squared	0.880
35	Adjusted R-Squared	0.855
36	AIC	14.033
37	BIC	14.581
38	F-Statistic	
39	Prob (F-Statistic)	
40	Log-Likelihood	-1,287.94
41	Model Sum of Squares	991,919,557.95
42	Sum of Squared Errors	135,436,578.30
43	Mean Squared Error	1,058,098.27
44	Std. Error of Regression	1,028.64
45	Mean Abs. Dev. (MAD)	743.31
46	Mean Abs. % Err. (MAPE)	7.08%
47	Durbin-Watson Statistic	1.977
48	Durbin-H Statistic	
49	Ljung-Box Statistic	18.61
50	Prob (Ljung-Box)	0.7726
51	Skewness	-0.209
52	Kurtosis	2.705
53	Jarque-Bera	1.703
54	Prob (Jarque-Bera)	0.4268

Southwestern Public Service Company

Regression Models and Associated Statistics

Texas Municipals and Schools

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
1					
2	NR_TX	52.116	0.436	119.490	Population in Texas service area
3	C65_bill_MSS_TX_May	0.003	0.002	1.712	Cooling degree days (May) multiplied by customers
4	C65_bill_MSS_TX_Jun	0.003	0.000	5.195	Cooling degree days (June) multiplied by customers
5	C65_bill_MSS_TX_Jul	0.002	0.000	6.179	Cooling degree days (July) multiplied by customers
6	C65_bill_MSS_TX_Aug	0.002	0.000	7.908	Cooling degree days (August) multiplied by customers
7	C65_bill_MSS_TX_Sep	0.005	0.000	10.948	Cooling degree days (September) multiplied by customers
8	C65_bill_MSS_TX_Oct	0.012	0.001	11.624	Cooling degree days (October) multiplied by customers
9	Bin0806	22185.702	2152.410	10.307	Binary variable for August 2006=1, otherwise=0
10	Bin1206	-13347.321	2097.782	-6.363	Binary variable for December 2006=1, otherwise=0
11	Bin1107	9499.165	2097.904	4.528	Binary variable for November 2007=1, otherwise=0
12	PrecipB_MSS_TX_Apr	-0.267	0.093	-2.885	Bill Month Precipitation (April) multiplied by customers
13	PrecipB_MSS_TX_May	-0.114	0.061	-1.857	Bill Month Precipitation (May) multiplied by customers
14	Bin0317	-7528.693	2099.042	-3.587	Binary variable for March 2017=1, otherwise=0

15	Model Statistics	
16	Iterations	1
17	Adjusted Observations	156
18	Deg. of Freedom for Error	143
19	R-Squared	0.791
20	Adjusted R-Squared	0.774
21	AIC	15.364
22	BIC	15.618
23	F-Statistic	
24	Prob (F-Statistic)	
25	Log-Likelihood	-1,406.74
26	Model Sum of Squares	2,357,487,833.22
27	Sum of Squared Errors	621,173,226.35
28	Mean Squared Error	4,343,868.72
29	Std. Error of Regression	2,084.19
30	Mean Abs. Dev. (MAD)	1,602.86
31	Mean Abs. % Err. (MAPE)	5.07%
32	Durbin-Watson Statistic	1.706
33	Durbin-H Statistic	
34	Ljung-Box Statistic	109.97
35	Prob (Ljung-Box)	0.0000
36	Skewness	-0.010
37	Kurtosis	2.774
38	Jarque-Bera	0.334
39	Prob (Jarque-Bera)	0.8461

Southwestern Public Service Company

Regression Models and Associated Statistics

Wholesale Central Valley

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	CGSPNM_MA12	0.72862	0.01391	52.375	Real Gross State Product New Mexico 12 month moving average
3	Feb	-5195.42162	558.16282	-9.308	Seasonal binary February
4	Mar	2884.09313	674.70605	4.275	Seasonal binary March
5	Apr	2379.06388	722.63235	3.292	Seasonal binary April
6	C65_cal_ROS_NM_May	17.51162	3.35238	5.224	Cooling degree days (May) Roswell NM
7	C65_cal_ROS_NM_Jun	16.24880	1.53835	10.562	Cooling degree days (Jun) Roswell NM
8	C65_cal_ROS_NM_Jul	22.12417	1.38064	16.025	Cooling degree days (July) Roswell NM
9	C65_cal_ROS_NM_Aug	20.94975	1.35738	15.434	Cooling degree days (August) Roswell NM
10	C65_cal_ROS_NM_Sep	6.37338	1.96161	3.249	Cooling degree days (September) Roswell NM
11	Nov	-2642.26708	428.39985	-6.168	Seasonal binary November
12	Bin0908	-7896.65573	1564.37858	-5.048	Binary variable for September 2008=1, otherwise=0
13	Bin0710	-4725.26441	1586.10019	-2.979	Binary variable for July 2010=1, otherwise=0
14	Bin0211	-7605.00855	1607.07060	-4.732	Binary variable for February 2011=1, otherwise=0
15	Bin1114	3988.73627	1602.19336	2.490	Binary variable for November 2014=1, otherwise=0
16	Bin0215	-4572.52132	1608.25008	-2.843	Binary variable for February 2015=1, otherwise=0
17	AR(1)	0.86599	0.04218	20.529	First order autoregressive term

18	Model Statistics	
19	Iterations	8
20	Adjusted Observations	167
21	Deg. of Freedom for Error	151
22	R-Squared	0.917
23	Adjusted R-Squared	0.908
24	AIC	15.341
25	BIC	15.640
26	F-Statistic	
27	Prob (F-Statistic)	
28	Log-Likelihood	-1,501.94
29	Model Sum of Squares	6,967,179,575.48
30	Sum of Squared Errors	633,932,065.16
31	Mean Squared Error	4,198,225.60
32	Std. Error of Regression	2,048.96
33	Mean Abs. Dev. (MAD)	1,524.39
34	Mean Abs. % Err. (MAPE)	2.34%
35	Durbin-Watson Statistic	2.163
36	Durbin-H Statistic	
37	Ljung-Box Statistic	14.10
38	Prob (Ljung-Box)	0.9444
39	Skewness	-0.025
40	Kurtosis	3.206
41	Jarque-Bera	0.313
42	Prob (Jarque-Bera)	0.8551

Southwestern Public Service Company

Regression Models and Associated Statistics

Wholesale Farmers

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	CGSP_NM	0.299	0.014	20.865	Real Gross State Product New Mexico
3	Feb	-1659.099	612.844	-2.707	Seasonal binary February
4	Mar	3810.696	779.964	4.886	Seasonal binary March
5	Apr	5959.469	842.156	7.076	Seasonal binary April
6	C65_cal_ROS_NM_May	25.091	3.863	6.495	Cooling degree days (May) Roswell NM
7	C65_cal_ROS_NM_Jun	18.998	1.856	10.234	Cooling degree days (June) Roswell NM
8	C65_cal_ROS_NM_Jul	29.309	1.678	17.467	Cooling degree days (July) Roswell NM
9	C65_cal_ROS_NM_Aug	27.490	1.725	15.941	Cooling degree days (August) Roswell NM
10	C65_cal_ROS_NM_Sep	17.078	2.818	6.060	Cooling degree days (September) Roswell NM
11	C65_cal_ROS_NM_Oct	22.718	9.641	2.356	Cooling degree days (October) Roswell NM
12	Bin1004	-4845.069	1971.327	-2.458	Binary variable for October 2004=1, otherwise=0
13	AR(1)	0.847	0.038	22.069	First order autoregressive term

14	Model Statistics	
15	Iterations	7
16	Adjusted Observations	203
17	Deg. of Freedom for Error	191
18	R-Squared	0.885
19	Adjusted R-Squared	0.879
20	AIC	15.759
21	BIC	15.955
22	F-Statistic	
23	Prob (F-Statistic)	
24	Log-Likelihood	-1,875.59
25	Model Sum of Squares	9,704,769,098.03
26	Sum of Squared Errors	1,259,607,191.86
27	Mean Squared Error	6,594,802.05
28	Std. Error of Regression	2,568.03
29	Mean Abs. Dev. (MAD)	1,975.56
30	Mean Abs. % Err. (MAPE)	6.92%
31	Durbin-Watson Statistic	2.018
32	Durbin-H Statistic	
33	Ljung-Box Statistic	44.59
34	Prob (Ljung-Box)	0.0065
35	Skewness	-0.025
36	Kurtosis	3.063
37	Jarque-Bera	0.054
38	Prob (Jarque-Bera)	0.9733

Southwestern Public Service Company

Regression Models and Associated Statistics

Wholesale Lea County

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	CONST	14304.975	8344.199	1.714	Constant term
3	CGCPNM_MA12	7.205	0.818	8.813	Real Gross County Product New Mexico 12 month moving average
4	Feb	-7064.734	1205.225	-5.862	Seasonal binary variable for February
5	Mar	5843.871	1459.987	4.003	Seasonal binary variable for March
6	Apr	8299.270	1536.398	5.402	Seasonal binary variable for April
7	C65_cal_ROS_NM_May	63.241	6.901	9.165	Cooling degree days (May) Roswell NM
8	C65_cal_ROS_NM_Jun	41.607	3.322	12.525	Cooling degree days (June) Roswell NM
9	C65_cal_ROS_NM_Jul	57.857	2.919	19.818	Cooling degree days (July) Roswell NM
10	C65_cal_ROS_NM_Aug	67.230	2.958	22.731	Cooling degree days (August) Roswell NM
11	C65_cal_ROS_NM_Sep	31.593	4.536	6.965	Cooling degree days (September) Roswell NM
12	Bin0805	-14913.939	4111.149	-3.628	Binary variable for August 2005=1, otherwise=0
13	Bin0510	7944.400	4103.630	1.936	Binary variable for May 2010=1, otherwise=0
14	Bin0614	-10562.985	4143.502	-2.549	Binary variable for June 2014=1, otherwise=0
15	Bin0914	-12332.894	4092.682	-3.013	Binary variable for September 2014=1, otherwise=0
16	Bin0517	10834.798	4109.797	2.636	Binary variable for May 2017=1, otherwise=0
17	LeaLoadDecreaseWind	-10090.742	2628.621	-3.839	Binary for behind the meter wind
18	Bin1218	-24404.609	4793.631	-5.091	Binary variable for December 2018=1, otherwise=0
19	AR(1)	0.613	0.059	10.437	First order autoregressive term

20	Model Statistics	
21	Iterations	9
22	Adjusted Observations	203
23	Deg. of Freedom for Error	185
24	R-Squared	0.916
25	Adjusted R-Squared	0.908
26	AIC	17.003
27	BIC	17.296
28	F-Statistic	118.059
29	Prob (F-Statistic)	0.0000
30	Log-Likelihood	-1,995.81
31	Model Sum of Squares	44,669,689,429.79
32	Sum of Squared Errors	4,117,535,364.24
33	Mean Squared Error	22,256,947.91
34	Std. Error of Regression	4,717.73
35	Mean Abs. Dev. (MAD)	3,571.39
36	Mean Abs. % Err. (MAPE)	3.74%
37	Durbin-Watson Statistic	1.964
38	Durbin-H Statistic	
39	Ljung-Box Statistic	31.24
40	Prob (Ljung-Box)	0.1470
41	Skewness	-0.093
42	Kurtosis	3.091
43	Jarque-Bera	0.365
44	Prob (Jarque-Bera)	0.8330

Southwestern Public Service Company

Regression Models and Associated Statistics

Wholesale Roosevelt

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	CGSP_NM	0.149	0.006	23.550	Real Gross State Product New Mexico
3	Feb	-804.122	317.416	-2.533	Seasonal binary variable for February
4	Mar	2143.975	403.143	5.318	Seasonal binary variable for March
5	Apr	3284.784	435.832	7.537	Seasonal binary variable for April
6	C65_cal_ROS_NM_May	12.046	1.964	6.133	Cooling degree days (May) Roswell NM
7	C65_cal_ROS_NM_Jun	9.689	0.953	10.171	Cooling degree days (June) Roswell NM
8	C65_cal_ROS_NM_Jul	14.814	0.861	17.201	Cooling degree days (July) Roswell NM
9	C65_cal_ROS_NM_Aug	13.768	0.829	16.605	Cooling degree days (August) Roswell NM
10	C65_cal_ROS_NM_Sep	8.832	1.187	7.439	Cooling degree days (September) Roswell NM
11	Nov	-843.690	248.201	-3.399	Seasonal binary variable for November
12	NM_PRECIP_MaythruAug	-237.239	81.540	-2.909	Precipitation inches (May, June, July, August)
13	Bin1004	-2315.723	1059.598	-2.185	Binary variable October 2004=1, otherwise=0
14	Bin0614	-2734.713	1120.760	-2.440	Binary variable June 2014=1, otherwise=0
15	AR(1)	0.820	0.040	20.279	First order autoregressive term

16	Model Statistics	
17	Iterations	5
18	Adjusted Observations	215
19	Deg. of Freedom for Error	201
20	R-Squared	0.845
21	Adjusted R-Squared	0.835
22	AIC	14.485
23	BIC	14.704
24	F-Statistic	
25	Prob (F-Statistic)	
26	Log-Likelihood	-1,848.19
27	Model Sum of Squares	2,005,528,674.66
28	Sum of Squared Errors	368,585,088.94
29	Mean Squared Error	1,833,756.66
30	Std. Error of Regression	1,354.16
31	Mean Abs. Dev. (MAD)	991.83
32	Mean Abs. % Err. (MAPE)	6.83%
33	Durbin-Watson Statistic	2.185
34	Durbin-H Statistic	
35	Ljung-Box Statistic	35.06
36	Prob (Ljung-Box)	0.0675
37	Skewness	0.037
38	Kurtosis	3.609
39	Jarque-Bera	3.370
40	Prob (Jarque-Bera)	0.1854

Southwestern Public Service Company

Regression Models and Associated Statistics

Retail Peak Demand

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
1					
2	MA_Retail_Sales	0.001	0.000	65.295	12-month moving average of actual total retail sales adjusted for DSM savings, sale of Lubbock assets, wind generation, and forecasted new load additions.
3	HDD_Jan_PD	8.271	1.026	8.058	Heating Degree Days, Peak Day, January Calendar Month
4	HDD_Feb_PD	7.268	0.985	7.376	Heating Degree Days, Peak Day, February Calendar Month
5	HDD_Mar_PD	5.423	1.471	3.686	Heating Degree Days, Peak Day, March Calendar Month
6	AvgTemp_SPS_Apr	3.439	0.564	6.100	Average peak day temperature for the month of April
7	AvgTemp_SPS_May	8.184	0.556	14.722	Average peak day temperature for the month of May
8	AvgTemp_SPS_Jun	10.771	0.507	21.252	Average peak day temperature for the month of June
9	AvgTemp_SPS_Jul	11.285	0.496	22.743	Average peak day temperature for the month of July
10	AvgTemp_SPS_Aug	11.420	0.512	22.322	Average peak day temperature for the month of August
11	AvgTemp_SPS_Sep	8.768	0.531	16.512	Average peak day temperature for the month of September
12	AvgTemp_SPS_Oct	3.753	0.572	6.565	Average peak day temperature for the month of October
13	HDD_Nov_PD	7.349	1.269	5.791	Heating Degree Days, Peak Day, November Calendar Month
14	HDD_Dec_PD	8.782	0.980	8.963	Heating Degree Days, Peak Day, December Calendar Month
15	AprMayJun_Precip_1WKB4	-146.387	36.752	-3.983	Sum of the number of precipitation inches in the week prior to the peak day, Calendar Months April, May, June
16	JulAugSep_Precip_1WKB4	-59.290	23.426	-2.531	Sum of the number of precipitation inches in the week prior to the peak day, Calendar Months July, August, September
17	Bin0415	-292.717	105.882	-2.765	Binary variable April 2015=1, otherwise=0
18	Bin0615	-253.797	106.181	-2.390	Binary variable June 2015=1, otherwise=0
19	AR(1)	0.312	0.069	4.541	First order autoregressive term

20	**Model Statistics**	
21	Iterations	11
22	Adjusted Observations	215
23	Deg. of Freedom for Error	197
24	R-Squared	0.940
25	Adjusted R-Squared	0.935
26	AIC	9.396
27	BIC	9.678
28	F-Statistic	
29	Prob (F-Statistic)	
30	Log-Likelihood	-1,297.09
31	Model Sum of Squares	34,252,816.85
32	Sum of Squared Errors	2,188,457.34
33	Mean Squared Error	11,108.92
34	Std. Error of Regression	105.40
35	Mean Abs. Dev. (MAD)	76.12
36	Mean Abs. % Err. (MAPE)	3.00%
37	Durbin-Watson Statistic	2.057
38	Durbin-H Statistic	
39	Ljung-Box Statistic	31.73
40	Prob (Ljung-Box)	0.1339
41	Skewness	-0.594
42	Kurtosis	4.554
43	Jarque-Bera	34.279
44	Prob (Jarque-Bera)	0.0000

Southwestern Public Service Company

Regression Models and Associated Statistics

Full Requirements Wholesale Peak Demand

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	Weather_SPS_PeakDay.HDD_Jan_ROS	3.101	0.591	5.246	Heating Degree Day temperature of Roswell for the month of January
3	Weather_SPS_PeakDay.HDD_Feb_ROS	3.429	0.637	5.384	Heating Degree Day temperature of Roswell for the month of February
4	Weather_SPS_PeakDay.HDD_Mar_ROS	3.390	0.865	3.917	Heating Degree Day temperature of Roswell for the month of March
5	Weather_SPS_PeakDay.HDD_Nov_ROS	2.755	0.778	3.544	Heating Degree Day temperature of Roswell for the month of November
6	Weather_SPS_PeakDay.HDD_Dec_ROS	3.205	0.569	5.631	Heating Degree Day temperature of Roswell for the month of December
7	Weather_SPS_PeakDay.AvgTemp_ROS_Apr	2.567	0.402	6.380	Average peak day temperature of Roswell for the month of April
8	Weather_SPS_PeakDay.AvgTemp_ROS_May	3.907	0.365	10.703	Average peak day temperature of Roswell for the month of May
9	Weather_SPS_PeakDay.AvgTemp_ROS_Jun	5.049	0.327	15.444	Average peak day temperature of Roswell for the month of June
10	Weather_SPS_PeakDay.AvgTemp_ROS_Jul	5.351	0.324	16.536	Average peak day temperature of Roswell for the month of July
11	Weather_SPS_PeakDay.AvgTemp_ROS_Aug	5.559	0.329	16.915	Average peak day temperature of Roswell for the month of August
12	Weather_SPS_PeakDay.AvgTemp_ROS_Sep	4.748	0.360	13.205	Average peak day temperature of Roswell for the month of September
13	Weather_SPS_PeakDay.AvgTemp_ROS_Oct	2.565	0.407	6.302	Average peak day temperature of Roswell for the month of October
14	Precip_ROS_PeakDay.AprthruSep_Precip_1WkB4	-45.134	12.819	-3.521	Sum of the number of precipitation inches in the week prior to the peak day, Calendar Months April thru September
15	Moving_Average.REC_Sales_CFLR_12MA	0.003	0.000	26.939	12-month moving average of actual total wholesale sales
16	AR(1)	0.679	0.052	12.971	First order autoregressive term

17	**Model Statistics**	
18	Iterations	7
19	Adjusted Observations	215
20	Deg. of Freedom for Error	200
21	R-Squared	0.914
22	Adjusted R-Squared	0.908
23	AIC	7.773
24	BIC	8.008
25	F-Statistic	
26	Prob (F-Statistic)	
27	Log-Likelihood	-1,125.69
28	Model Sum of Squares	4,702,124.05
29	Sum of Squared Errors	444,318.25
30	Mean Squared Error	2,221.59
31	Std. Error of Regression	47.13
32	Mean Abs. Dev. (MAD)	35.97
33	Mean Abs. % Err. (MAPE)	4.17%
34	Durbin-Watson Statistic	2.232
35	Durbin-H Statistic	
36	Ljung-Box Statistic	31.53
37	Prob (Ljung-Box)	0.1392
38	Skewness	-0.289
39	Kurtosis	3.223
40	Jarque-Bera	3.439
41	Prob (Jarque-Bera)	0.1791

Southwestern Public Service Company

Regression Models and Associated Statistics

Golden Spread Electric Cooperative Full Requirements Peak Demand

Line No.	Variable	Coefficient	StdErr	T-Stat	Definition
2	GSEC_Sales_12MA	0.001	0.000	30.576	12 month moving average of Golden Spread sales
3	Mar_Pan_AvgPDTemp	1.868	0.443	4.215	Average Panhandle Peak Day temperature for the month of March
4	Apr_Pan_AvgPDTemp	3.636	0.341	10.657	Average Panhandle Peak Day temperature for the month of April
5	May_Pan_AvgPDTemp	4.417	0.350	12.626	Average Panhandle Peak Day temperature for the month of May
6	Jun_Pan_AvgPDTemp	6.068	0.319	19.002	Average Panhandle Peak Day temperature for the month of June
7	Jul_Pan_AvgPDTemp	8.008	0.307	26.044	Average Panhandle Peak Day temperature for the month of July
8	Aug_Pan_AvgPDTemp	8.101	0.316	25.653	Average Panhandle Peak Day temperature for the month of August
9	Sep_Pan_AvgPDTemp	4.521	0.328	13.774	Average Panhandle Peak Day temperature for the month of September
10	Oct_Pan_AvgPDTemp	0.703	0.286	2.454	Average Panhandle Peak Day temperature for the month of October
11	AprMayJun_Precip_1WkB4_Pan	-112.511	20.940	-5.373	Sum of the number of Panhandle precipitation inches in the week prior to the peak day, Calendar Months April, May, June
12	JulAugSep_1WkB4_Pan	-54.953	13.023	-4.220	Sum of the number of Panhandle precipitation inches in the week prior to the peak day, Calendar Months July, August, September
13	Bin0906	-233.816	74.497	-3.139	Binary variable September 2006=1, otherwise=0
14	Bin0614	-312.106	74.076	-4.213	Binary variable June 2014=1, otherwise=0
15	Bin0914	275.003	74.491	3.692	Binary variable September 2014=1, otherwise=0
16	Bin0916	-349.097	74.499	-4.686	Binary variable September 2016=1, otherwise=0
17	Bin0905	-190.053	74.112	-2.564	Binary variable September 2005=1, otherwise=0
18	AR(1)	0.516	0.062	8.291	First order autoregressive term

19	Model Statistics	
20	Iterations	8
21	Adjusted Observations	215
22	Deg. of Freedom for Error	198
23	R-Squared	0.934
24	Adjusted R-Squared	0.929
25	AIC	8.862
26	BIC	9.129
27	F-Statistic	
28	Prob (F-Statistic)	
29	Log-Likelihood	-1,240.77
30	Model Sum of Squares	18,353,773.43
31	Sum of Squared Errors	1,296,016.13
32	Mean Squared Error	6,545.54
33	Std. Error of Regression	80.90
34	Mean Abs. Dev. (MAD)	56.94
35	Mean Abs. % Err. (MAPE)	9.23%
36	Durbin-Watson Statistic	2.131
37	Durbin-H Statistic	
38	Ljung-Box Statistic	32.66
39	Prob (Ljung-Box)	0.1115
40	Skewness	0.918
41	Kurtosis	6.051
42	Jarque-Bera	113.566
43	Prob (Jarque-Bera)	0.0000