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

MARIO G. MARTINEZ

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
Census class	customer class in which all customers have IDR meters
Commission	New Mexico Public Regulation Commission
IDR	Interval Demand Recorder
kW	kilowatt
kWh	kilowatt-hour
Non-Census class	customer class in which not all customers have IDR meters
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
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
Xcel Energy	Xcel Energy Inc.

Case No. 20-000238-UT
Direct Testimony
of
Mario G. Martinez

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Mario G. Martinez. 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, Load Research.

Q. Please briefly outline your responsibilities as Manager, Load Research.

A. I am responsible for Xcel Energy's Load Research function, which designs, maintains, monitors, and analyzes electric load research samples in the Xcel Energy Operating Companies' service territories. I also am responsible for presenting this information to Xcel Energy's senior management, other Xcel Energy departments, and various regulatory and reporting agencies. Finally, I am responsible for developing and implementing planning and load analysis studies for regulatory proceedings.

Q. Please describe your educational background.

A. I hold a Bachelor of Science Degree in Business Administration from Colorado Mesa University in Grand Junction, Colorado.

Q. Please describe your professional experience.

A. I began my career with Xcel Energy Services, Inc. in 2001. I have held various load research positions and have been responsible for managing all aspects of load research, including sample design, regulatory demand studies, and specialized analysis. From 2007 to the present, I have held various positions with increasing responsibility for load research issues across eight states. I assumed my current position as Manager, Load Research in July of 2019.

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

A. Yes. I have attended numerous courses and seminars related to public utilities over the past nineteen years. I am also a member of the Western Load Research Association and the Association of Edison Illuminating Companies Load Research Group.

II. ASSIGNMENT AND SUMMARY OF TESTIMONY AND RECOMMENDATIONS

Q. What is your assignment in this proceeding?

A. My testimony explains the function of load research as it is used in this proceeding for the period October 1, 2019 through September 30, 2020 ("Base Period"). I will describe SPS's load research function and the load research information that is used for cost allocation and rate design for the Test Year.[1] In addition, I sponsor Schedule Q-1 of SPS's Rate Filing Package ("RFP").

Q. Please summarize the conclusions and recommendations in your testimony.

A. Load research is the systematic collection and analysis of customers' electrical energy and demand requirements. SPS uses information from Interval Demand Recorder ("IDR")[2] meters to determine the coincident and non-coincident peaks for all customer classes. For the "Census" classes, which are the customer classes in which all customers have IDR meters, the meters provide actual measurements of demand. However, it is costly and not feasible to install an IDR meter for every customer in every class solely for load research purposes, given their functionality.

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

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

Therefore, for those customer classes in which not all customers have IDR meters, which are referred to as the "non-Census" classes, it is necessary to develop load research samples to estimate the coincident and non-coincident peaks for the classes.

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

Q. Was the RFP schedule that you sponsor prepared by you or under your direct supervision and control?

A. Yes.

Q. Do you incorporate the RFP schedule that you sponsor into your testimony?

A. Yes.

III. LOAD RESEARCH

Q. What is the purpose of load research?

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

Q. What are load research samples?

A. Load research samples are subsets of the entire population that SPS surveys to estimate the characteristics of the entire population. Because it is costly and not feasible to install IDR meters for every customer in all customer classes solely for load research purposes, given their functionality, it is necessary for SPS to develop load research samples to determine the coincident and non-coincident peaks for certain classes.

SPS's load research samples are developed using a stratified random sampling method. This technique divides the class of interest into smaller groups with like characteristics. This method effectively reduces the overall variance of the class, thereby reducing the sample size. The samples are designed to meet or exceed the "90/10" load research standard specified by Federal Energy Regulatory Commission regulations implementing the Public Utilities Regulatory Policies Act of 1978:

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

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

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

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

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

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

- Residential Service;
- Residential Space Heating Service;

- Small General Service;
- Secondary General Service;
- Irrigation Service;
- Primary General Service;
- Small Municipal and School Service; and
- Large Municipal and School Service.

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

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

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

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

class coincident peak; and (2) the load factors at the time of the monthly class peak, which is the class non-coincident peak.

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

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

Q. What is a load factor?

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

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

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

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

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

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

A. Yes. Because the hourly loads for the sample classes are estimates, the sum of each hourly demand, adjusted to generation level, will almost never equal SPS's

total system load. To account for this difference, the sample classes were adjusted each month so that the sum of all hourly demand equals the hourly system load at the hour of SPS's monthly system peak demand. Mr. Luth describes this process in his direct testimony. Both monthly system peak demand by class and monthly non-coincident class peak demands were adjusted consistent with the proportional allocation process discussed above.

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

A. Yes.

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VERIFICATION

On this day, December 21, 2020, I, Mario G. Martinez, swear and affirm under penalty of perjury under the law of the State of New Mexico, that my testimony contained in Direct Testimony of Mario G. Martinez is true and correct.

/s/ Mario G. Martinez
MARIO G. MARTINEZ