BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S APPLICATION FOR REVISION OF ITS RETAIL RATES UNDER ADVICE NOTICE NO. 255,	)	**CASE NO. 15-00139-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

DIRECT TESTIMONY

of

DAVID A. LOW

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
ARP	Acid Rain Program
Base Period	Calendar year 2014
CAIR	Clean Air Interstate Rule
Commission	New Mexico Public Regulation Commission
CSAPR	Cross State Air Pollution Rule
ECA	Essential Cyber Asset
EPA	Environmental Protection Agency
MATS	Mercury Air Toxics Standards
NO_X	Nitrogen Oxide
O&M	Operation and Maintenance
RFP	Rate Filing Package
Security Policy	Xcel Energy Corporate Cyber Security Policy
SO_2	Sulfur Dioxide
SPS	Southwestern Public Service Company, a New Mexico corporation
Test Year	Calendar year 2016
Xcel Energy	Xcel Energy Inc.

LIST OF ATTACHMENTS

Attachment	Description
DAL-1	Mercury Sorbent Cost to Comply with MATS (*Filename:* DAL-1.xlsx)
DAL-2	Projected SO_2 Allowances (*Filename*: DAL-2.xlsx)
DAL-3	Foxboro Support Contract (*Filename*: DAL-3.xlsx)

Case No. 15-00139-UT
Direct Testimony
of
David A. Low

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is David A. Low. My business address is 600 S. Tyler Street, Amarillo, Texas 79101.

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"). Xcel Energy is a registered holding company that owns several electric and natural gas utility operating companies.[1]

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

A. I am employed by SPS as General Manager SPS Generation.

[1] Xcel Energy is the parent company of four wholly-owned electric utility 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. Xcel Energy's natural gas pipeline subsidiary is WestGas InterState, Inc. Xcel Energy also has two transmission-only operating companies, Xcel Energy Southwest Transmission Company, LLC and Xcel Energy Transmission Development Company, LLC, both of which are regulated by the Federal Energy Regulatory Commission.

Q. Please briefly outline your responsibilities as General Manager SPS Generation.

A. I am responsible for providing management for the SPS Generation business area within the Energy Supply organization, which provides leadership, strategic direction, and management of the power generation group within SPS.

Q. Please describe your educational background.

A. I received a Bachelor of Science in Mechanical Engineering Technology from Texas Tech University in 1983. I also completed course work toward an MBA at West Texas A&M University from 1998 to 2001.

Q. Please describe your professional experience.

A. I began my career with SPS in 1983 as a Plant Engineer at the Tolk Station. I was promoted to Supervisory Plant/Project Engineer at the Tolk Station in 1987. In 1992, I was promoted to Senior Project Engineer at the Tolk Station. Then in 1995, I became the Maintenance Manager for SPS's Harrington Station. In 2003, I was promoted to Plant Director for Public Service Company of Colorado's Pawnee Station. In 2007, I was promoted to Plant Director of SPS's Tolk and Plant X Complex. Finally, in 2011, I was promoted to my current position as General Manager SPS Generation.

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

A. Yes. Over my career, I have taken various courses and seminars related specifically to the public utility industry.

Q. Have you testified before any regulatory authorities?

A. Yes. I have filed testimony with and testified before the New Mexico Public Regulation Commission ("Commission") on the topics of SPS power plant operations and expenses, and have filed testimony with the Public Utility Commission of Texas on those same topics.

II. ASSIGNMENT AND SUMMARY OF TESTIMONY AND RECOMMENDATIONS

Q. What is your assignment in this proceeding?

A. My testimony discusses known and anticipated operation and maintenance ("O&M") expenditures that will affect SPS's power plants during the Test Year[2] relating to: mercury sorbent chemicals that are necessary for Mercury Air Toxics Standards ("MATS") compliance; Cross State Air Pollution Rule ("CSAPR") environmental allowances; O&M for Jones Units 3 & 4; and Foxboro software contracts.

In addition, I sponsor Schedule P-7 of SPS's Rate Filing Package ("RFP").

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

A. During the Test Year, SPS expects to incur an additional $1.6 million in costs in relation to chemicals required for MATS compliance. SPS will also be affected by increased costs relating to environmental allowances due to CSAPR at SPS's coal-fired generating stations in the amount of $1.3 million. O&M expenses relating to the Jones Station 3 and 4 combustion turbines are expected to increase by $400,000 during the Test Year because the warranty for the turbines has

[2] The Test Year is calendar year 2016.

expired and Power Diagnostic Monitoring has been added. The Foxboro "Customer First" service contract is expected to cost $567,648 in 2016. These costs are reasonable and necessary for SPS to continue to provide safe and reliable energy service to its customers.[3]

[3] All of the dollar amounts for costs discussed in my testimony are total company amounts before allocation to the New Mexico retail jurisdiction.

III. KNOWN AND ANTICIPATED O&M EXPENDITURES RELATED TO POWER PLANTS DURING THE TEST YEAR

A. Increased Chemical Expense Relating to MATS Compliance

Q. Please briefly describe MATS and how it will affect SPS's chemical costs in the Test Year.

A. The MATS Rule finalizes standards to reduce air pollution from coal- and oil-fired power plants under Sections 111 (new source performance standards) and 112 (toxics program) of the 1990 Clean Air Act amendments. MATS sets federal air pollution emission standards that individual facilities were required to meet by April 16, 2015. The regulation results in the need for increased purchases of mercury sorbent in 2016, which will be used to ensure that mercury emissions limits can be met for compliance. MATS applies to new and existing coal-fired units and affects SPS's Tolk and Harrington Stations. For MATS compliance, activated carbon injection controls have been installed at Tolk and Harrington Stations. Injecting activated carbon as a sorbent to capture flue gas mercury was tested in 2014 and 2015 in preparation for the compliance required by April 2015. In 2016, SPS will be required to purchase a full year's supply of activated carbon to comply with the MATS requirements.

Q. What is the amount of costs SPS expects to incur during the Test Year for the purchase of mercury sorbent?

A. During the Test Year, SPS will be required to spend $1,639,035 to purchase activated carbon for injection to act as a mercury sorbent in relation to MATS compliance. The breakdown of these costs by generation unit is provided in Attachment DAL-1 to my testimony. SPS did not incur these costs during calendar year 2014, which is the "Base Period" in this case.

Q. Are the O&M costs associated with the purchase of mercury sorbent reasonable and necessary?

A. Yes. As discussed above, SPS is required to purchase mercury sorbent to comply with MATS.

B. Increased Costs Due to Cross State Air Pollution Rule Environmental Allowances

Q. What are CSAPR Environmental allowances?

A. In December 2008, federal courts rejected the Environmental Protection Agency's ("EPA") Clean Air Interstate Rule ("CAIR") and directed EPA to review the rule. On July 6, 2011, the EPA released the finalized rule, CSAPR, which sets a pollution limit (or budget) for each state. The rule allows sources in each state to

meet these budgets in any way they see fit, including unlimited trading of emissions allowances between power plants within the same state. Interstate trading is also permitted. This structure reduces the cost of complying with the rule while ensuring that each state eliminates the sulfur dioxide ("SO_2") and nitrogen oxide ("NO_x") emissions that significantly contribute downward nonattainment or interfere with maintenance of the 1997 and 2006 National Ambient Air Quality Standards.

Q. **Have environmental allowance programs changed during 2015?**

A. Yes. The following discussion summarizes the changes to the Acid Rain Program ("ARP"), CAIR, and CSAPR Allowances.

In August 2012, the United States Court of Appeals vacated the CSAPR rule and reinstated CAIR until the EPA developed a replacement program. The Supreme Court has ruled on the CSAPR decision and overturned the appellate court, effectively reinstating CSAPR. The EPA started the CSAPR program on January 1, 2015.

In 2014, CAIR SO_2 allowances were allowed to be used for ARP SO_2 compliance. Barring any additional litigation, CSAPR SO_2 allowances will be separate and distinct from ARP SO_2 allowances, and CSAPR allowances will not

be available for ARP compliance for compliance year 2015. Therefore, SPS will have a large bank of ARP-only allowances for the ARP program, and began 2015 with no bank of CSAPR SO_2 allowances. SPS expects increased costs in 2016 due to these developments. SPS's Test Year projections are based on known emission rates and forecasted generation for future years. Currently, SPS expects a short fall of approximately 1,305 CSAPR SO_2 allowances in 2015. SPS expects a short fall of approximately 4,886 CSAPR allowances in 2016. At a current market price of $275 per allowance, SPS projects a total purchase cost in 2016 of $1.34 million.

CAIR NO_x allowances will not have any value after the 2014 compliance period reconciliation. SPS will also begin the CSAPR program in 2015 with no bank of NO_x allowances. In addition, SPS has been included in both the CSAPR annual NO_x program and the CSAPR ozone season program. With the low NO_x burner installations at Tolk and Harrington, SPS may or may not need to purchase future NO_x allowances depending on the accuracy of the forecasted generation. No adjustment to the Test Year has been made for NO_X allowances.

Q. What is the amount of costs SPS expects to incur during the Test Year due to the CSAPR Environmental allowances?

A. As a result of the implementation of CSAPR, the costs for purchasing SO_2 allowances during the Test Year are expected to be $1.34 million, as shown on Attachment DAL-2. SPS Witness Mr. Freitas discusses this Test Year adjustment in his testimony.

Q. Are the increased costs related to CSAPR environmental allowances reasonable and necessary?

A. Yes. The EPA requires power plants to buy allowances or install or upgrade pollution control equipment such as low NO_x burners or scrubbers (Flue Gas Desulfurization) over time. At this time, purchasing allowances is the most cost-effective way for SPS to comply with CSAPR.

C. Increased costs related to the Jones Station Combustion Turbines

Q. Why does SPS expect to incur additional costs relating to the Jones Station Combustion turbines during the Test Year?

A. The warranty on all components of the Jones Units 3 and 4 combustion turbines has expired, therefore all costs associated with these units will be funded through the plant O&M budget.

Q. What type of costs does SPS expect to incur in relation to the Jones 3 and Jones 4 combustion turbines?

A. Costs associated with maintaining the combustion turbines during the Test Year include the following: annual inspections, semi-annual fire system inspection, Siemens Technical Field Assistance for site visits to assist in tuning the units, computer control systems, replacement parts, equipment rentals, labor to make repairs, insulation services, emission monitoring systems, and Siemens Power Diagnostic Monitoring Services.

Q. What is the Siemens Power Diagnostic Monitoring Service and why is it necessary?

A. Siemens Power Diagnostic Monitoring Service is an online monitoring system for gas combustion turbines. After a fixed guarantee period, the customer carries all of the risk and repair costs for the turbines. Through the Siemens Power Diagnostic Monitoring Service, the high performance combustion turbines have continuous remote online monitoring to provide early detection of abnormal operating conditions of power plant equipment to help ensure plant availability and operations. Multiple data acquisition tools can be used to obtain daily operational data from power generating equipment. Once the data is transmitted

to a Power Diagnostics Center, it is processed through a series of advanced data analysis tools, and the results are posted for Siemens Engineers to review on a regular basis. Upon detection of an anomaly, the engineers will prepare a report summarizing the details of the issue, possible causes, and suggested actions. This report is then sent to the technical and regional service managers who communicate and discuss the report and possible courses of action with plant personnel considering the severity of the issue, dispatch of the unit, and the availability of parts and labor.

Q. What is the amount of the expected increase in O&M costs associated with the Jones Station combustion turbines?

A. SPS expects costs associated with O&M for the Jones Station combustion turbines to increase by $400,000 from the Base Period to the Test Year.

Q. Are the increased costs related to the combustion turbines at Jones Station reasonable and necessary?

A. Yes, for the reasons discussed above.

D. Increased costs related to Foxboro Customer Service Contract

Q. Please describe the Foxboro Customer Service Contract and explain why it is necessary.

A. Foxboro (Invensys) is a brand of standard plant computer system that enables a plant to automate all its control needs for its complex. To comply with the Xcel Energy Corporate Cyber Security Policy ("Security Policy"),[4] the distributed control systems require the newest software updates. The Customer First Program allows for patch management and virus/malware protection for the plant computer control systems. The Security Policy requires plants to maintain patch and virus/malware protection in a current state for Essential Cyber Asset ("ECA") networks. A direct connection from an ECA to an external network for patch and virus/malware download is not permitted. Updates are required to be performed by use of removable media that are used to transfer the updates from a Wide Area Network connection to the ECA network. The media shall be scanned to confirm they are free of known virus/malware prior to introduction to plant process control networks. Any of the patches and updates must be certified by Foxboro through

[4] The Xcel Energy Corporate Cyber Security Policy implements the Critical Infrastructure Protection Standards established by the North American Electric Reliability Corporation to protect the bulk electric power system.

the Customer First Program. This program provides spare parts, emergency phone support, and discounted hardware/software upgrades in addition to patches and virus/malware protection.

Q. Why did SPS select Foxboro as the vendor for its software security program?

A. Foxboro is the original equipment manufacturer for SPS's distributed control systems hardware/software. Patches and updates cannot come directly from SUN Microsystems or Microsoft. All patches and updates must be tested and certified by the original equipment manufacturer. The Customer First Program allocates a Foxboro employee to come to the facility and install the patches and updates.

Q. What is the amount of costs SPS expects to incur during the Test Year due to the Foxboro Customer First service contract?

A. The Foxboro Customer First service contract is expected to cost $567,648 in 2016. See Attachment DAL- 3.

Q. How did SPS arrive at the negotiated price for the Foxboro Customer First service contract?

A. The premium package was derived by contract negotiations between the company and Foxboro. The following services are included in the contract:

- Customer support is provided 24 hours a day, 365 days per year. Without a contract, customer support costs $4,000 for approximately 4 hours of assistance after as much as a 24-hour call back.

- The Advantage Program discount provides 50% off hardware and software costs when upgrading existing equipment, providing the old hardware is returned to Foxboro. This discount results in significant savings for capital upgrades.

- The Module Exchange Program allows SPS to call Foxboro and have a part shipped overnight, instead of sending a part in for repair and waiting for return. Foxboro maintains a bank of older spare parts for contract customers that are not available to non-contract customers. The Advantage Program and the Module Exchange Program allow SPS to trade in old parts for credit up front instead of keeping old parts in a parts bank. The overall advantage is that the risk to reliability is lessened.

- The discount on new replacement parts is 43%.

- The discount on spare parts is 10%.

- The discount on Site Engineering Services is 10%.

- The discount for off line systems equipment is (I/A simulators) 10%.

- Foxboro will also match any funds we prepay each year for training.

Q. What is the "discount" reflected on Attachment DAL-3?

A. If SPS prepays the cost of employee training, Foxboro will match that tuition. This discount lowers the training cost by 50%. The training will allow employees to maintain knowledge regarding current technology.

Q. Are the increased costs relating to Foxboro Customer First reasonable and necessary?

A. Yes. As discussed above, the program ensures the plants' distributed control system is compliant with the security standards that have been established within the industry.

IV. CONCLUSION

Q. Were Attachments DAL-1 through DAL-3 and Schedule P-7 in the RFP prepared by you or under your direct supervision?

A. Yes.

Q. Do you incorporate Schedule P-7 in the RFP that you sponsor into your testimony?

A. Yes.

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

A. Yes.

VERIFICATION

STATE OF TEXAS)
) ss.
COUNTY OF POTTER)

DAVID A. LOW, first being sworn on his oath, states:

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

DAVID A. LOW

SUBSCRIBED AND SWORN TO before me this 20th day of May, 2015.

STELLA M. DIETRICH
Notary Public, State of Texas
My Commission Expires
March 23, 2016

Notary Public, State of Texas
My Commission Expires: March 23, 2016

Southwestern Public Service Company

Mecury Sorbent Cost to Comply with MATS
12 Months Ending December 31, 2016

Line No.	Mercury Sorbent (FERC Account 502) [1]	Sorbent Type		2016 Estimate [2]
1	Harrington 1 (Electro Static Precipitator)	FastPAC Premium	$	1,150,655
2	Harrington 2 (Baghouse)	Pow Pac Premium		129,955
3	Harrington 3 (Baghouse)	Pow Pac Premium		129,955
4	Tolk 1 (Baghouse)	Pow Pac Premium		114,235
5	Tolk 1 (Baghouse)	Pow Pac Premium		114,235
6				
7	Total		$	1,639,035

Notes:

[1]Controls in service by April 15, 2015

[2] Best estimates with a short trial period during equipment start-up.

Southwestern Public Service Company

Projected SO_2 Allowances
12 months ending December 31, 2016

Tons

SPS	2016
CSAPR SO_2	4,886
CSAPR Annual NO_x	0
CSAPR Seasonal NO_x	0

Budget for Allowance Purchase Requirements
Million Dollars

SPS	2016
CSAPR SO_2	$ 1,340,000.00
CSAPR Annual NO_x	0.00
CSAPR Seasonal NO_x	0.00
Total	$ 1,340,000.00

Southwestern Public Service Company

Foxboro Support Contract
12 months ending December 31, 2016

Foxboro "Customer First" - 5 Year Service Contract		
		2016
Harrington		
Support and Services	$	128,276
Training(with discount)		10,150
TOTAL	**$**	**138,426**
Nichols		
Support and Services	$	62,984
Training (with discount)		2,900
TOTAL	**$**	**65,884**
Plant X		
Support and Services	$	98,792
Training (with discount)		1,450
TOTAL	**$**	**100,242**
Tolk		
Support and Services	$	85,340
Training (with discount)		1,450
TOTAL	**$**	**86,790**
Jones		
Support and Services	$	104,300
Training (with discount)		4,350
TOTAL	**$**	**108,650**
Maddox		
Support and Services	$	23,364
Training (with discount)		2,900
TOTAL	**$**	**26,264**
Cunningham		
Support and Services	$	38,492
Training (with discount)		2,900
TOTAL	**$**	**41,392**
SPS Support and Service Totals	**$**	**541,548**
SPS Training Discounted Costs		**26,100**
TOTAL	**$**	**567,648**