DOCKET NO. _____

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

DIRECT TESTIMONY
of
DAVID A. LOW

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

(Filename: LowRRDirect.doc)

Table of Contents

GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
Btu	British thermal unit
costs	O&M expenses and administrative and general expenses collectively
EAF	Equivalent Availability Factor
FERC	Federal Energy Regulatory Commission
FIP	Federal Implementation Plan
FOR	Forced Outage Rate
HP	High Pressure
IP	Intermediate Pressure
kWh	kilowatt hour
M&D	Monitoring and diagnostic
MW	megawatt
MWh	megawatt hour
NERC	North American Electric Reliability Corporation
NERC/GADS	North American Electric Reliability Corporation/Generating Availability Data System
NMPRC	New Mexico Public Regulation Commission
O&M	Operation and maintenance

Acronym/Defined Term	Meaning
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.
Operating Company	One of the Operating Companies
PTT	Productivity through Technology
RFP	Rate Filing Package
SPP	Southwest Power Pool, Inc.
SPS	Southwestern Public Service Company, a New Mexico corporation
Test Year	April 1, 2016 through March 31, 2017
Total Company or total company	Total SPS (before any jurisdictional allocation)
Update Period	April 1, 2017 through June 30, 2017
Updated Test Year	July 1, 2016 through June 30, 2017
VP	Vice President
Xcel Energy	Xcel Energy Inc.
XES	Xcel Energy Services Inc.

LIST OF ATTACHMENTS

Attachment	Description
DAL-RR-1	Energy Supply Organization Chart (*Non-native format*)
DAL-RR-2	2015 & 2016 Heat Rates for Utilities Serving Texas - Coal only (*Filename:* DAL-RR-2.xlsx)
DAL-RR-3	2015 & 2016 Heat Rates for Utilities Serving Texas - All (*Filename*: DAL-RR-3.xlsx)
DAL-RR-4	Tolk Station Annual Equivalent Availability Factors (*Filename*: DAL-RR-4.xls)
DAL-RR-5	Harrington Station Annual Equivalent Availability Factors (*Filename*: DAL-RR-5.xls)
DAL-RR-6	Gas Units (200-299 MW) Annual Equivalent Availability Factors (*Filename*: DAL-RR-6.xls)
DAL-RR-7	Tolk Station Annual Forced Outage Rates (*Filename*: DAL-RR-7.xls)
DAL-RR-8	Harrington Station Annual Forced Outage Rates (*Filename*: DAL-RR-8.xls)
DAL-RR-9	Gas Units (200-299 MW) Forced Outage Rates (*Filename*: DAL-RR-9.xls)
DAL-RR-10	SPS Native Operation and Maintenance Expenses (Filename: DAL-RR-10.xlsx)
DAL-RR-11	Workpapers (*Filename*: DAL-RR-11.doc)

Attachment	**Description**
DAL-RR-A (Updated Test Year)	Summary of XES Expenses to SPS by Affiliate Class and Billing Method (*Filename:* DAL-RR-ABCD.xlsx)
DAL-RR-B(CD) (Updated Test Year)	XES Expenses by Affiliate Class, Activity, Billing Method and FERC Account (*Filename:* DAL-RR-ABCD.xlsx)
DAL-RR-C (Updated Test Year)	Exclusions from XES Expenses to SPS by Affiliate Class and FERC Account (*Filename:* DAL-RR-ABCD.xlsx)
DAL-RR-D (Updated Test Year)	Pro Forma Adjustments to XES Expenses by Affiliate Class and FERC Account (*Filename:* DAL-RR-ABCD.xlsx)

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 790 Buchanan 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").

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

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

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 the SPS area of Xcel Energy.

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's 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 filed testimony at the Public Utility Commission of Texas in Docket Nos. 40824, 42004, 43695, and 45524, SPS's last four rate cases, on Energy Supply affiliate expenses, SPS's generation by operating plant and unit, and its power plant operation, maintenance, and cost control practices. I also testified at the New Mexico Public Regulation Commission ("NMPRC") in Case No. 12-00350-UT, on SPS's known and anticipated operation and maintenance ("O&M") expenditures related to chemical and water usage for power plants. In addition, I have filed testimony on SPS's behalf before the NMPRC in Case Nos. 14-00348-UT, 15-00296-UT, and 16-00269 addressing SPS's generation and its power plant operation, maintenance, and cost control practices.

II. ASSIGNMENT AND SUMMARY OF TESTIMONY AND RECOMMENDATIONS

Q. What is your assignment in this proceeding?

A. I support the Updated Test Year (July 1, 2016 through June 30, 2017) O&M expenses and the administrative and general expenses (collectively, "costs") in the Energy Supply business area overall, which includes native costs, and the following five classes of affiliate services:[1]

1. ES Engineering & Construction;
2. ES Environmental;
3. ES Technical Services;
4. ES Vice President ("VP") Energy Supply; and
5. ES VP Operations.

In regard to SPS's native energy supply O&M costs, my testimony will:

- describe the types of services provided;
- explain how the services are reasonable and necessary for SPS's operations; and
- support the costs as reasonable and necessary for rate recovery purposes.

In regard to the five affiliate classes, my testimony will:

- describe the services included in the class;
- explain that those services are reasonable and necessary for SPS's operation;
- explain that the costs for those services are reasonable and necessary;

[1] The Test Year in this case is April 1, 2016 through March 31, 2017, and the Update Period is April 1, 2017 through June 30, 2017. The Updated Test Year consists of the last nine months of the Test Year and the three months in the Update Period. I have reviewed the costs for the first three months of the Test Year for the native costs and affiliate classes I support and find those costs to be reasonable.

- explain that these services do not duplicate services that SPS provides for itself through its own employees or that are provided from any other source; and

- explain that charges from Xcel Energy Services Inc. ("XES") to SPS for those services are no higher than the charges to SPS affiliates for the same or similar services.

I will also discuss SPS's generation by operating plant and unit, and its power plant operation, maintenance, and cost control practices during the Updated Test Year. In addition, I sponsor or co-sponsor schedules in SPS's Rate Filing Package ("RFP"), which I describe in greater detail in Section III of my testimony, and the portions of the Executive Summary that contain information from these schedules.

Q. Please summarize your testimony and recommendations.

A. The amounts included in Attachment DAL-RR-10 represent, at a total company level, reasonable and necessary Energy Supply O&M costs incurred directly by SPS to provide safe and reliable electric service to its Texas retail customers. The Updated Test Year costs that SPS seeks to recover for the services of each of the five affiliate classes that I support are reasonable and necessary because they support SPS's ability to provide electric service to its Texas retail customers.

ES Engineering & Construction

- The estimated Updated Test Year (July 1, 2016 through June 30, 2017) costs for the services of the ES Engineering & Construction affiliate class that SPS seeks to recover are $1,798,383 (total SPS before jurisdictional allocations, "Total Company" or "total company").

- The costs are for services provided to SPS that include Texas and New Mexico regional capital engineering, design and document services, and construction and project services. These services are necessary to provide the generation plant and systems that enable the provision of safe and reliable electric service to SPS's customers.

- The costs are reasonable because they are shared with other affiliates, include reasonable personnel costs, and are subjected to rigorous budgeting and cost control processes.

- SPS does not provide these services for itself, and the services do not duplicate services provided by others.

- Each charge from SPS's affiliates for these services is no higher than the charge by those affiliates to any other entity for the same or similar service, and the costs reasonably approximate the affiliate's cost to provide the service.

ES Environmental

- The estimated Updated Test Year costs for the services of the ES Environmental affiliate class that SPS seeks to recover are $922,722 (total company).

- The costs are related to services to help ensure plant facilities remain in environmental compliance, including obtaining permits for new and existing facilities. These services are necessary to ensured continued, regulatory-compliant, operation of SPS's generation plant facilities.

- The costs are reasonable because they are shared with other affiliates, include reasonable personnel costs, and are subjected to rigorous budgeting and cost control processes.

- SPS does not provide these services for itself, and the services do not duplicate services provided by others.

- Each charge from SPS's affiliates for these services is no higher than the charge by those affiliates to any other entity for the same or similar service, and the costs reasonably approximate the affiliate's cost to provide the service.

ES Technical Services

- The estimated Updated Test Year costs for the services of the ES Technical Services affiliate class that SPS seeks to recover are $12,186,665 (total company).

- The costs are for plant engineering and technical support, asset management, overhaul management and maintenance support, performance testing and analysis, chemistry water resources, and reliability maintenance services. These services are necessary to ensure the safe and reliable operation of SPS's generation fleet.

- The costs are reasonable because they are shared with other affiliates, include reasonable personnel costs, and are subjected to rigorous budgeting and cost control processes.

- SPS does not provide these services for itself, and the services do not duplicate services provided by others.

- Each charge from SPS's affiliates for these services is no higher than the charge by those affiliates to any other entity for the same or similar service, and the costs reasonably approximate the affiliate's cost to provide the service.

ES VP Energy Supply

- The estimated Updated Test Year costs for the services of the ES VP Energy Supply affiliate class that SPS seeks to recover are $105,409 (total company).

- The costs are for the oversight of VP Technical Services, VP Engineering and Construction, and VP Operations. The services provided by this oversight function are necessary to ensure cost control, engineering and construction execution, technical support, and operational excellence of SPS's generation fleet.

- The costs are reasonable because they are shared with other affiliates, include reasonable personnel costs, and are subjected to rigorous budgeting and cost control processes.

- SPS does not provide these services for itself, and the services do not duplicate services provided by others.

- Each charge from SPS's affiliates for these services is no higher than the charge by those affiliates to any other entity for the same or similar service, and the costs reasonably approximate the affiliate's cost to provide the service.

ES VP Operations

- The estimated Updated Test Year costs for the services of the ES VP Operations affiliate class that SPS seeks to recover are $353,724 (total company).

- The costs are for oversight and management of the Operating Model[2] across the Xcel Energy fleet and regional generation organizations, and to provide performance indicators and lead the Energy Supply safety program. These services are necessary to provide leadership in ensuring the safe and reliable operation of SPS's generation facilities.

- The costs are reasonable because they are shared with other affiliates, include reasonable personnel costs, and are subjected to rigorous budgeting and cost control processes.

- SPS does not provide these services for itself, and the services do not duplicate services provided by others.

- Each charge from SPS's affiliates for these services is no higher than the charge by those affiliates to any other entity for the same or similar service, and the costs reasonably approximate the affiliate's cost to provide the service.

My recommendations and conclusions also include the following:

- SPS operates and maintains its generating facilities in an efficient and reliable manner for the following reasons:

    - Using tools such as the PLEXOS software, SPS schedules maintenance on a component basis, instead of major overhauls, in order to have more stable maintenance costs from year to year and to ensure the efficient reliable operation of its units;

    - SPS has a proactive predictive maintenance program that helps minimize costs, while maintaining unit reliability;

    - SPS maintains a robust performance assurance program, which includes ongoing monitoring of power plant performance, to improve unit efficiency and find cost-effective ways to reduce fuel costs;

        - SPS's coal units performed well during the Updated Test Year, most operating within 5% of their Adjusted Design Net Heat Rate;

        - SPS units' heat rates compared favorably to other regional utilities during 2014 and 2015; and

[2] The "Operating Model" or "Generation Operating Model" provides for the alignment of resources and standardization of the key elements of organizational operation to identify best practices, reduce operating and maintenance cost, and promote excellence.

- During the Updated Test Year, SPS conducted a Steam Path Analysis on Harrington Unit 1 and Tolk Unit 2 turbines, which resulted in greater fuel savings and improvements in heat rates for those units;

- SPS requires and provides training of plant operators and maintenance personnel to ensure the safe and reliable operation of its units;

- Although SPS continues operating in an efficient manner, the changes to the Southwest Power Pool Inc.'s ("SPP") market has increased unit starts and shortened unit service hours, which could have the effect of increasing O&M expense in the future;

- In comparison to other utilities, SPS's O&M programs for generation facilities are highly effective:

  - The overall Equivalent Availability Factor ("EAF") for SPS's coal units compare favorably with the national average for 2014 and 2015;

  - The overall Forced Outage Rates ("FOR") of SPS's coal units also compare favorably to the national average in 2014 and 2015; and

  - Although SPS had several unplanned outages during the Updated Test Year, SPS took steps to quickly make repairs and bring plants back on-line.

Q. You mention that certain costs that you present in your testimony are estimates. Please explain why this is the case and what items are estimates.

A. As explained by SPS witness William A. Grant, SPS will be using an Updated Test Year in this case. SPS's initial filing presents actual expenses for the Test Year (April 1, 2016 through March 31, 2017) and estimated information for the time period of April 1, 2017 through June 30, 2017, which is the Update Period. Accordingly, the first nine months of SPS's Updated Test Year (i.e., July 2016 through March 2017) consist of actual cost information and the last three months (i.e., April through June 2017) contain estimated cost information. For this

reason, certain SPS witnesses refer to the Updated Test Year in direct testimony as the "estimated Updated Test Year."

Regarding the ES Engineering & Construction, ES Environmental, ES Technical Services, ES VP Energy Supply, and ES VP Operations affiliate costs I support, as explained by SPS witness Adam R. Dietenberger, actual figures for April and May 2017 have been provided and June 2017 figures have been estimated based on the forecasted budget. However, these expenses have not gone through the full pro forma adjustment review process.

Regarding the native SPS costs for Energy Supply O&M that I support, which are provided in my Attachment DAL-RR-10, as explained by SPS witness Arthur P. Freitas, actual figures for April and May 2017 have been provided, and June 2017 figures have been estimated based on the forecasted budget.

Q. Will your testimony be updated to replace the estimated costs that you present and support with actual costs?

A. Yes. SPS will file an update 45 days after the application has been filed. The update will provide actual costs to replace the estimates provided in the application for the time period of April 1, 2017 through June 30, 2017 (Update Period). As part of that process, my Attachments DAL-RR-A through D will be updated to remove estimates of ES Engineering & Construction, ES Environmental, ES Technical Services, ES VP Energy Supply, and ES VP Operations affiliate O&M expenses incurred by SPS during the Updated Test Year (July 1, 2016 through June 30, 2017) and then replace those estimates with actual expenses, which will be used to establish SPS's base rates in this case. Additionally, my Attachment DAL-RR-10 will be updated in SPS's 45-day

update filing to replace estimates of SPS's native costs relating to Energy Supply O&M with actuals.

Q. Were Attachments DAL-RR-1 through DAL-RR-11 and DAL-RR-A through DAL-RR-D prepared by you or under your direct supervision and control?

A. Yes, as to Attachments DAL-RR-1 through DAL-RR-9 and DAL-RR-11. Attachment DAL-RR-10 was prepared by SPS witness Arthur P. Freitas and his staff and is based on the cost of service study. Attachments DAL-RR-A through DAL-RR-D were prepared by SPS witness Adam R. Dietenberger and his staff. My staff and I have reviewed these attachments, and I believe them to be accurate. Although the information I have described also is present in Mr. Dietenberger's attachments, I have presented this information in the attachments to my testimony for the convenience of those reviewing my testimony.

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

A. Yes.

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

A. Yes.

III. DESCRIPTION OF RATE FILING PACKAGE SCHEDULES

Q. What RFP schedules do you sponsor?

A. I sponsor or co-sponsor the following RFP schedules:

Table DAL-RR-1

H Schedules	1, 1.2, 1.2a, 1.2a1, 1.2a2, 1.2b, 1.2c, 1.2d, 2, 3, 4, 6.2a, 6.2b, 6.2c, 6.3b, 7.1, 7.2, 7.3, 7.4, 7.5, 8, 9, 11.1, 11.2, 11.3, 12.2a, 12.2a1, 12.2b, 12.2b1, 12.2c, 12.2c1, 12.3a, 12.3b, 12.3c, and 13.2
I Schedules	5.1, 5.2, and 5.3

Q. What information is contained in the H schedules?

A. The H schedules I sponsor or co-sponsor contain the following information:

- Schedule H-1 provides in summary form, the production plant operations and maintenance expenses (excluding fuel) by month for the Test Year and Updated Test Year, by the Federal Energy Regulatory Commission ("FERC") account, by primary fuel type, for all generating plants or units. Schedule H-1.2 provides total company O&M expenses for fossil plants. I co-sponsor this schedule with Mr. Freitas.

- Schedule H-1.2a provides a summary of O&M expenses for natural gas plants. I co-sponsor this schedule with Mr. Freitas.

- Schedule H-1.2a1 provides O&M expense for natural gas plants (steam generation). I co-sponsor this schedule with Mr. Freitas.

- Schedule H-1.2a2 provides O&M expense for natural gas plants (combustion turbine). I co-sponsor this schedule with Mr. Freitas.

- Schedule H-1.2b provides a summary of O&M expense for coal plants. I co-sponsor this schedule with Mr. Freitas.

- Schedule H-1.2c provides a summary of O&M expense for lignite plants.

- Schedule H-1.2d provides a summary of O&M expense for other plants. I co-sponsor this schedule with Mr. Freitas.

- Schedule H-2 provides production adjusted O&M expense for the Test Year and Updated Test Year. I co-sponsor this schedule with Mr. Freitas.

- Schedule H-3 provides the summary of actual production O&M expenses incurred.

- Schedule H-4 provides a list of all projects, in excess of $100,000, to be charged to production O&M expense in the most current budget or projection.

- Schedule H-6.2a provides a list of fossil unit forced outages that occurred during the Test Year.

- Schedule H-6.2b provides a list of scheduled outages of fossil units that occurred during the Test Year.

- Schedule H-6.2c provides a list of each outage for fossil units scheduled for the next five calendar years.

- Schedule H-6.3b provides the incremental cost information for the Test Year for each fossil unit outage, excluding outage costs under $500,000.

- Schedule H-7.1 provides a copy of the most recent total company production staffing plan.

- Schedule H-7.2 provides a copy of the most recent plan used for personnel staffing.

- Schedule H-7.3 provides a summary schedule of the number of personnel assigned to each plant on a calendar year basis during the preceding five calendar years.

- Schedule H-7.4 provides a listing of the average number of personnel assigned to each unit for the Test Year, and projected for the rate year.

- Schedule H-7.5 provides the production O&M organization charts for plants, systems operations, and corporate personnel with the associated number of personnel.

- Schedule H-8 provides a summary of the system-wide production operations programs.

- Schedule H-9 provides a summary of the system-wide production maintenance programs.

- Schedule H-11.1 provides the percentage of O&M expenses (excluding fuel) per total production plant expenses (excluding fuel) annually for the Test Year and the previous five years by plant.

- Schedule H-11.2 provides the percentage of preventative (including predictive) maintenance man-hours and corrective maintenance man-hours versus the total maintenance man-hours.

- Schedule H-11.3 provides the O&M costs (excluding fuel) per megawatt hour ("MWh") generated by each plant grouped by primary fuel type on a monthly and annual basis for the Test Year, and the previous five years.

- Schedules H-12.2a and H-12.2a1 provide MWh production by lignite and coal units for the Test Year and the previous five years.

- Schedules H-12.2b and H-12.2b1 provide MWh production by unit for natural gas and oil units for the Test Year and the previous five years.

- Schedules H-12.2c and H-12.2c1 provide MWh production for other units during the Test Year and previous five years.

- Schedules H-12.3a, H-12.3b, and H-12.3c provide generating unit data, unit characteristics, and efficiency and control systems.

- Schedule H-13.2 provides a copy of form IE-24 (Form 417R) reports filed with the Department of Energy during the Test Year. I co-sponsor this schedule with SPS witness H. Craig Romer.

Q. What information is contained in the I schedules that you sponsor?

A. The schedules I sponsor contain the following information:

- Schedules I-5.1, I-5.2, and I-5.3 provide information regarding combustion residual production, disposal, and disposal costs.

Q. Will any of the schedules that you sponsor be updated?

A. Yes. Schedules H-1, H-1.2, H-1.2a, H-1.2a1, H-1.2a2, H-1.2b, H-1.2d, and H-2 will be updated in the case update filing 45 days after the application is filed.

IV. ENERGY SUPPLY-RELATED ACTIVITIES AND TOTAL ENERGY SUPPLY O&M COSTS

Q. What are the types of charges included in SPS's requested level of O&M expenses related to Energy Supply?

A. Energy Supply-related O&M expenses include both native SPS costs and affiliate charges. Native costs are those costs incurred directly by SPS associated with the provision of electric service to customers. These costs include labor, materials, and other non-fuel O&M costs. For example, the salaries of SPS employees are native costs. Another component of SPS's O&M expenses are affiliate costs. Affiliate costs are those associated with services provided by XES and the other Operating Companies[3] to SPS. Charges from SPS's affiliates must be provided "at cost," or without profit, and the charges to SPS must be no higher than the charges to other Operating Companies for similar services. The services provided by SPS's affiliates are in addition to, and not duplicative of, the services that SPS employees provide. Charges from the other Xcel Energy Operating Companies are generally related to emergency services, such as storm restoration activities. Mr. Dietenberger provides additional details regarding the methodology of charging affiliate costs to SPS from XES and other affiliated entities.

Q. What are the types of services and costs specifically associated with the Energy Supply business area?

A. SPS's Energy Supply business area provides a wide range of services necessary to support SPS's ability to provide electric service to its Texas and New Mexico retail customers. Within this business area, XES and SPS employees have

[3] The Operating Companies are Northern States Power Company, a Minnesota corporation; Northern States Power Company, a Wisconsin corporation; Public Service Company of Colorado, a Colorado corporation; and SPS.

separate roles and responsibilities, but work in coordination with each other and under the direction of the XES Energy Supply business area management to provide various services including:

Native and Affiliate Services:

- developing and executing projects for new generation and establishing uniform technology, design and equipment standards for capital projects;
- implementation and maintenance of an Energy Supply Quality Assurance and Quality Control Program and safety programs;
- plant engineering supporting the daily outage planning and execution, reliability maintenance services, and plant equipment and performance testing;
- maintaining technical resources on plant equipment to facilitate effective maintenance;
- implementing compliance with North American Electric Reliability Corporation ("NERC") reliability standards; and
- ensuring SPS's continued compliance with environmental rules and regulations including: air quality, water quality, hazardous and solid waste, remediation, storage tanks, and emergency spill response.

Exclusively Affiliate Services:

- developing and maintaining Energy Supply project management processes for capital projects and complex O&M projects;
- overseeing Energy Supply capital construction projects;
- maintaining a working relationship with key suppliers of materials, equipment, and engineering and construction services;
- providing environmental permitting and compliance support, training and compliance assistance, auditing of compliance, and managing coal ash contracts;
- developing, implementing, and supporting SPS's environmental leadership strategy and associated policy initiatives;
- providing strategic asset management that delivers analysis and training expertise in multiple areas, such as plant process chemistry and water resources;

- managing the overhaul process to optimize outage planning and execution;

- overseeing and managing all testing activities and NERC standards compliance through use of the Operating Model across the generating fleet;

- developing and managing the Capital budget, project management, Quality Assurance/Quality Control programs, design control, and drawing control processes; and

- providing management oversight and direction to the regional generation organization, including the establishment of regional performance indicators, fleet-wide improvement initiatives, and leadership of the Energy Supply safety program.

Q. Are the services and associated O&M costs related to the Energy Supply business area necessary and reasonable for SPS's operations?

A. Yes. The services provided by the Energy Supply business area relate to reliability, safety, customer service, operational efficiency, and the fiscal oversight necessary to construct, operate, and maintain SPS's generation fleet. As I noted above, the costs for these services are made up of both native costs and affiliate charges. These costs include labor, materials, and other non-fuel O&M costs. SPS witnesses Jill H. Reed and Richard R. Schrubbe provide testimony regarding labor costs (both native and affiliate), SPS witness Gary J. O'Hara provides testimony about sourcing and procurement of goods and services (affiliate), and Mr. Dietenberger provides testimony regarding the methodology of billings for labor and labor related overheads (affiliate). In my testimony, I address native and affiliate O&M expenses for the Energy Supply business area. In Sections V through X, I address affiliate charges to SPS for Energy Supply-related activities in more detail.

V. AFFILIATE CLASSES SPONSORED

Q. Earlier in your testimony, you referred to "affiliate classes." What do you mean by the terms "affiliate classes" or "affiliate classes of services"?

A. A portion of SPS's costs reflects charges for services provided by a supplying affiliate, specifically XES or one of the Operating Companies. These charges have been grouped into various affiliate classes, or aggregations of charges, based upon the business area, organization, or department that provided the service or, in a few instances, the accounts that captured certain costs. In his direct testimony, Mr. Dietenberger provides a detailed explanation of how the affiliate classes were developed and are organized for this case.

Q. Which affiliate classes do you sponsor?

A. I sponsor the ES Engineering & Construction, ES Environmental, ES Technical Services, ES VP Energy Supply, and ES VP Operations classes of affiliate services.

VI. AFFILIATE EXPENSES FOR THE ES ENGINEERING & CONSTRUCTION CLASS OF SERVICES

A. Summary of Affiliate Expenses for the ES Engineering & Construction Class of Services

Q. Where does the ES Engineering & Construction affiliate class fit into the overall affiliate structure?

A. Attachment ARD-RR-6 to Mr. Dietenberger' s direct testimony provides a list and a pictorial display of all affiliate classes, dollar amounts for those classes, and sponsoring witness for each class. As seen on that attachment, the ES Engineering & Construction affiliate class was part of the Energy Supply business area during the Updated Test Year. Attachment DAL-RR-1 to my testimony is an organization chart showing the Energy Supply organization.

Q. What services are grouped into the ES Engineering & Construction affiliate class?

A. The services that are grouped into the ES Engineering & Construction affiliate class are:

- Texas and New Mexico regional capital engineering;
- design and document services; and
- construction and project services.

Q. What is the dollar amount of the Updated Test Year XES charges that SPS requests, on a total company basis, for the ES Engineering & Construction affiliate class?

A. The following table summarizes the dollar amount of the estimated Updated Test Year XES charges for the ES Engineering and Construction affiliate class. I will update the table below as part of SPS's 45-day case update filing to reflect the

actual Updated Test Year costs for the ES Engineering & Construction affiliate class.

Table DAL-RR-2

	Requested Amount of XES Class Expenses Billed to SPS (Total Company)		
Class of Services	Requested Amount	% Direct Billed	% Allocated
ES Engineering & Construction	$1,798,383	95%	5%

Requested Amount of XES Class Expenses Billed to SPS (Total Company)	Requested dollar amount of XES expenses to SPS (total company) for this affiliate class after exclusions and pro forma adjustments. This is the amount from Column I in Attachment DAL-RR-A.
% Direct Billed	The percentage of SPS's requested XES expenses (total company) for this class that were billed 100% to SPS.
% Allocated	The percentage of SPS's requested XES expenses (total company) for this class that were allocated to SPS.

Q. Please describe the attachments that support the information provided on Table DAL-RR-2.

A. There are four attachments to my testimony that present information about the requested SPS affiliate expenses for the ES Engineering & Construction affiliate class.

Attachment DAL-RR-A: Provides a summary of the affiliate expenses for this class during the Updated Test Year. The summary starts with the total of the XES expenses to SPS for the services provided by this affiliate class and ends

with the requested dollar amount of XES expenses to SPS (total company) for this affiliate class after exclusions and pro forma adjustments. The columns on this attachment provide the following information.

Column A —	Line number	Lists the Attachment line numbers.
Column B —	Affiliate Class	Lists the affiliate class.
Column C —	Billing Method (Cost Center)	Shows the billing method that XES uses to charge the expenses to the affiliates, and the billing method short title. In his direct testimony, Mr. Dietenberger explains the billing methods and defines the codes.
Column D —	Allocation Method	Shows the allocation method applicable to the billing method (cost center).
Column E —	XES Billings for Class to SPS (Total Company) (FERC Acct. 400-935)	Shows XES billings to SPS (total company) for the affiliate class.
Column F —	Exclusions	Shows the total dollars to be excluded from Column E. Exclusions reflect expenses not requested, such as expenses not allowed or other below-the-line items.
Column G —	Per Book	Shows XES billings to SPS (total company), for the affiliate class, after the exclusions shown in Column F. The dollar amount in Column G is Column E plus Column F.
Column H —	Pro Formas	Shows the total dollar amount of pro forma adjustments to the dollar amount in Column G. Pro forma adjustments reflect revisions for known and measurable changes to the Updated Test Year expenses.

Column I —	Requested Amount (Total Company)	Shows the requested amount (total company) for the affiliate class. The dollar amount in Column I is Column G plus Column H.
Column J —	Percentage of class charges	Shows the percentage of affiliate class charges billed using the cost center.

In his direct testimony, Mr. Dietenberger provides a consolidated summary of affiliate expenses billed to SPS for all classes during the Updated Test Year, as well as the Test Year (April 1, 2016 through March 31, 2017).

Attachment DAL-RR-B: Provides the detail of the XES expenses for the ES Engineering & Construction affiliate class that are summarized on Attachment DAL-RR-A. The detail shows the XES expenses billed to SPS for the ES Engineering & Construction affiliate class, itemized by the amount with each expense listed by individual activity and billing method (cost center). When summed, these amounts tie to the amounts shown on Attachment DAL-RR-A and the detail regarding the expenses is organized to support that attachment. Specifically, the columns on this attachment provide the following information.

Column A —	Line Number	Lists the Attachment line numbers.
Column B —	Legal Entity Receiving XES Expenses	Shows the legal entity (Xcel Energy or one of its subsidiaries) that received the XES expense.
Column C —	Affiliate Class	Lists the affiliate class.
Column D —	Cost Element	Provides the cost element number
Column E —	Activity	Provides a short title for the activity.

Column F —	Billing Method (Cost Center)	Identifies the billing method and short title. In his direct testimony, Mr. Dietenberger explains the billing methods and defines the codes.
Column G —	FERC Account	Shows the FERC Account in which the expense was recorded.
Column H —	XES Billings for Class to SPS (Total Company) (FERC Acct. 400-935)	Shows the itemized amount of the listed XES expense that was billed to SPS. Therefore the sum of this column provides total billings to SPS and ties to the total dollar amount for the affiliate class in Column E of Attachment DAL-RR-A.
Column I —	Exclusions	Shows the total dollars excluded from Column H. The total dollar amount for the affiliate class in Column I ties to the total dollar amount for the affiliate class in Column F of Attachment DAL-RR-A.
Column J —	Per Book	Shows XES billings to SPS (total company), for the affiliate class after the exclusions shown in Column I. The dollar amount in Column J is Column H plus Column I. The total dollar amount for the affiliate class in Column J ties to the total dollar amount for the affiliate class in Column G of Attachment DAL-RR-A.
Column K —	Pro Formas	Shows the dollar amount of pro forma adjustments to the dollar amount in Column J. The total dollar amount for the affiliate class in Column K ties to the total dollar amount for the affiliate class in Column H of Attachment DAL-RR-A.

Column L —	Requested Amount (Total Company)	Shows the requested amount (total company) for the affiliate class. The dollar amount in Column L is Column J plus Column K. The total dollar amount for the affiliate class in Column L ties to the total dollar amount for the affiliate class in Column I of Attachment DAL-RR-A.

Mr. Dietenberger also provides a consolidated summary of this information for all affiliate classes during the Updated Test Year, as well as the Test Year (April 1, 2016 through March 31, 2017).

Attachment DAL-RR-C: Both Attachments DAL-RR-A and DAL-RR-B show exclusions to the XES expenses billed to SPS for the ES Engineering & Construction affiliate class (Attachment DAL-RR-A, Column F; Attachment DAL-RR-B, Column I). Attachment DAL-RR-C provides detail about those exclusions listed on Attachments DAL-RR-A and DAL-RR-B. The columns on Attachment DAL-RR-C provide the following information.

Column A —	Line Number	Lists the Attachment line numbers.
Column B —	Affiliate Class	Lists the affiliate class.
Column C —	FERC Account	Identifies the FERC Account for the expense that has been excluded.
Column D —	Explanations for Exclusions	Provides a brief rationale for the exclusion.
Column E —	Exclusions (Total Company)	Shows the dollar amount of the exclusion.

In his direct testimony, Mr. Dietenberger describes the calculations underlying the exclusions.

Attachment DAL-RR-D: Both Attachments DAL-RR-A and DAL-RR-B show pro forma adjustments to SPS's per book expenses for the ES Engineering & Construction affiliate class (Attachment DAL-RR-A, Column H; Attachment DAL-RR-B, Column K). Attachment DAL-RR-D provides information about those pro forma adjustments shown on Attachments DAL-RR-A and DAL-RR-B. The columns on Attachment DAL-RR-D provide the following information.

Column A —	Line Number	Lists the Attachment line numbers.
Column B —	Affiliate Class	Lists the affiliate class.
Column C —	FERC Account	Identifies the FERC Account affected by the pro forma adjustment.
Column D —	Explanations for Pro Formas	Provides a brief rationale for the pro forma adjustment.
Column E —	Sponsor	Identifies the witness or witnesses who sponsor the pro forma adjustment.
Column F —	Pro Formas (Total Company)	Shows the dollar amount of the pro forma adjustment.

Q. Does XES bill its expenses for the ES Engineering & Construction affiliate class to SPS in the same manner as it bills other affiliates for those expenses?

A. Yes. As discussed by Mr. Dietenberger, XES uses the same method for billing and allocating costs to affiliates other than SPS that it uses to bill and allocate those costs to SPS.

Q. Are there any exclusions to the XES billings to SPS for the ES Engineering & Construction affiliate class?

A. No. As I mentioned earlier, exclusions reflect expenses not requested, such as expenses not allowed or other below-the-line items. Exclusions are shown on Attachment DAL-RR-A, Column F, and on Attachment DAL-RR-B, Column I. The details for the exclusions are provided in Attachment DAL-RR-C. Mr. Dietenberger describes how the exclusions were calculated. In SPS's 45-day case update, I will present an updated Attachment DAL-RR-C that will provide actual exclusions to replace any estimated exclusions included my original attachment.

Q. Are there any pro forma adjustments to SPS's per book expenses for the ES Engineering & Construction affiliate class?

A. Yes. As I mentioned earlier, pro forma adjustments are revisions to Updated Test Year expenses for known and measurable changes. Pro forma adjustments are shown on Attachment DAL-RR-A, Column H, and on Attachment DAL-RR-B, Column K. The details for the pro forma adjustments, including the witness or witnesses who sponsor each pro forma adjustment, are provided in Attachment DAL-RR-D. Given the time of SPS's initial filing, only the first nine months of the Updated Test Year have completed the full pro forma adjustment review process. In SPS's 45-day case update, I will present an updated Attachment DAL-RR-D that will complete the full pro forma adjustment review process for the last three months of the Updated Test Year.

Q. Attachment DAL-RR-D shows that you sponsor pro forma adjustments for expenses for the ES Engineering & Construction affiliate class during the first nine months of the Updated Test Year that result in a net decrease for the ES Engineering & Construction affiliate class of $48,708. Please explain the adjustments.

A. The adjustments that I sponsor remove payroll costs that have been adjusted to a prior period (a decrease of $48,681) and remove cost for alcohol (a decrease of $27).

B. The ES Engineering & Construction Class of Services are Necessary Services

Q. Are the services that are grouped in the ES Engineering & Construction affiliate class necessary for SPS's operations?

A. Yes. The services grouped in the ES Engineering & Construction affiliate class are necessary to ensure that SPS's capital projects are managed efficiently and safely and on schedule. They are functions required by all utilities and without which SPS would not be able to provide electric service to its customers.

Q. What are the specific services that are provided to SPS by the ES Engineering & Construction affiliate class?

A. The specific services that are provided to SPS by the ES Engineering & Construction affiliate class are:

- developing and maintaining a uniform Energy Supply project management process, including supporting tools, and the design and engineering process;
- managing capital projects, and executing larger, more complex O&M projects;

- developing and executing projects for new generation (including renewable and innovative technologies), establishing uniform technology, design, and equipment standards for capital projects, developing and managing an Energy Supply process for custody, care, and control of drawing and engineering records;

- coordinating development, implementation and maintenance of an Energy Supply Quality Assurance and Quality Control Program; and

- maintaining a working relationship with key suppliers of materials, equipment, and engineering and construction services.

Q. Are any of the ES Engineering & Construction class of services that are provided to SPS duplicated elsewhere in XES or in any other Xcel Energy subsidiary such as SPS itself?

A. No. Within XES, none of the services grouped in the ES Engineering & Construction affiliate class are duplicated elsewhere. No other Xcel Energy subsidiary performs these services for the Operating Companies. In some cases the plant engineers on small capital projects will conduct some of the services that ES Engineering & Construction typically perform. This is not a duplication of service, rather it utilizes the appropriate resource for the project. It is more efficient for plant engineers to manage commodity projects due to their physical location. Although there are both XES and SPS employees in the ES Engineering & Construction organization, the SPS employees do not perform the same activities as the XES employees and they have separate responsibilities and roles. The services provided by the SPS employees are not duplicative of the services provided by XES, although they work in coordination with and under the direction of the XES Energy Supply management. In addition, SPS does not perform these services for itself.

Q. Do SPS's Texas retail customers benefit from the services that are part of the ES Engineering & Construction class of services?

A. Yes. The services of the ES Engineering & Construction affiliate class benefit SPS's customers in many ways. For example, the ES Engineering & Construction class develops and deploys capital budget and project management processes that guide funding decisions, minimize project risks, and ensure delivery of targeted value. Working with the plants and other support organizations within Energy Supply allows capital spending to be optimized to achieve the best overall plant performance. From January 1, 2016 through March 31, 2017 (i.e., the first day after the end of the period for which capital additions were approved in Docket No. 45524[4] through the end of the Test Year), Energy Supply has completed capital projects totaling $59,228,953[5] for SPS, which have had the rigor of the above noted budget and project management processes applied to them. Overall capital project cash flow variance (i.e., actual to budget and forecast) was within the acceptable target range, which results in improved cash management and ensures that capital project schedules are maintained, thus minimizing the potential of cost overruns. This group also performs engineering designs for small to mid-sized capital projects and is the primary interface with third-party contractors and vendors used on plant capital projects. Some O&M support is

[4] *Application of Southwestern Public Service Company for Authority to Change Rates*, Docket No. 45524, Order (Jan. 26, 2017).

[5] Please refer to the Direct Testimony of SPS witness Alan J. Davidson, Attachment AJD-RR-1. Mr. Davidson's Attachment AJD-RR-2 provides the Energy Supply capital projects placed in service during the Update Period, which have also had the rigor of the above noted budget and project management processes applied to them.

also provided for the plants with the most significant work being drafting, maintaining, and updating plant drawings.

C. The ES Engineering & Construction Class of Services are Provided at a Reasonable Cost

Q. Are the costs of the ES Engineering & Construction class of services reasonable?

A. Yes. The costs of the ES Engineering & Construction class of services are reasonable. XES provides the services and functions in the ES Engineering & Construction class of services on a consolidated basis for multiple Xcel Energy legal entities. As a result, SPS benefits from sophisticated services provided by a pool of talented professionals, the consolidated costs of which are shared. The economies of scale inherent in this system result in reasonable costs for SPS for these services.

1. Objective Evidence (Benchmarking)

Q. Is there any objective evidence that supports your opinion that the costs of the ES Engineering & Construction affiliate class are reasonable?

A. Yes. Of the estimated Updated Test Year costs for the ES Engineering & Construction class, approximately 96% are compensation and benefits costs for XES personnel. Ms. Reed and Mr. Schrubbe establish that the level of Xcel Energy's compensation and benefits is reasonable and necessary.

2. Budget Planning

Q. Is a budget planning process applicable to the ES Engineering & Construction class of affiliate costs?

A. Yes. Annual O&M budgets are created for the ES Engineering & Construction organization, which includes the ES Engineering & Construction class of affiliate

costs, using guidelines developed at the corporate level. Each manager within the ES Engineering & Construction organization carefully reviews historical spend information, identifies changes that will be coming in the future, and analyzes the costs associated with those changes prior to submitting a proposed budget. The budgeting process is discussed in more detail by SPS witness Raynard A. Gray.

Q. During the fiscal year, does the ES Engineering & Construction organization monitor its actual expenditures versus its budget?

A. Yes. Actual versus expected expenditures are monitored on a monthly basis by management within each department. Deviations are evaluated each month to ensure that costs are appropriate. In addition, action plans are developed to mitigate variations in actual to budgeted expenditures. These mitigation plans may either reduce or delay other expenditures so that the revised budget supports the authorized budget. If authorized budget adjustments are required, they are identified and approved at an appropriate level of management.

Q. Are employees within the ES Engineering & Construction organization held accountable for deviations from the budget?

A. Yes. All management employees in the ES Engineering & Construction organization have specific budgetary goals that are incorporated into their performance evaluations. Performance is measured on a monthly basis to ensure adherence to the goals and provide for action plan development to address variances. All ES Engineering & Construction employees are required to manage their expenses to support the budgetary goals established by their manager.

Failure to meet these performance targets will affect their performance evaluation and overall compensation.

3. Cost Trends

Q. Please state the dollar amounts of the actual charges (per book) from XES to SPS for the ES Engineering & Construction class of services for the three fiscal years preceding the end of the Updated Test Year and the charges (per book) for the estimated Updated Test Year.

A. The following table shows, for the fiscal years 2014, 2015, and 2016 (calendar years), the actual per book and, for the Updated Test Year, the estimated per book affiliate charges (Column G on Attachment DAL-RR-A) from XES to SPS for the services grouped in the ES Engineering & Construction affiliate class:

Table DAL-RR-3

	ES Engineering & Construction (Per Book) Charges Over Time			
Class of Services	2014	2015	2016	Updated Test Year (Estimated)
ES Engineering & Construction	$1,906,909	$1,853,534	$1,757,130	$2,053,046

Q. What are the reasons for this trend?

A. The decrease in costs from 2014 to 2016 was due to a reduction in advanced training seminars and conference attendance. The increase in costs between 2016 and the Updated Test Year is due to the performance of an O&M synchronous condenser study and SAP training.

4. Staffing Trends

Q. Please provide the staffing levels for the ES Engineering & Construction class of services for the three fiscal years preceding the end of the Updated Test Year and the Updated Test Year.

A. The following table shows, for the fiscal years 2014, 2015, and 2016 (calendar years) and for the Updated Test Year, the average of the end of month staffing levels for the ES Engineering & Construction class of services.

Table DAL-RR-4

	Average End of Month # of Staff			
Class of Services	2014	2015	2016	Updated Test Year (Estimated)
ES Engineering & Construction	123	122	122	122

Q. What are the reasons for this trend?

A. The average staffing levels from 2014 through the Updated Test Year have remained constant.

5. Cost Control and Process Improvement Initiatives

Q. Separate from the budget planning process, does the ES Engineering & Construction affiliate class take any steps to control its costs or to improve its services?

A. Yes. ES Engineering & Construction leverages requests for proposal for multiple projects together to negotiate better prices on materials and construction costs. ES Engineering & Construction also contracts with the same engineers across the production fleet to perform similar projects, which lowers costs and improves the

quality due to familiarization and repetition of tasks. Additionally, the Energy Supply affiliate classes have a foundation of Xcel Energy's policies and procedures, which stress the importance of cost control and continuous improvement.

D. The Costs for the ES Engineering & Construction Class of Services are Priced in a Fair Manner

Q. For those costs that XES charges (either directly or through use of an allocation) to SPS for the ES Engineering & Construction class of services, does SPS pay any more for the same or similar service than does any other Xcel Energy affiliate?

A. No.

Q. Why do you answer "no"?

A. The XES charges to SPS for any particular service are no higher than the XES charges to any other Xcel Energy affiliate. The costs charged for particular services are the actual costs that XES incurred in providing those services to SPS. A single, specific allocation method, rationally related to the cost drivers associated with the service being provided, is used with each cost center (billing method). In his direct testimony, Mr. Dietenberger discusses the selection of billing methods and XES's method of charging for services in more detail.

Q. How are the costs of the ES Engineering & Construction affiliate class billed to SPS?

A. My Attachment DAL-RR-B shows all of the costs in this class broken out by activity and, in conjunction with Column C in my Attachment DAL-RR-A, shows the billing method associated with each activity. My Attachment DAL-RR-A

shows the allocation method (Column D) associated with each billing method (Column C) used in the affiliate class. In this initial filing, only the first 11 months of the Updated Test Year have a cost center (billing method) and allocation method associated with each activity. The entries for the remaining month (June 2017) have a notation of "TBD" for these items because the estimated amounts are based on a forecasted budget and specific cost centers (billing methods) are not yet available. In SPS's 45-day case update, I will present updated Attachments DAL-RR-A and DAL-RR-B so that the entries for the last three months of the Updated Test Year provide actual data and conform to the information provided for the first nine months. In the event the predominant billing methods and associated allocation methods for the ES Engineering & Construction affiliate O&M expenses on my updated Attachments DAL-RR-A and DAL-RR-B differ from those discussed below, I will explain those differences in supplemental testimony in SPS's 45-day case update filing.

Q. What are the predominant allocation methods used for billing the costs that SPS seeks to recover for the ES Engineering & Construction affiliate class of services?

A. Approximately 99.91% of the requested XES charges to SPS for this class were charged using one of the following two billing allocation methods:

- Direct Billing – 95.15% of XES charges to SPS – $1,711,092.43; and
- MWH Generation – 4.76% of XES charges to SPS – $85,576.90;

Q. Why is the "Direct Billing" method appropriate for assigning the costs captured in the cost centers that use that billing method?

A. For the cost centers that are assigned using the "Direct Billing" method, the costs normally reflect work that was performed specifically for SPS only. In some cases, however, the direct billing occurred after the application of an off-line allocator that tracks the relevant cost drivers. In either situation, the cost centers charged using the "Direct Billing" method are appropriate because the assignment of costs is in accordance with the distribution of benefits for the services received. For example, the costs related to labor costs related to specific SPS plants, assigned using the "Direct Billing" method. The cost of these services benefited SPS, the work was performed specifically for SPS alone, and the cost driver is boiler work on Tolk Station's Unit 1. Thus, the "Direct Billing" method is appropriate because it assigns costs in accordance with cost causation and benefits received. For the cost centers that assign costs using Direct Billing, the per unit amounts charged by XES to SPS are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

Q. Why is it appropriate to allocate costs based upon the "MWH Generation" method for the costs captured in the cost centers that use that billing method?

A. The costs in the ES Engineering & Construction class that are associated with engineering labor at SPS generating facilities are assigned using the "MWH Generation" method because such costs are directly related to the support of power plants. Thus, allocating costs based on the MWH Generation method is

appropriate for the allocation of costs to affiliates because it allocates costs for the services in accordance with cost causation and the distribution of the benefits of the services received. For example, Cost Center 200135, which uses the MWH Generation method as the allocator, captures the costs associated with labor and non-labor costs of performance analysis, specialists, and analytical services provided to the Operating Companies' generation facilities. For the cost centers that assign costs based upon this billing method, the per unit amounts charged by XES to SPS as a result of the application of this billing method are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

Q. You have covered the allocation methods used to bill 99.91% of the costs associated with this affiliate class. Why have you not specifically covered the remaining 0.09% of the costs of this class?

A. I have described the predominant allocation methods associated with this affiliate class. The remaining costs are billed using two different allocators, no one of which is used to bill more than 0.09% of the costs. In light of the number of remaining allocators, cost centers (billing methods), and relative dollar amounts, I have not gone into a detailed discussion of these other allocation methods in order to keep the discussion to a manageable level. The cost centers (billing methods) used to charge the remaining 0.09% of the costs in this class, however, are presented in my Attachment DAL-RR-B, discussed earlier. A reader may reference that attachment and then refer to the specific cost center (billing method) summary provided in Mr. Dietenberger's Attachment ARD-RR-13 for an

explanation of the particular allocators used and the cost drivers for the activities reflected in that particular cost center.

Q. Have you determined that the costs reflected in the remaining 0.09% of costs associated with this class of services have been billed using an appropriate billing method and allocation method?

A. Yes. I, or one of my staff working at my direction, have reviewed each of the cost centers and the associated allocators used to bill the remaining 0.09% of the costs of this class. The cost drivers reflected in the allocation method used to bill the costs of each cost center (billing method) are consistent with and reflect the cost drivers of the services captured in each particular cost center (billing method). Therefore, the billing methods and allocation methods are appropriate because the allocation of costs is in accordance with the distribution of the benefits received by SPS and are no higher than the per unit costs charged to other affiliates for the same or similar types of services.

VII. AFFILIATE EXPENSES FOR THE ES ENVIRONMENTAL CLASS OF SERVICES

A. Summary of Affiliate Expenses for the ES Environmental Class of Services

Q. Where does the ES Environmental affiliate class fit into the overall affiliate structure?

A. Attachment ARD-RR-6 to Mr. Dietenberger's direct testimony provides a list and a pictorial display of all affiliate classes, dollar amounts for those classes, and sponsoring witness for each class. As seen on that attachment, the ES Environmental affiliate class was part of the Energy Supply business area during the Updated Test Year. Attachment DAL-RR-1 to my testimony is an organization chart showing the Energy Supply organization.

Q. What services are grouped into the ES Environmental affiliate class?

A. The services that are grouped into the ES Environmental affiliate class include:

- Environmental Services Air and Water;
- Environmental Services Waste Remediation;
- Environmental Policy and Services; and
- Environmental Services Audit.

Q. What is the dollar amount of the Updated Test Year XES charges that SPS requests, on a total company basis, for the ES Environmental affiliate class?

A. The following table summarizes the dollar amount of the estimated Updated Test Year XES charges for the ES Environmental affiliate class. I will update the table below as part of SPS's 45-day case update filing to reflect the actual Updated Test Year costs for the ES Environmental affiliate class.

Table DAL-RR-5

Class of Services	Requested Amount of XES Class Expenses Billed to SPS (Total Company)		
	Requested Amount	% Direct Billed	% Allocated
ES Environmental	$922,722	93%	7%

Requested Amount of XES Class Expenses Billed to SPS (Total Company)	Requested dollar amount of XES expenses to SPS (total company) for this affiliate class after exclusions and pro forma adjustments. This is the amount from Column I in Attachment DAL-RR-A.
% Direct Billed	The percentage of SPS's requested XES expenses (total company) for this class that were billed 100% to SPS.
% Allocated	The percentage of SPS's requested XES expenses (total company) for this class that were allocated to SPS.

Q. Please describe the attachments that support the information provided on Table DAL-RR-5.

A. There are four attachments to my testimony that present information about the requested SPS affiliate expenses for the ES Environmental affiliate class. I explained these attachments in detail previously in Section VI.A of my testimony.

Q. Does XES bill its expenses for the ES Environmental affiliate class to SPS in the same manner as it bills other affiliates for those expenses?

A. Yes. As discussed by Mr. Dietenberger, XES uses the same method for billing and allocating costs to affiliates other than SPS that it uses to bill and allocate those costs to SPS.

Q. Are there any exclusions to the XES billings to SPS for the ES Environmental affiliate class?

A. No. Exclusions are shown on Attachment DAL-RR-A, Column F, and on Attachment DAL-RR-B, Column I. The details for the exclusions are provided in Attachment DAL-RR-C. Mr. Dietenberger describes how the exclusions were calculated. In SPS's 45-day case update, I will present an updated Attachment DAL-RR-C that will provide actual exclusions to replace any estimated exclusions included in my original attachment.

Q. Are there any pro forma adjustments to SPS's per book expenses for the ES Environmental affiliate class?

A. Yes. As I mentioned earlier, pro forma adjustments are revisions to Updated Test Year expenses for known and measurable changes. Pro forma adjustments are shown on Attachment DAL-RR-A, Column H, and on Attachment DAL-RR-B, Column K. The details for the pro forma adjustments, including the witness or witnesses who sponsor each pro forma adjustment, are provided in Attachment DAL-RR-D. Given the time of SPS's initial filing, only the first nine months of the Updated Test Year have completed the full pro forma adjustment review process. In SPS's 45-day case update, I will present an updated Attachment DAL-RR-D that will complete the full pro forma adjustment review process for the last three months of the Updated Test Year.

Q. Attachment DAL-RR-D shows that you sponsor pro forma adjustments for expenses for the ES Environmental affiliate class during the first nine months of the Updated Test Year that result in a net decrease for the ES Environmental affiliate class of $86,335. Please explain the adjustments.

A. The adjustments that I sponsor remove payroll costs that have been adjusted to a prior period ($86,335).

B. The ES Environmental Class of Services are Necessary Services

Q. Are the services that are grouped in the ES Environmental affiliate class necessary for SPS's operations?

A. Yes. The services grouped in the ES Environmental affiliate class are necessary to ensure that the plant facilities remain in compliance with environmental regulations. The personnel within this class perform tasks such as seeking amendments and obtaining permits required for existing and new facilities. They are functions required by all utilities and without these functions SPS would be unable to provide electric service to its customers.

Q. What are the specific services that are provided to SPS by the ES Environmental affiliate class?

A. The specific services that are provided to SPS by the ES Environmental affiliate class are:

- ensuring SPS's continued compliance with environmental rules and regulations, including: air quality, water quality, hazardous and solid waste, remediation, storage tanks, and emergency spill response;
- managing the coal ash contracts with contractors;

- providing environmental permitting and compliance support, training and compliance assistance services, and auditing of compliance with environmental regulations; and

- developing, implementing, and supporting SPS's environmental leadership strategy and associated policy initiatives.

Q. Are any of the ES Environmental class of services that are provided to SPS duplicated elsewhere in XES or in any other Xcel Energy subsidiary such as SPS itself?

A. No. Within XES, none of the services grouped in the ES Environmental affiliate class are duplicated elsewhere. No other Xcel Energy subsidiary performs these services for the Operating Companies. In addition, SPS does not perform these services for itself. Although there are both XES and SPS employees in the Energy Supply organization, the SPS employees do not perform the same activities as the XES employees and they have separate responsibilities and roles. The services provided by the SPS employees are not duplicative of the services provided by XES, although they work in coordination with and under the direction of the XES management.

Q. Do SPS's Texas retail customers benefit from the services that are part of the ES Environmental class of services?

A. Yes. The services of the ES Environmental affiliate class benefit SPS's customers in many ways. For example, the costs associated with the ES Environmental class are incurred to ensure that SPS complies with all federal, state, and local environmental rules and regulations. SPS benefits from sophisticated environmental services provided to the Energy Supply organization,

the consolidated costs of which are shared. The economies of scale inherent in this system result in reasonable costs for SPS for these services.

C. The ES Environmental Class of Services are Provided at a Reasonable Cost

Q. Are the costs of the ES Environmental class of services reasonable?

A. Yes. The costs of the ES Environmental class of services are reasonable. The management of the various air quality, water quality, and solid waste permits requires background, expertise, and training in these areas. By having a central organization managing these environmental areas, duplication of personnel and resources at the various facilities subject to regulations is avoided.

1. Objective Evidence (Benchmarking)

Q. Is there any objective evidence that supports your opinion that the costs of the ES Environmental affiliate class are reasonable?

A. Yes. Of the estimated Updated Test Year costs for the ES Environmental class, approximately 100% are compensation and benefits costs for XES personnel. Ms. Reed and Mr. Schrubbe establish that the level of Xcel Energy's compensation and benefits is reasonable and necessary.

2. Budget Planning

Q. Is a budget planning process applicable to the ES Environmental class of affiliate costs?

A. Yes. Annual O&M budgets are created for the Environmental Services organization, which includes the ES Environmental class of affiliate costs, using guidelines developed at the corporate level. Each manager within the Environmental Services organization carefully reviews historical spend

information, identifies changes that will be coming in the future, and analyzes the costs associated with those changes prior to submitting a proposed budget. The budgeting process is discussed in more detail by Mr. Gray.

Q. During the fiscal year, does the Environmental Services organization monitor its actual expenditures versus its budget?

A. Yes. Actual versus expected expenditures are monitored on a monthly basis by management in the Environmental Services organization within each department. Deviations are evaluated each month to ensure that costs are appropriate. In addition, action plans are developed to mitigate variations in actual to budgeted expenditures. These mitigation plans may either reduce or delay other expenditures so that the revised budget supports the authorized budget. If authorized budget adjustments are required, they are identified and approved at an appropriate level of management.

Q. Are employees within the Environmental Services organization held accountable for deviations from the budget?

A. Yes. All management employees in the Environmental Services organization have specific budgetary goals that are incorporated into their performance evaluations. Performance is measured on a monthly basis to ensure adherence to the goals and provide for action plan development to address variances. All Environmental Services employees are required to manage their expenses to support the budgetary goals established by their manager. Failure to meet these performance targets will affect their performance evaluation and overall compensation.

3. Cost Trends

Q. Please state the dollar amounts of the actual charges (per book) from XES to SPS for the ES Environmental class of services for the three fiscal years preceding the end of the Updated Test Year and the charges (per book) for the estimated Updated Test Year.

A. The following table shows, for the fiscal years 2014, 2015, and 2016 (calendar years), the actual per book and, for the Updated Test Year, the estimated per book affiliate charges (Column G on Attachment DAL-RR-A) from XES to SPS for the services grouped in the ES Environmental affiliate class:

Table DAL-RR-6

	ES Environmental (Per Book) Charges Over Time			
Class of Services	2014	2015	2016	Updated Test Year (Estimated)
ES Environmental	$811,815	$690,146	$838,839	$1,113,176

Q. What are the reasons for this trend?

A. The decrease in costs from 2014 to 2015 occurred primarily for three reasons: (i) senior employee retirements and manager promotions were replaced with lower level analysts and managers; (ii) lower employee expenses due mainly to temporarily reduced travel costs; and (iii) a reduction in membership dues. In 2016, labor costs, employee expenses, and contractor cost increased to approximately the 2014 level of costs. The increase in cost from 2016 to the Updated Test Year is due to unusual weather in SPS's system area. Rainfall and storms caused spill cleanups to increase dramatically in 2015 and 2016.

Additionally, during this time increased outside consulting and legal cost were incurred to challenge the Regional Haze program in Texas, including Federal Implementation Plan ("FIP") requirements for dry scrubbers at Tolk and Harrington. Additional outside consultant costs were incurred to conduct various modeling scenarios that Energy Supply did not have the internal expertise or equipment to conduct.

4. Staffing Trends

Q. Please provide the staffing levels for the ES Environmental class of services for the three fiscal years preceding the end of the Updated Test Year and the Updated Test Year.

A. The following table shows, for the fiscal years 2014, 2015, and 2016 (calendar years), and for the Updated Test Year, the average of the end-of-month staffing levels for the ES Environmental class of services.

Table DAL-RR-7

	Average End of Month # of Staff			
Class of Services	2014	2015	2016	Updated Test Year (Estimated)
ES Environmental	37	41	41	41

Q. What are the reasons for this trend?

A. The increase in average staffing levels from 2014 to 2015 was due to transferring the plant analyst into Environmental Services and repurposing two other positions. Average staffing levels from 2015 to the Updated Test Year have remained constant.

5. Cost Control and Process Improvement Initiatives

Q. Separate from the budget planning process, does the ES Environmental affiliate class take any steps to control its costs or to improve its services?

A. Yes. Environmental Services updates its workforce plan and business plan periodically to determine upcoming needs and any change for the department in order to control costs.

D. The Costs for the ES Environmental Class of Services are Priced in a Fair Manner

Q. For those costs that XES charges (either directly or through use of an allocation) to SPS for the ES Environmental class of services, does SPS pay any more for the same or similar service than does any other Xcel Energy affiliate?

A. No.

Q. Why do you answer "no"?

A. The XES charges to SPS for any particular service are no higher than the XES charges to any other Xcel Energy affiliate. The costs charged for particular services are the actual costs that XES incurred in providing those services to SPS. A single, specific allocation method, rationally related to the costs drivers associated with the service being provided, is used with each cost center (billing method). In his direct testimony, Mr. Dietenberger discusses the selection of billing methods and XES's method of charging for services in more detail.

Q. How are the costs of the ES Environmental affiliate class billed to SPS?

A. My Attachment DAL-RR-B shows all of the costs in this class broken out by activity and, in conjunction with Column C in my Attachment DAL-RR-A, shows

the billing method associated with each activity. My Attachment DAL-RR-A shows the allocation method (Column D) associated with each billing method (Column C) used in the affiliate class. In this initial filing, only the first 11 months of the Updated Test Year have a cost center (billing method) and allocation method associated with each activity. The entries for the remaining month (June 2017) have a notation of "TBD" for these items because the estimated amounts are based on a forecasted budget and specific cost centers (billing methods) are not yet available.

In SPS's 45-day case update, I will present updated Attachments DAL-RR-A and DAL-RR-B so that the entries for the last three months of the Updated Test Year provide actual data and conform to the information provided for the first nine months. In the event the predominant billing methods and associated allocation methods for the ES Environmental Services affiliate O&M expenses on my updated Attachments DAL-RR-A and DAL-RR-B differ from those discussed below, I will explain those differences in supplemental testimony in SPS's 45-day case update filing.

Q. What are the predominant allocation methods used for billing the costs that SPS seeks to recover for the ES Environmental affiliate class of services?

A. All of the XES charges to SPS for this class were charged using one of the following two allocation methods:

- Direct Billing – 93.27% of XES charges to SPS – $860,587.24; and
- Electric Production Plant/Electric Transmission Plant/Electric Distribution Plant/Gas Transmission Plant/Gas Distribution Plant – 6.73% of XES charges to SPS – $62,134.49;

Q. Why is the "Direct Billing" method appropriate for assigning the costs captured in the cost centers that use that allocation method?

A. For the cost centers that are assigned using the "Direct Billing" method, the costs normally reflect work that was performed specifically for SPS only. In some cases, however, the direct billing occurred after the application of an off-line allocator that tracks the relevant cost drivers. In either situation, the cost centers charged using the "Direct Billing" method are appropriate because the assignment of costs is in accordance with the distribution of benefits for the services received. For example, the costs related to environmental costs for specific SPS facilities were assigned using the "Direct Billing" method. The cost of these services benefitted SPS, the work was performed specifically for SPS alone, and the cost driver is environmental oversight at Harrington Station. Thus, the "Direct Billing" method is appropriate because it assigns costs in accordance with cost causation and benefits received. For the cost centers that assign costs using Direct Billing, the per unit amounts charged by XES to SPS are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

Q. Why is it appropriate to allocate costs based upon the "Electric Production Plant/Electric Transmission Plant/Electric Distribution Plant/Gas Transmission Plant/Gas Distribution Plant" method for the costs captured in the cost centers that use that allocation method?

A. For the cost center charged using the "Electric Production Plant/Electric Transmission Plant/Electric Distribution Plant/Gas Transmission Plant/Gas Distribution Plant" method as the allocator, the costs are driven by environmental

services needed. For example, the labor and non-labor costs dedicated to air quality, renewable energy, innovative technology and climate change, developing corporate compliance strategy, regulatory agency interaction (both at the federal and/or state level), permitting and compliance reporting, waste management, combustion byproducts management, environmental compliance auditing, providing support to the Environmental Council, and assisting with environmental communications strategies, which are collected in Cost Center 200181, are assigned using this allocation method. Thus, allocating costs based on the environmental services used is appropriate for the allocation of costs to affiliates because it allocates costs for the services in accordance with cost causation and the distribution of the benefits of the services received. For the cost centers that assign costs based upon this allocation method, the per unit amounts charged by XES to SPS as a result of the application of this allocation method are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

VIII. AFFILIATE EXPENSES FOR THE ES TECHNICAL SERVICES CLASS OF SERVICES

A. Summary of Affiliate Expenses for the ES Technical Services Class of Services

Q. Where does the ES Technical Services affiliate class fit into the overall affiliate structure?

A. Attachment ARD-RR-6 to Mr. Dietenberger's direct testimony provides a list and a pictorial display of all affiliate classes, dollar amounts for those classes, and sponsoring witness for each class. As seen on that attachment, the ES Technical Services affiliate class was part of the Energy Supply business area during the Updated Test Year. Attachment DAL-RR-1 to my testimony is an organization chart showing the Energy Supply organization.

Q. What services are grouped into the ES Technical Services affiliate class?

A. The services that are grouped into the ES Technical Services affiliate class are:

- Plant engineering and Technical Support (Plant Engineering costs were directly associated with Operations Services through the end of 2011);
- Technical Resources and Compliance;
- Asset Management;
- Overhaul Management and Maintenance Support;
- Performance Testing and Analysis;
- Chemistry and Water Resources; and
- Reliability Maintenance Services, including chemical and material analysis to increase reliability.

Q. What is the dollar amount of the Updated Test Year XES charges that SPS requests, on a total company basis, for the ES Technical Services affiliate class?

A. The following table summarizes the dollar amount of the estimated Updated Test Year XES charges for the ES Technical Services affiliate class. I will update the table below as part of SPS's 45-day case update filing to reflect the actual Updated Test Year costs for the ES Technical Services affiliate class.

Table DAL-RR-8

	Requested Amount of XES Class Expenses Billed to SPS (Total Company)		
Class of Services	Requested Amount	% Direct Billed	% Allocated
ES Technical Services	$12,186,665	93%	7%

Requested Amount of XES Class Expenses Billed to SPS (Total Company)	Requested dollar amount of XES expenses to SPS (total company) for this affiliate class after exclusions and pro forma adjustments. This is the amount from Column I in Attachment DAL-RR-A.
% Direct Billed	The percentage of SPS's requested XES expenses (total company) for this class that were billed 100% to SPS.
% Allocated	The percentage of SPS's requested XES expenses (total company) for this class that were allocated to SPS.

Q. Please describe the attachments that support the information provided on Table DAL-RR-8.

A. There are four attachments to my testimony that present information about the requested SPS affiliate expenses for the ES Technical Services affiliate class.

I explained these attachments in detail previously in Section VI.A of my testimony.

Q. Does XES bill its expenses for the ES Technical Services affiliate class to SPS in the same manner as it bills other affiliates for those expenses?

A. Yes. As discussed by Mr. Dietenberger, XES uses the same method for billing and allocating costs to affiliates other than SPS that it uses to bill and allocate those costs to SPS.

Q. Are there any exclusions to the XES billings to SPS for the ES Technical Services affiliate class?

A. Yes. As I mentioned earlier, exclusions reflect expenses not requested, such as expenses not allowed or other below-the-line items. Exclusions are shown on Attachment DAL-RR-A, Column F, and on Attachment DAL-RR-B, Column I. The details for the exclusions are provided in Attachment DAL-RR-C. Mr. Dietenberger describes how the exclusions were calculated. In SPS's 45-day case update, I will present an updated Attachment DAL-RR-C that will provide actual exclusions to replace any estimated exclusions included in my original attachment.

Q. Are there any pro forma adjustments to SPS's per book expenses for the ES Technical Services affiliate class?

A. Yes. As I mentioned earlier, pro forma adjustments are revisions to Updated Test Year expenses for known and measurable changes. Pro forma adjustments are shown on Attachment DAL-RR-A, Column H, and on Attachment DAL-RR-B, Column K. The details for the pro forma adjustments, including the witness or witnesses who sponsor each pro forma adjustment, are provided in Attachment

DAL-RR-D. Given the time of SPS's initial filing, only the first nine months of the Updated Test Year have completed the full pro forma adjustment review process. In SPS's 45-day case update, I will present an updated Attachment DAL-RR-D that will complete the full pro forma adjustment review process for the last three months of the Updated Test Year.

Q. Attachment DAL-RR-D shows that you sponsor pro forma adjustments for expenses for the ES Technical Services affiliate class during the first nine months of the Updated Test Year that result in a decrease for the ES Technical Services affiliate class of $1,131,832. Please explain the adjustments.

A. The adjustments that I sponsor remove payroll costs that have been adjusted to a prior period ($1,130,319) and remove costs for alcohol ($1,512).

B. The ES Technical Services Class of Services are Necessary Services

Q. Are the services that are grouped in the ES Technical Services affiliate class necessary for SPS's operations?

A. Yes. The services grouped in the ES Technical Services affiliate class are necessary to operate SPS's facilities efficiently, reliably, and in compliance with all applicable laws and regulations. They are functions required by all utilities and without which SPS would not be able to provide electric service to its customers.

Q. What are the specific services that are provided to SPS by the ES Technical Services affiliate class?

A. The specific services that are provided to SPS by the ES Technical Services affiliate class are:

- strategic asset management that provides analysis and training expertise, plant process chemistry, and water resources;
- overhaul management to optimize outage planning and execution;
- plant engineering to support the daily plant O&M activities;
- reliability maintenance services including chemical and material analysis to increase reliability;
- plant and equipment performance testing; and
- maintaining technical resources on plant equipment to facilitate effective maintenance.

Through these activities the ES Technical Services organization will work with the plant personnel to implement fleet-wide initiatives and achieve performance goals.

Q. Are any of the ES Technical Services class of services that are provided to SPS duplicated elsewhere in XES or in any other Xcel Energy subsidiary such as SPS itself?

A. No. Within XES, none of the services grouped in the ES Technical Services affiliate class are duplicated elsewhere. No other Xcel Energy subsidiary performs these services for the Operating Companies. In addition, SPS does not perform these services for itself. Although there are both XES and SPS employees in the ES Technical Services organization, the SPS employees do not perform the same activities as the XES employees and they have separate responsibilities and roles. The services provided by the SPS employees are not duplicative of the services provided by XES, although they work in coordination with and under the direction of the XES management.

Q. Do SPS's Texas retail customers benefit from the services that are part of the ES Technical Services class of services?

A. Yes. The services of the ES Technical Services affiliate class benefit SPS's customers in many ways. For example, the ES Technical Services organization provides reliability maintenance services that ensure SPS's generation fleet is run safely and efficiently. This keeps costs to a minimum and provides reliable electric service to SPS customers.

C. The ES Technical Services Class of Services are Provided at a Reasonable Cost

Q. Are the costs of the ES Technical Services class of services reasonable?

A. Yes. The costs of the ES Technical Services class of services are reasonable. XES provides the services and functions in the ES Technical Services class of services on a consolidated basis for multiple Operating Companies. As a result, SPS benefits from sophisticated services provided by a pool of talented professionals, the consolidated costs of which are shared. The economies of scale inherent in this system result in reasonable costs for SPS for these services.

1. Objective Evidence (Benchmarking)

Q. Is there any objective evidence that supports your opinion that the costs of the ES Technical Services affiliate class are reasonable?

A. Yes. Of the estimated Updated Test Year costs for the ES Technical Services class, approximately 95% are compensation and benefits costs for XES personnel. Ms. Reed and Mr. Schrubbe establish that the level of Xcel Energy's compensation and benefits is reasonable and necessary.

2. Budget Planning

Q. Is a budget planning process applicable to the ES Technical Services class of affiliate costs?

A. Yes. Annual O&M budgets are created for the Environmental Services organization, which includes the ES Technical Services class of affiliate costs, using guidelines developed at the corporate level. Each manager within the ES Technical Services organization carefully reviews historical spend information, identifies changes that will be coming in the future, and analyzes the costs associated with those changes prior to submitting a proposed budget. The budgeting process is discussed in more detail by Mr. Gray.

Q. During the fiscal year, does the ES Technical Services business organization monitor its actual expenditures versus its budget?

A. Yes. Actual versus expected expenditures are monitored on a monthly basis by management in the ES Technical Services organization within each department of the ES Technical Services organization. Deviations are evaluated each month to ensure that costs are appropriate. In addition, action plans are developed to mitigate variations in actual to budgeted expenditures. These mitigation plans may either reduce or delay other expenditures so that the revised budget supports the authorized budget. If authorized budget adjustments are required, they are identified and approved at an appropriate level of management.

Q. Are employees within the ES Technical Services organization held accountable for deviations from the budget?

A. Yes. All management employees in the ES Technical Services organization have specific budgetary goals that are incorporated into their performance evaluations. Performance is measured on a monthly basis to ensure adherence to the goals and provide for action plan development to address variances. All ES Technical Services employees are required to manage their expenses to support the budgetary goals established by their manager. Failure to meet these performance targets will affect their performance evaluation and overall compensation.

3. Cost Trends

Q. Please state the dollar amounts of the actual charges (per book) from XES to SPS for the ES Technical Services class of services for the three fiscal years preceding the end of the Updated Test Year and the charges (per book) for the estimated Updated Test Year.

A. The following table shows, for the fiscal years 2014, 2015, and 2016 (calendar years), the actual per book and, for the Updated Test Year, the estimated per book affiliate charges (Column G on Attachment DAL-RR-A) from XES to SPS for the services grouped in the ES Technical Services affiliate class:

Table DAL-RR-9

	ES Technical Services (Per Book) Charges Over Time			
Class of Services	2014	2015	2016	Updated Test Year (Estimated)
ES Technical Services	$10,918,873	$11,663,699	$12,211,544	$14,588,947

Q. What are the reasons for this trend?

A. The increase in costs from 2014 to 2015 was due to an increase in support personnel needed to improve in the expertise of the monitoring and diagnostic ("M&D") Center, plant life Management, and combustion turbines. The increase in costs between 2015 and 2016 was due to pay increases that were partially offset by a reduction in contractor and material cost. The increase in costs between 2016 and the Updated Test Year is due to an increase in contract labor, employee expense, and material cost.

4. Staffing Trends

Q. Please provide the staffing levels for the ES Technical Services class of services for the three fiscal years preceding the end of the Updated Test Year and the Updated Test Year.

A. The following table shows, for the fiscal years 2014, 2015, and 2016 (calendar years) and for the Updated Test Year, the average of the end of month staffing levels for the ES Technical Services class of services.

Table DAL-RR-10

	Average End of Month # of Staff			
Class of Services	2014	2015	2016	Updated Test Year (Estimated)
ES Technical Services	209	215	214	211

Q. What are the reasons for this trend?

A. The increase in average staffing levels from 2014 and 2015 was due to hiring of additional Plant Engineers, staff for the M&D Center, and staff with expertise in

plant life management. The slight decrease in average staffing levels from 2015 through the Updated Test Year was due to retirements.

5. Cost Control and Process Improvement Initiatives

Q. Separate from the budget planning process, does the ES Technical Services affiliate class take any steps to control its costs or to improve its services?

A. Yes. Monthly budget-to-actual reports are published and distributed at every level down to the sub-groups within a department. Sufficient detail is available for management to review major cost categories, identify areas of concern, and develop gap closure actions if necessary. This is a standing monthly business process within ES Technical Services.

D. The Costs for the ES Technical Services Class are Priced in a Fair Manner

Q. For those costs that XES charges (either directly or through use of an allocation) to SPS for the ES Technical Services class of services, does SPS pay any more for the same or similar service than does any other Xcel Energy affiliate?

A. No.

Q. Why do you answer "no"?

A. The XES charges to SPS for any particular service are no higher than the XES charges to any other Xcel Energy affiliate. The costs charged for particular services are the actual costs that XES incurred in providing those services to SPS. A single, specific allocation method, rationally related to the costs drivers associated with the service being provided, is used with each cost center (billing

method). In his direct testimony, Mr. Dietenberger discusses the selection of billing methods and XES's method of charging for services in more detail.

Q. How are the costs of the ES Technical Services affiliate class billed to SPS?

A. My Attachment DAL-RR-B shows all of the costs in this class broken out by activity and, in conjunction with Column C in my Attachment DAL-RR-A, shows the billing method associated with each activity. My Attachment DAL-RR-A shows the allocation method (Column D) associated with each billing method (Column C) used in the affiliate class. In this initial filing, only the first 11 months of the Updated Test Year have a cost center (billing method) and allocation method associated with each activity. The entries for the remaining month (June 2017) have a notation of "TBD" for these items because the estimated amounts are based on a forecasted budget and specific cost centers (billing methods) are not yet available.

In SPS's 45-day case update, I will present updated Attachments DAL-RR-A and DAL-RR-B so that the entries for the last three months of the Updated Test Year provide actual data and conform to the information provided for the first nine months. In the event the predominant billing methods and associated allocation methods for the ES Technical Services affiliate O&M expenses on my updated Attachments DAL-RR-A and DAL-RR-B differ from those discussed below, I will explain those differences in supplemental testimony in SPS's 45-day case update filing.

Q. What are the predominant allocation methods used for billing the costs that SPS seeks to recover for the ES Technical Services affiliate class of services?

A. Approximately 99.99% of the requested XES charges to SPS for this class were charged using one of the following two allocation methods:

- Direct Billing – 93.13% of XES charges to SPS – $11,349,603.34; and
- MWH Generation – 6.86% of XES charges to SPS – $836,089.08.

Q. Why is the "Direct Billing" method appropriate for assigning the costs captured in the cost centers that use that allocation method?

A. For the cost centers that are assigned using the "Direct Billing" method, the costs normally reflect work that was performed specifically for SPS only. In some cases, however, the direct billing occurred after the application of an off-line allocator that tracks the relevant cost drivers. In either situation, the cost centers charged using the "Direct Billing" method are appropriate because the assignment of costs is in accordance with the distribution of benefits for the services received. For example, the costs related to technical services costs for specific SPS facilities were assigned using the "Direct Billing" method. The cost of these services benefitted SPS, the work was performed specifically for SPS alone, and the cost driver is technical services oversight at Harrington Station. Thus, the "Direct Billing" method is appropriate because it assigns costs in accordance with cost causation and benefits received. For the cost centers that assign costs using Direct Billing, the per unit amounts charged by XES to SPS are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

Q. Why is it appropriate to allocate costs based upon the "MWH Generation" method for the costs captured in the cost centers that use that allocation method?

A. Cost Center 200135, which uses the "MWH Generation" method as the allocator, captures the costs associated with labor and non-labor costs of performance analysis, specialists and analytical services provided to the Operating Companies' generation facilities. The costs in the ES Technical Services class that are associated with plant engineering and technical support are assigned using this billing method because its costs are directly related to the support of power plants. Thus, allocating costs based on the "MWH Generation" method is appropriate for the allocation of costs to affiliates because it allocates costs for the services in accordance with cost causation and the distribution of the benefits of the services received. For the cost centers that assign costs based upon this allocation method, the per unit amounts charged by XES to SPS as a result of the application of this allocation method are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

Q. You have covered the allocation methods used to bill 99.99% of the costs associated with this affiliate class. Why have you not specifically covered the remaining 0.01% of the costs of this class?

A. I have described the predominant allocation methods associated with this affiliate class. The remaining costs are billed using several different allocators, no one of which is used to bill more than 0.01% of the costs. In light of the number of

remaining allocators, cost centers (billing methods), and relative dollar amounts, I have not gone into a detailed discussion of these other allocation methods in order to keep the discussion to a manageable level. The cost centers (billing methods) used to charge the remaining 0.01% of the costs in this class, however, are presented in my Attachment DAL-RR-B, discussed earlier. A reader may reference that attachment and then refer to the specific cost center (billing method) summary provided in Mr. Dietenberger's Attachment ARD-RR-13 for an explanation of the particular allocators used and the cost drivers for the activities reflected in that particular cost center.

Q. Have you determined that the costs reflected in the remaining 0.01% of costs associated with this class of services have been billed using an appropriate billing method and allocation method?

A. Yes. I or one of my staff working at my direction have reviewed each of the cost centers and the associated allocators used to bill the remaining 0.01% of the costs of this class. The cost drivers reflected in the allocation method used to bill the costs of each cost center (billing method) are consistent with and reflect the cost drivers of the services captured in each particular cost center. Therefore, the billing and allocation methods are appropriate because the allocation of costs is in accordance with the distribution of the benefits received by SPS and are no higher than the per unit costs charged to other affiliates for the same or similar types of services.

IX. AFFILIATE EXPENSES FOR THE ES VP ENERGY SUPPLY CLASS OF SERVICES

A. Summary of Affiliate Expenses for the ES VP Energy Supply Class of Services

Q. Where does the ES VP Energy Supply affiliate class fit into the overall affiliate structure?

A. Attachment ARD-RR-6 to Mr. Dietenberger's direct testimony provides a list and a pictorial display of all affiliate classes, dollar amounts for those classes, and sponsoring witness for each class. As seen on that attachment, the ES VP Energy Supply affiliate class was part of the Energy Supply business area during the Updated Test Year. Attachment DAL-RR-1 to my testimony is an organization chart showing the Energy Supply organization.

Q. What services are grouped into the ES VP Energy Supply affiliate class?

A. The services that are grouped into the ES VP Energy Supply affiliate class are the VP of Energy Supply which provides oversight for VP Technical Services, VP Engineering and Construction, and VP Operations.

Q. What is the dollar amount of the Updated Test Year XES charges that SPS requests, on a total company basis, for the ES VP Energy Supply affiliate class?

A. The following table summarizes the dollar amount of the estimated Updated Test Year XES charges for the ES VP Energy Supply affiliate class. I will update the table below as part of SPS's 45-day case update filing to reflect the actual Updated Test Year costs for the ES VP Energy Supply affiliate class.

Table DAL-RR-11

	Requested Amount of XES Class Expenses Billed to SPS (Total Company)		
Class of Services	Requested Amount	% Direct Billed	% Allocated
ES VP Energy Supply	$105,409	21%	79%

Requested Amount of XES Class Expenses Billed to SPS (Total Company)	Requested dollar amount of XES expenses to SPS (total company) for this affiliate class after exclusions and pro forma adjustments. This is the amount from Column I in Attachment DAL-RR-A.
% Direct Billed	The percentage of SPS's requested XES expenses (total company) for this class that were billed 100% to SPS.
% Allocated	The percentage of SPS's requested XES expenses (total company) for this class that were allocated to SPS.

Q. Please describe the attachments that support the information provided on Table DAL-RR-11.

A. There are four attachments to my testimony that present information about the requested SPS affiliate expenses for the ES VP Energy Supply affiliate class. I explained these attachments in detail previously in Section VI.A of my testimony.

Q. Does XES bill its expenses for the ES VP Energy Supply affiliate class to SPS in the same manner as it bills other affiliates for those expenses?

A. Yes. As discussed by Mr. Dietenberger, XES uses the same method for billing and allocating costs to affiliates other than SPS that it uses to bill and allocate costs to SPS.

Q. Are there any exclusions to the XES billings to SPS for the ES VP Energy Supply affiliate class?

A. Yes. As I mentioned earlier, exclusions reflect expenses not requested, such as expenses not allowed or other below-the-line items. Exclusions are shown on Attachment DAL-RR-A, Column F, and on Attachment DAL-RR-B, Column I. The details for the exclusions are provided in Attachment DAL-RR-C. Mr. Dietenberger describes how the exclusions were calculated. In SPS's 45-day case update, I will present an updated Attachment DAL-RR-C that will provide actual exclusions to replace any estimated exclusions included in my original attachment.

Q. Are there any pro forma adjustments to SPS's per book expenses for the ES VP Energy Supply affiliate class?

A. Yes. As I mentioned earlier, pro forma adjustments are revisions to Updated Test Year expenses for known and measurable changes. Pro forma adjustments are shown on Attachment DAL-RR-A, Column H, and on Attachment DAL-RR-B, Column K. The details for the pro forma adjustments, including the witness or witnesses who sponsor each pro forma adjustment, are provided in Attachment DAL-RR-D. Given the time of SPS's initial filing, only the first nine months of the Updated Test Year have completed the full pro forma adjustment review process. In SPS's 45-day case update, I will present an updated Attachment DAL-RR-D that will complete the full pro forma adjustment review process for the last three months of the Updated Test Year.

Q. Attachment DAL-RR-D shows that you sponsor pro forma adjustments for the expenses for the ES VP Energy Supply affiliate class during the first nine months of the Updated Test Year that result in a net decrease for the ES VP Energy Supply affiliate class of $253. Please explain the adjustments.

A. The adjustments that I sponsor remove costs for alcohol (a decrease of $253).

B. The ES VP Energy Supply Class of Services are Necessary Services

Q. Are the services that are grouped in the ES VP Energy Supply affiliate class necessary for SPS's operations?

A. Yes. The services grouped in the ES VP Energy Supply affiliate class are necessary to ensure cost control, engineering and construction execution, technical support, and operational excellence. They are functions required by all utilities and without which SPS would not be able to provide electric service to its customers.

Q. What are the specific services that are provided to SPS by the ES VP Energy Supply affiliate class?

A. The specific services that are provided to SPS by the ES VP Energy Supply affiliate class are:

- The VP of Technical Services manages and oversees all technical, overhaul, chemistry, asset analysis, testing activities, and NERC Reliability Standard compliance, through the implementation of the Operating Model (including continuous improvement) with the support and advocacy of the management team;

- The VP of Engineering and Construction is responsible for the Capital Budget, Project Management, Quality Assurance/Quality Control, Design Control, and Drawing Control processes; and

- The VP of Operations manages and oversees all generation activities through the implementation of the Operating Model (including continuous improvement) with the support of the management team.

Q. Are any of the ES VP Energy Supply class of services that are provided to SPS duplicated elsewhere in XES or in any other Xcel Energy subsidiary such as SPS itself?

A. No. Within XES, none of the services grouped in the ES VP Energy Supply affiliate class are duplicated elsewhere. No other Xcel Energy subsidiary performs these services for the Operating Companies. In addition, SPS does not perform these services for itself.

Q. Do SPS's Texas retail customers benefit from the services that are part of the ES VP Energy Supply class of services?

A. Yes. The services of the ES VP Energy Supply affiliate class benefit SPS's customers in many ways. For example:

- ES VP Energy Supply sets priorities and goals and holds employees accountable to achieve great results; and
- ES VP Energy Supply standardize practices and continuous process improvements across the generation fleet.

C. The ES VP Energy Supply Class of Services are Provided at a Reasonable Cost

Q. Are the costs of the ES VP Energy Supply class of services reasonable?

A. Yes. The costs of the ES VP Energy Supply class of services are reasonable. The ES VP Energy Supply provides oversight and leadership that is required to ensure that the generation assets and supporting organizations are focusing on proper priorities, effectively managing generation risk, and constantly striving to improve overall performance.

1. Objective Evidence (Benchmarking)

Q. Is there any objective evidence that supports your opinion that the costs of the ES VP Energy Supply affiliate class are reasonable?

A. Yes. Of the estimated Updated Test Year costs for the ES VP Energy Supply class, approximately 100% are compensation and benefits costs for XES personnel. Ms. Reed and Mr. Schrubbe establish that the level of Xcel Energy's compensation and benefits is reasonable and necessary.

2. Budget Planning

Q. Is a budget planning process applicable to the ES VP Energy Supply class of affiliate costs?

A. Yes. Annual O&M budgets are created for the ES VP Energy Supply organization, which includes the ES VP Energy Supply affiliate class, using guidelines developed at the corporate level. Each manager within the Energy Supply business area carefully reviews historical spend information, identifies changes that will be coming in the future, and analyzes the costs associated with those changes prior to submitting a proposed budget. The budgeting process is discussed in more detail by Mr. Gray.

Q. During the fiscal year, does the Energy Supply business area organization monitor its actual expenditures versus its budget?

A. Yes. Actual versus expected expenditures are monitored on a monthly basis by management in the Energy Supply business area within each department. Deviations are evaluated each month to ensure that costs are appropriate. In addition, action plans are developed to mitigate variations in actual to budgeted

expenditures. These mitigation plans may either reduce or delay other expenditures so that the revised budget supports the authorized budget. If authorized budget adjustments are required, they are identified and approved at an appropriate level of management.

Q. Are employees within the Energy Supply business area organization held accountable for deviations from the budget?

A. Yes. All management employees in the Energy Supply business area have specific budgetary goals that are incorporated into their performance evaluations. Performance is measured on a monthly basis to ensure adherence to the goals and provide for action plan development to address variances. All Energy Supply employees are required to manage their expenses to support the budgetary goals established by their manager. Failure to meet these performance targets will affect their performance evaluation and overall compensation.

3. Cost Trends

Q. Please state the dollar amounts of the actual charges (per book) from XES to SPS for the ES VP Energy Supply class of services for the three fiscal years preceding the end of the Updated Test Year and the charges (per book) for the estimated Updated Test Year.

A. The following table shows, for the fiscal years 2014, 2015, and 2016 (calendar years), the actual per book and, for the Updated Test Year, the estimated per book affiliate charges (Column G on Attachment DAL-RR-A) from XES to SPS for the services grouped in the ES VP Energy Supply affiliate class:

Table DAL-RR-12

	ES VP Energy Supply (Per Book) Charges Over Time			
Class of Services	2014	2015	2016	Updated Test Year (Estimated)
ES VP Energy Supply	$121,127	$204,025	$161,555	$121,351

Q. What are the reasons for this trend?

A. The increase in costs from 2014 to 2015 was due to the movement of additional staff to the ES VP Energy Supply, as further discussed below. The decrease in costs from 2015 to 2016 was due to reduced labor charges. The decrease is costs from 2016 to the Updated Test Year was due to the reduction of one employee.

4. Staffing Trends

Q. Please provide the staffing levels for the ES VP Energy Supply class of services for the three fiscal years preceding the end of the Updated Test Year and the Updated Test Year.

A. The following table shows, for the fiscal years 2014, 2015, and 2016 (calendar years) and for the Updated Test Year, the average of the end of month staffing levels for the ES VP Energy Supply class of services.

Table DAL-RR-13

	Average End of Month # of Staff			
Class of Services	2014	2015	2016	Updated Test Year (Estimated)
ES VP Energy Supply	2	8	8	7

Q. What are the reasons for this trend?

A. The increase in average staffing levels from 2014 to 2015 was due to the reassignment of six employees to ES VP Energy Supply to work on Productivity through Technology ("PTT") efforts, as well as moving an administrative assistant at the first of that year. Average staffing levels between 2015 and 2016 remained constant. The decrease in average staffing levels between 2016 and the Updated Test Year is due to one of the PTT employees moving to another role.

5. Cost Control and Process Improvement Initiatives

Q. Separate from the budget planning process, does the ES VP Energy Supply affiliate class take any steps to control its costs or to improve its services?

A. Yes. ES VP Energy Supply works with Engineering and Construction to produce large O&M and capital savings on large projects that require construction and material cost by bundling those projects with similar projects and awarding bids to the most competitive contractors.

D. The Costs for the ES VP Energy Supply Class of Services are Priced in a Fair Manner

Q. For those costs that XES charges (either directly or through use of an allocation) to SPS for the ES VP Energy Supply class of services, does SPS pay any more for the same or similar service than does any other Xcel Energy affiliate?

A. No.

Q. Why do you answer "no"?

A. The XES charges to SPS for any particular service are no higher than the XES charges to any other Xcel Energy affiliate. The costs charged for particular

services are the actual costs that XES incurred in providing those services to SPS. A single, specific allocation method, rationally related to the costs drivers associated with the service being provided, is used with each cost center (billing method). In his direct testimony, Mr. Dietenberger discusses the selection of billing methods and XES's method of charging for services in more detail.

Q. How are the costs of the ES VP Energy Supply affiliate class billed to SPS?

A. My Attachment DAL-RR-B shows all of the costs in this class broken out by activity and, in conjunction with Column C in my Attachment DAL-RR-A, shows the billing method associated with each activity. My Attachment DAL-RR-A shows the allocation method (Column D) associated with each billing method (Column C) used in the affiliate class. In this initial filing, only the first 11 months of the Updated Test Year have a cost center (billing method) and allocation method associated with each activity. The entries for the remaining month (June 2017) have a notation of "TBD" for these items because the estimated amounts are based on a forecasted budget and specific cost centers (billing methods) are not yet available.

In SPS's 45-day case update, I will present updated Attachments DAL-RR-A and DAL-RR-B so that the entries for the last three months of the Updated Test Year provide actual data and conform to the information provided for the first nine months. In the event the predominant billing methods and associated allocation methods for the ES VP Energy Supply affiliate O&M expenses on my updated Attachments DAL-RR-A and DAL-RR-B differ from

those discussed below, I will explain those differences in supplemental testimony in SPS's 45-day case update filing.

Q. What are the predominant allocation methods used for billing the costs that SPS seeks to recover for the ES VP Energy Supply affiliate class of services?

A. All of the requested XES charges to SPS for this class were charged using the following three allocation methods:

- MWH Generation – 98.82% of XES charges to SPS - $104,160.06;
- Direct – 20.57% of XES charges to SPS – $21,677.91; and
- Assets/Revenue/Number of Employees – (-19.38%) of XES charges to SPS– $(20,428.98)

Q. Why is it appropriate to allocate costs based upon the "MWH Generation" method for the costs captured in the cost centers that use that allocation method?

A. Cost Center 200135, which uses the "MWH Generation" method as the allocator, captures the costs associated with labor and non-labor costs of performance analysis, specialists and analytical services provided to the Operating Companies' generation facilities. The costs in the ES VP Energy Supply class that are associated with engineering oversight at SPS generating facilities are assigned using this allocation method because its costs are directly related to the support of power plants. Thus, allocating these costs based on the "MWH Generation" method is appropriate for the allocation of costs to affiliates because it allocates costs for the services in accordance with cost causation and the distribution of the benefits of the services received. For the cost centers that assign costs based upon this allocation method, the per unit amounts charged by XES to SPS as a result of

the application of this allocation method are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

Q. Why is the "Direct Billing" method appropriate for assigning the costs captured in the cost centers that use that billing method?

A. For the cost centers that are assigned using the "Direct Billing" method, the costs normally reflect work that was performed specifically for SPS only. In some cases, however, the direct billing occurred after the application of an off-line allocator that tracks the relevant cost drivers. In either situation, the cost centers charged using the "Direct Billing" method are appropriate because the assignment of costs is in accordance with the distribution of benefits for the services received. For example, the labor and employee expense costs related to direct involvement with SPS management were assigned using the "Direct Billing" method. The cost of these services benefitted SPS, and the work was performed specifically for SPS alone. Thus, the "Direct Billing" method is appropriate because it assigns costs in accordance with cost causation and benefits received. For the cost centers that assign costs using Direct Billing, the per unit amounts charged by XES to SPS are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

Q. Why is it appropriate to allocate costs based upon the "Asset, Revenues, Number of Employees" method for the costs captured in the cost centers that use that allocation method?

A. The "Assets, Revenues, Number of Employees" allocation method produces an allocation of costs that recognizes the complexity, risk, and overall business

activity levels that drives the costs included in the cost centers and measures the benefits received from those activities. For the cost centers billed using this allocator, there is no one specific cost driver for the support tasks and services provided, and the services benefit multiple Xcel Energy affiliates. For example, the costs collected in Cost Center 200074 – Corporate Systems, are allocated using this method. Within the Xcel Energy holding company group, those legal entities that have proportionately more assets, revenues, and employees will have more focus placed on their operations due to those subsidiaries' relative influence on the consolidated business balance sheet, income statement, and statement of cash flow, and the subsidiaries will benefit accordingly from the services provided. Thus, allocating these costs based upon the average of the total asset ratio, revenue ratio, and the employee ratio is appropriate because it allocates costs in accordance with cost causation and benefits received. Mr. Dietenberger discusses this allocation method in more detail in his testimony. For the cost centers that assign costs based upon this allocation method, the per unit amounts charged by XES to SPS as a result of the application of this allocation method are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

X. AFFILIATE EXPENSES FOR THE ES VP OPERATIONS CLASS OF SERVICES

A. Summary of Affiliate Expenses for the ES VP Operations Class of Services

Q. Where does the ES VP Operations affiliate class fit into the overall affiliate structure?

A. Attachment ARD-RR-6 to Mr. Dietenberger's direct testimony provides a list and a pictorial display of all affiliate classes, dollar amounts for those classes, and sponsoring witness for each class. As seen on that attachment, the ES VP Operations affiliate class was part of the Energy Supply business area during the Updated Test Year. Attachment DAL-RR-1 to my testimony is an organization chart showing the Energy Supply organization.

Q. What services are grouped into the ES VP Operations affiliate class?

A. The services that are grouped into the ES VP Operations affiliate class are Operations, Maintenance, Environmental, and NERC and FERC Compliance personnel.

Q. What is the dollar amount of the Updated Test Year XES charges that SPS requests, on a total company basis, for the ES VP Operations affiliate class?

A. The following table summarizes the dollar amount of the estimated Updated Test Year XES charges for the ES VP Operations affiliate class. I will update the table below as part of SPS's 45-day case update filing to reflect the actual Updated Test Year costs for the ES VP Operations affiliate class.

Table DAL-RR-14

	Requested Amount of XES Class Expenses Billed to SPS (Total Company)		
Class of Services	Requested Amount	% Direct Billed	% Allocated
ES VP Operations	$353,724	76%	24%

Requested Amount of XES Class Expenses Billed to SPS (Total Company)	Requested dollar amount of XES expenses to SPS (total company) for this affiliate class after exclusions and pro forma adjustments. This is the amount from Column I in Attachment DAL-RR-A.
% Direct Billed	The percentage of SPS's requested XES expenses (total company) for this class that were billed 100% to SPS.
% Allocated	The percentage of SPS's requested XES expenses (total company) for this class that were allocated to SPS.

Q. Please describe the attachments that support the information provided on Table DAL-RR-14.

A. There are four attachments to my testimony that present information about the requested SPS affiliate expenses for the ES VP Operations affiliate class. I explained these attachments in detail previously in Section VI.A of my testimony.

Q. Does XES bill its expenses for the ES VP Operations affiliate class to SPS in the same manner as it bills other affiliates for those expenses?

A. Yes. As discussed by Mr. Dietenberger, XES uses the same method for billing and allocating costs to affiliates other than SPS that it uses to bill and allocate those costs to SPS.

Q. Are there any exclusions to the XES billings to SPS for the ES VP Operations affiliate class?

A. No. Exclusions are shown on Attachment DAL-RR-A, Column F, and on Attachment DAL-RR-B, Column I. The details for the exclusions are provided in Attachment DAL-RR-C. Mr. Dietenberger describes how the exclusions were calculated. In SPS's 45-day case update, I will present an updated Attachment DAL-RR-C that will provide actual exclusions to replace any estimated exclusions included in my original attachment.

Q. Are there any pro forma adjustments to SPS's per book expenses for the ES VP Operations affiliate class?

A. Yes. As I mentioned earlier, pro forma adjustments are revisions to Updated Test Year expenses for known and measurable changes. Pro forma adjustments are shown on Attachment DAL-RR-A, Column H, and on Attachment DAL-RR-B, Column K. The details for the pro forma adjustments, including the witness or witnesses who sponsor each pro forma adjustment, are provided in Attachment DAL-RR-D. Given the time of SPS's initial filing, only the first nine months of the Updated Test Year have completed the full pro forma adjustment review process. In SPS's 45-day case update, I will present an updated Attachment DAL-RR-D that will complete the full pro forma adjustment review process for the last three months of the Updated Test Year.

Q. Attachment DAL-RR-D shows that you sponsor pro forma adjustments for expenses for the ES VP Operations affiliate class during the first nine months of the Updated Test Year that result in a net decrease for the ES VP Operations affiliate class of ($48). Please explain the adjustments.

A. The adjustments that I sponsor remove cost for alcohol ($48).

B. The ES VP Operations Class of Services are Necessary Services

Q. Are the services that are grouped in the ES VP Operations affiliate class necessary for SPS's operations?

A. Yes. The services grouped in the ES VP Operations affiliate class are necessary to ensure safe, environmentally compliant, and reliable plant operation. They are functions required by all utilities and without which SPS would not be able to provide electric service to its customers.

Q. What are the specific services that are provided to SPS by the ES VP Operations affiliate class?

A. The specific services that are provided to SPS by the ES VP Operations affiliate class are:

- managing the Operating Model across the fleet, including managing and overseeing all generation operating activities through the implementation of the Operating Model (including continuous improvement) with the support and advocacy of the management team;
- providing general management oversight and direction to the regional generation organizations;
- establishing the regional key performance indicators, identifying fleet-wide improvement initiatives, and managing overall budget performance for the plant operations groups; and
- leading the Energy Supply safety program.

Q. Are any of the ES VP Operations class of services that are provided to SPS duplicated elsewhere in XES or in any other Xcel Energy subsidiary such as SPS itself?

A. No. Within XES, none of the services grouped in the ES VP Operations affiliate class are duplicated elsewhere. No other Xcel Energy subsidiary performs these services for the Operating Companies. In addition, SPS does not perform these services for itself.

Q. Do SPS's Texas retail customers benefit from the services that are part of the ES VP Operations class of services?

A. Yes. The services of the ES VP Operations affiliate class benefit SPS's customers in many ways. For example:

- The ES VP Operations is responsible for business planning for all regions, including SPS;
- The ES VP Operations supports the SPS region by coordinating reliability, work planning, and scheduling activities;
- The ES VP Operations emphasizes the importance of employee and public safety, and ensures that Energy Supply safety programs are implemented; and
- The ES VP Operations is responsible for record coordination for planning and process enhancement.

C. The ES VP Operations Class of Services are Provided at a Reasonable Cost

Q. Are the costs of the ES VP Operations class of services reasonable?

A. Yes. The costs of the ES VP Operations class of services are reasonable. XES provides the services and functions in ES VP Operations on a consolidated basis for multiple Xcel Energy legal entities. SPS benefits from management provided to the Operations group within the Energy Supply business area, the consolidated

costs of which are shared. ES VP Operations drives standardization, best practices, and cost control across the Operating Companies. The economies of scale inherent in this system result in reasonable costs for SPS for these services.

1. Objective Evidence (Benchmarking)

Q. Is there any objective evidence that supports your opinion that the costs of the ES VP Operations affiliate class are reasonable?

A. Yes. Of the estimated Updated Test Year costs for the ES VP Operations class, more than 71% are compensation and benefits costs for XES personnel. Ms. Reed and Mr. Schrubbe establish that the level of Xcel Energy's compensation and benefits is reasonable and necessary.

2. Budget Planning

Q. Is a budget planning process applicable to the ES VP Operations class of affiliate costs?

A. Yes. Annual O&M budgets are created for the Energy Supply business area, which includes the ES VP Operations class of affiliate costs, using guidelines developed at the corporate level. Each manager within the Energy Supply business area carefully reviews historical spend information, identifies changes that will be coming in the future, and analyzes the costs associated with those changes prior to submitting a proposed budget. The budgeting process is discussed in more detail by Mr. Gray.

Q. During the fiscal year, does the Energy Supply business area organization monitor its actual expenditures versus its budget?

A. Yes. Actual versus expected expenditures are monitored on a monthly basis by management in the Energy Supply business area within each department.

Deviations are evaluated each month to ensure that costs are appropriate. In addition, action plans are developed to mitigate variations in actual to budgeted expenditures. These mitigation plans may either reduce or delay other expenditures so that the revised budget supports the authorized budget. If authorized budget adjustments are required, they are identified and approved at an appropriate level of management.

Q. Are employees within the Energy Supply business area organization held accountable for deviations from the budget?

A. Yes. All management employees in the Energy Supply business area have specific budgetary goals that are incorporated into their performance evaluations. Performance is measured on a monthly basis to ensure adherence to the goals and provide for action plan development to address variances. All Energy Supply employees are required to manage their expenses to support the budgetary goals established by their manager. Failure to meet these performance targets will affect their performance evaluation and overall compensation.

3. Cost Trends

Q. Please state the dollar amounts of the actual charges (per book) from XES to SPS for the ES VP Operations class of services for the three fiscal years preceding the end of the Updated Test Year and the charges (per book) for the estimated Updated Test Year.

A. The following table shows, for the fiscal years 2014, 2015, and 2016 (calendar years), the actual per book and, for the Updated Test Year, the estimated per book

affiliate charges (Column G on Attachment DAL-RR-A) from XES to SPS for the services grouped in the ES VP Operations affiliate class:

Table DAL-RR-15

	ES VP Operations (Per Book) Charges Over Time			
Class of Services	2014	2015	2016	Updated Test Year (Estimated)
ES VP Operations	$277,622	$422,917	$272,813	$382,380

Q. What are the reasons for this trend?

A. The cost increase from 2014 to 2015 related to fees for a technical knowledge survey conducted by HDR Engineering. The survey was designed to identify strengths as well as areas of improvement for plant leadership and engineering personnel in areas of operations, maintenance, and engineering. The assessment produced recommendations for a comprehensive training and development plan as required elevating the base level of technical knowledge and competence. Costs decreased from 2015 to 2016 because the fees for the survey I just referenced did not continue. Costs increased from 2016 to the Updated Test Year due to training cost for SAP and costs for consulting services.

4. Staffing Trends

Q. Please provide the staffing levels for the ES VP Operations class of services for the three fiscal years preceding the end of the Updated Test Year and the Updated Test Year.

A. The following table shows, for the fiscal years 2014, 2015, and 2016 (calendar years) and for the Updated Test Year, the average of the end of month staffing levels for the ES VP Operations class of services.

Table DAL-RR-16

	Average End of Month # of Staff			
Class of Services	2014	2015	2016	Updated Test Year (Estimated)
ES VP Operations	12	12	12	12

Q. What are the reasons for this trend?

A. The trend in average staffing levels from 2014 to the Updated Test Year remained constant.

5. Cost Control and Process Improvement Initiatives

Q. Separate from the budget planning process, does the ES VP Operations affiliate class take any steps to control its costs or to improve its services?

A. Yes. ES VP Operations drives standardization, best practices, and cost controls for the groups that it oversees. These activities help to control costs of providing services.

D. The Costs for the ES VP Operations Class of Services are Priced in a Fair Manner

Q. For those costs that XES charges (either directly or through use of an allocation) to SPS for the ES VP Operations class of services, does SPS pay any more for the same or similar service than does any other Xcel Energy affiliate?

A. No.

Q. Why do you answer "no"?

A. The XES charges to SPS for any particular service are no higher than the XES charges to any other Xcel Energy affiliate. The costs charged for particular

services are the actual costs that XES incurred in providing those services to SPS. A single, specific allocation method, rationally related to the costs drivers associated with the service being provided, is used with each cost center (billing method). In his direct testimony, Mr. Dietenberger discusses the selection of billing methods and XES's method of charging for services in more detail.

Q. How are the costs of the ES VP Operations affiliate class billed to SPS?

A. My Attachment DAL-RR-B shows all of the costs in this class broken out by activity and, in conjunction with Column C in my Attachment DAL-RR-A, shows the billing method associated with each activity. My Attachment DAL-RR-A shows the allocation method (Column D) associated with each billing method (Column C) used in the affiliate class. In this initial filing, only the first 11 months of the Updated Test Year have a cost center (billing method) and allocation method associated with each activity. The entries for the remaining month (June 2017) have a notation of "TBD" for these items because the estimated amounts are based on a forecasted budget and specific cost centers (billing methods) are not yet available.

In SPS's 45-day case update, I will present updated Attachments DAL-RR-A and DAL-RR-B so that the entries for the last three months of the Updated Test Year provide actual data and conform to the information provided for the first nine months. In the event the predominant billing methods and associated allocation methods for the ES VP Operations affiliate O&M expenses on my updated Attachments DAL-RR-A and DAL-RR-B differ from those

discussed below, I will explain those differences in supplemental testimony in SPS's 45-day case update filing.

Q. What are the predominant allocation methods used for billing the costs that SPS seeks to recover for the ES VP Operations affiliate class of services?

A. All of the XES charges to SPS for this class were charged using one of the following three allocation methods:

- Direct Billing – 76.47% of XES charges to SPS – $270,488.59;
- MWH Generation – 12.77% of XES charges to SPS – $45,155.92; and
- Assets/Revenue/Number of Employees – 10.77% of XES charges to SPS – $38,079.49.

Q. Why is the "Direct Billing" method appropriate for assigning the costs captured in the cost centers that use that billing method?

A. For the cost centers that are assigned using the "Direct Billing" method, the costs normally reflect work that was performed specifically for SPS only. In some cases, however, the direct billing occurred after the application of an off-line allocator that tracks the relevant cost drivers. In either situation, the cost centers charged using the "Direct Billing" method are appropriate because the assignment of costs is in accordance with the distribution of benefits for the services received. For example, the costs related to labor and employee expenses for trips and time spent specifically for SPS were assigned using the "Direct Billing" method. The cost of these services benefitted SPS, the work was performed specifically for SPS alone, and the cost driver is management of generating facilities. Thus, the "Direct Billing" method is appropriate because it assigns costs in accordance with cost causation and benefits received. For the cost centers that assign costs using

Direct Billing, the per unit amounts charged by XES to SPS are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

Q. Why is it appropriate to allocate costs based upon the "MWH Generation" method for the costs captured in the cost centers that use that billing method?

A. Cost Center 200135, which uses the "MWH Generation" method as the allocator, captures the costs associated with labor and non-labor costs of performance analysis, specialists and analytical services provided to the Operating Companies' generation facilities. The costs in the ES VP Operations class that are associated with training and seminars are assigned using this billing method because its costs are directly related to the support of power plants. Thus, allocating costs based on the MWH Generation method is appropriate for the allocation of costs to affiliates because it allocates costs for the services in accordance with cost causation and the distribution of the benefits of the services received. For the cost centers that assign costs based upon this billing method, the per unit amounts charged by XES to SPS as a result of the application of this billing method are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

Q. Why is it appropriate to allocate costs based upon the "Assets/Revenues/Number of Employees" method for the costs captured in the cost centers that use that billing method?

A. The "Assets, Revenues, Number of Employees" allocation method produces an allocation of costs that recognizes the complexity, risk, and overall business

activity levels that drives the costs included in the cost centers and measures the benefits received from those activities. For the cost centers billed using this allocator, there is no one specific cost driver for the support tasks and services provided, and the services benefit multiple Xcel Energy affiliates. For example, the costs collected in Cost Center 200078 – Governmental Affairs, are allocated using this method. Governmental Affairs includes the labor and non-labor costs associated with the interpretation of laws regulations and environmental policy to ensure compliance and cost effectiveness for Xcel Energy customers. Within the Xcel Energy holding company group, those legal entities that have proportionately more assets, revenues, and employees will have more focus placed on their operations due to those subsidiaries' relative influence on the consolidated business balance sheet, income statement, and statement of cash flow, and the subsidiaries will benefit accordingly from the services provided. Thus, allocating these costs based upon the average of the total asset ratio, revenue ratio, and the employee ratio is appropriate because it allocates costs in accordance with cost causation and benefits received. Mr. Dietenberger discusses this allocation method in more detail in his testimony. For the cost centers that assign costs based upon this allocation method, the per unit amounts charged by XES to SPS as a result of the application of this allocation method are no higher than the unit amounts billed by XES to other affiliates for the same or similar services and represent the actual costs of the services.

XI. GENERATING FACILITIES

Q. Please describe SPS's generating facilities.

A. SPS's power plants in service during the Updated Test Year were:

(1) Jones Station, east of Lubbock, Texas (natural gas);

(2) Plant X, south of Earth, Texas (natural gas);

(3) Nichols Station, north of Amarillo, Texas (natural gas);

(4) Cunningham Station, west of Hobbs, New Mexico (natural gas);

(5) Maddox Station, west of Hobbs, New Mexico (natural gas);

(6) Carlsbad Plant, Carlsbad, New Mexico (natural gas);

(7) Quay County, Tucumcari, New Mexico (fuel oil);

(8) Tolk Station, east of Muleshoe, Texas (coal); and

(9) Harrington Station, north of Amarillo, Texas (coal).

The natural gas-fueled plants consist of 13 steam turbine units and 7 combustion turbines. SPS's coal-fueled power plants contain five steam units.

SPS's Carlsbad Plant will likely be retired in either the last quarter of 2017 or beginning quarter of 2018. SPS has begun proceedings before the NMPRC in connection with this requested retirement. Given that SPS has not received regulatory approval to remove the Carlsbad Plant from service, SPS is not making any adjustments in this Texas rate case to reflect this retirement.

Q. Are any units dedicated for peaking service?

A. Yes. The combustion turbines at Jones (Units 3 and 4), Carlsbad, Cunningham (Units 3 and 4), and Maddox Unit 2 are considered peaking units.

Q. Are any units primarily used for emergency situations?

A. Yes. Quay County and Maddox Unit 3 are designated primarily for emergency use.

XII. SPS POWER PLANT OPERATION AND MAINTENTANCE PROGRAMS

Q. Please describe SPS's O&M programs that help ensure generation efficiency.

A. SPS employs a number of activities to control costs and ensure generation efficiency including: (1) scheduled routine maintenance practices; (2) predictive maintenance practices; (3) performance assurance programs; and (4) training for maintenance personnel and plant operators. The objective of these activities is to reduce O&M expenditures while maximizing unit availability. Improved unit availability allows system operations to optimize generation through increased use of the most cost-effective units.

A. Scheduled Maintenance Practices

Q. Please describe SPS's power plant maintenance program.

A. For SPS's power plants, a Computerized Maintenance Information System software program is utilized to manage power plant maintenance activities. This system integrates: (1) maintenance requests submitted by power plant personnel; (2) maintenance progress tracking; (3) man-hour time reporting; (4) parts inventory management; (5) scheduled maintenance; and (6) maintenance history. The computer program enables operators, maintenance personnel, engineers, and other technical staff to identify, prioritize, plan, coordinate, and schedule maintenance activities for power plants. This program has allowed SPS operators and maintenance personnel to work together as a team toward the common goals of minimizing operating costs, maximizing availability, and to comply with environmental regulations. Additionally, SPS uses project management software

programs such as PROSYM and Microsoft Project to ensure efficient scheduling of maintenance.

Q. Please describe SPS's scheduled maintenance practice.

A. SPS utilizes an equivalent, nine-year cycle on its major component inspections, unless specific circumstances warrant more frequent inspections. Under this program, all components in a turbine would be inspected within a nine-year cycle of equivalent operating time.

Maintenance on SPS's turbine generators is done on a component basis. Instead of a less frequent major overhaul (which involves disassembly, inspection, and repair of all major components of the turbine generator), individual sub-components of the turbine generator are overhauled on a more frequent basis. This practice allows maintenance costs and the unit availability to be level from year to year. Additionally, boilers are inspected and overhauled on a three-year cycle. When the unit must be shut down for boiler maintenance, it presents the opportunity to take advantage of that outage to do component turbine or generator maintenance as well.

Q. How does SPS's scheduled maintenance practice affect system operations?

A. Scheduling outages on a component basis rather than incurring a complete unit outage results in higher availability. By doing so, problems that occur due to normal degradation can be identified and corrected much sooner. Also, the manpower needs for a component outage are less than for a major outage. This reduces the need for outside contractors or higher SPS staffing levels for scheduled outages. Minimizing the scheduled outage time of units provides

savings to SPS's customers through better availability of these units. Further, minimizing outage times provides SPS with more options to meet load and increases system reliability.

B. Predictive Maintenance

Q. What is predictive maintenance?

A. Predictive maintenance is the process of analyzing equipment operations for degradation and performing maintenance at a cost-effective time, prior to failures that could be more costly. If maintenance is performed too frequently, reliability remains very high, but maintenance costs can be higher than required for that level of reliability. If maintenance is performed too infrequently, then reliability will suffer and costs may increase. SPS's predictive maintenance programs are proactive approaches to maintenance rather than reactive approaches to failures.

Q. What types of activities are included in SPS's predictive maintenance program?

A. SPS uses several tools to help identify problems before forced outages occur. A performance assurance program is employed in which the steam turbine and the parameters of the steam turbine cycle are evaluated for problems that may require maintenance. Performance testing, as a predictive maintenance tool, is used to prevent problems that may result in a forced outage. This program allows the maintenance department to order parts and materials so that they can be prepared for an anticipated outage because of the knowledge gained from a performance test.

As part of the performance assurance program, a Valve Wide Open Test is performed with the unit on-line. The information obtained from this test allows the Performance Monitoring organization or power plant personnel to quantify the amount of degradation that has occurred from previous tests. If the level of degradation is large, then plant personnel can spend the needed time during the outage to identify and resolve any problems. These tests are performed every two years on units larger than 200 megawatts ("MW") and every five years on units smaller than 200 MW, as long as resources are available.

Steam-path analysis is another tool SPS uses for predictive maintenance purposes. During a scheduled turbine outage, the steam-path areas of the turbine are thoroughly inspected. By taking precise measurements and conducting a detailed inspection, components are evaluated for wear, deposit buildup, foreign object damage, and steam leakage. A steam-path analysis will identify components that should be replaced to prevent a forced outage or improve the efficiency of the unit.

Vibration monitoring is another predictive maintenance tool utilized by SPS. Because vibration is recognized as an early indicator of problems in rotating machinery, SPS has installed continuous vibration detection and protection on critical equipment, such as large turbine generators, large boiler feed pumps, and cooling tower fans. SPS collects computerized periodic vibration data. This data can be used to monitor and trend vibration problems.

SPS has invested in Nondestructive Examination capabilities by training and qualifying personnel in Magnetic Particle Nondestructive Examination. This

enables SPS to determine the condition of components in a power plant without damage to the component being inspected. SPS has the capability to use several qualified nondestructive examination techniques, such as magnetic particle, dye penetrant, ultrasonic, eddy current, and x-ray. Each technique has a special application to identify components that could cause failure.

Generator tagging is another useful predictive tool that can provide early information of localized overheating in the generator. Used on the gas-cooled generators at Jones, Tolk, and Harrington, generator tagging involves painting or tagging different locations in the generator with various tagging compounds. If localized overheating occurs while the unit is on-line, a device called a generator condition monitor senses the condition and gives an alarm to the operator. A gas sample from the generator containing molecules of the burned tagging compound can be taken from the generator and the location of the overheating can be determined before entering the generator. This advanced warning not only minimizes generator damage in the event of overheating, but also assists maintenance personnel in determining the location of the overheating and the steps to correct the overheating before disassembly of the generator.

Dissolved gas and oil testing, a predictive maintenance tool used for transformer condition assessment, enables SPS to identify localized overheating and insulation defects in oil-cooled transformers at the incipient stage so that repairs can be planned in conjunction with a scheduled outage of the unit. Early awareness of potential localized burning in the transformer can help prevent catastrophic forced outages of generating units. This testing involves taking oil

samples from the transformer for evaluation by SPS's analytical chemistry lab for the presence of several gases, as well as degradation of insulation materials. Knowledge of how the different gaseous compounds are formed and trending analyses are used to interpret the data and detect problems before failure.

In addition to testing transformer oil, lubrication oils for the plants are sampled and tested. Lubrication oils are tested once per year for indication of oil degradation and unusual machine wear. Analyses include measuring oxidation resistance and the presence of wear metals. In addition to yearly testing, major rotating equipment is tested every six months at most facilities for indication of corrosion or contamination.

Another predictive maintenance tool SPS uses is insulation resistance testing of motors. An insulation resistance test is performed by applying a high voltage (at least twice the rated voltage) direct current to the motor windings. The test is conducted on motors during a scheduled outage, and the data obtained provides three alternative courses of action. If the data shows the insulation to be in good condition, then no action is necessary and repeat testing can be done at the next scheduled outage. If the data shows marginal results, the motor is disassembled, cleaned, and retested. Lastly, if the data indicates an imminent failure, the motor is repaired or replaced. The advantage of this predictive tool is that repairs can be done during a scheduled outage, and a forced outage can be avoided.

C. Performance Assurance Programs

Q. What does the term "performance assurance" mean?

A. Performance assurance means all activities undertaken to achieve optimum operating efficiency of SPS's power generating facilities.

Q. Please discuss SPS's policy regarding the efficient operation of its plants.

A. SPS maintains an ongoing policy of monitoring its power plant performance, improving unit efficiency, and determining cost-effective ways to provide fuel cost and base rate cost savings to its customers. The performance testing and engineering group monitors, maintains, and recommends changes to enhance the operational performance of SPS's power plants. This group constantly evaluates unit operational conditions and identifies opportunities to improve availability and reduce process emissions based upon design and/or best achievable conditions. Over the years, SPS has developed performance assurance practices to maximize efficiencies by studying and evaluating the latest technologies in plant maintenance and/or operations. These technologies are then adapted to the unique power plant designs in SPS's system if technically and economically feasible.

The application of performance assurance practices to optimize power plant efficiency, availability, and reliability is not new to SPS. Since the early 1950s, SPS has had performance assurance practices in place to ensure that reliable electricity is generated at the lowest reasonable cost. These practices have resulted in an increasingly sophisticated testing program to monitor and improve power plant efficiency. The following is a list of the various testing and analytical services that SPS's performance testing staff currently provides:

- Power Plant Thermal Performance – Unit Cycle Testing;
- Development of dispatch performance curves;
- Component Testing;
- Environmental Emissions Testing; and
- Independent Power Producing Facilities Capacity Testing.

Q. What indicators are available to monitor plant equipment and process performance?

A. SPS uses heat rates, unit availability, and process emissions as indicators of unit performance.

Q. Please compare SPS's largest units' actual versus design heat rates.

A. The following definitions will be helpful to understanding this comparison:

***Average Net Heat Rate* is defined by SPS as:** The fuel consumption in British thermal units ("Btu") divided by the net generation in kilowatt hours ("kWh"). Both the fuel consumption and the net generation are totals for the applicable time period. This heat rate is sometimes referred to as the operating or accounting heat rate.

***Adjusted Design Net Heat Rate* is defined by SPS as:** The design net heat rate is estimated at the average load and adjusted for major equipment performance degradation and/or deviation from the manufacturers' design when the equipment was placed in service. This value approximates a unit's best achievable heat rate at the present time.

The average net heat rates for SPS's largest units during the Updated Test Year are provided below and have been compared to their adjusted design net heat rates.

Table DAL-RR-17
Large Unit Heat Rates during the Updated Test Year

Unit	Average Net Heat Rate (Btu/kWh)	Adjusted Design Net Heat Rate (Btu/kWh)	Percent Difference
Harrington 1	10,777	10,427	3.35%
Harrington 2	10,926	10,276	6.32%
Harrington 3	10,606	10,200	3.99%
Tolk 1	10,565	10,008	5.56%
Tolk 2	10,175	9,946	2.31%

As can be noted from Table DAL-RR-17, the average operating heat rates (i.e., Average Net Heat Rate) during the Updated Test Year were within approximately 5% of the best achievable target or the adjusted design net heat rates. Tolk Unit 1's heat rate has historically been close to 5% and is always higher than Tolk Unit 2's because the shared systems between both units are applied to the station power on Unit 1. This causes the heat rate on Unit 1 to be consistently higher than Unit 2. Harrington 2 is also above the threshold for various reasons. The third highest pressure feedwater heater has been out of service for a few years this roughly accounts for 18 BTu/kWh when compared to design. There is evidence that the isolation valves around the heater are also leaking roughly 10% of the boiler feed pump flow back to the condenser. SPS's models indicate that this amount of flow has increased net unit heat rate by roughly 160 BTu/kWh. Also the house power has increased by roughly 1% during the rate period, due to issues such as plugging in the air heater, which

accounts for roughly 100 BTu/kWh. The third feedwater heater was replaced in May 2017.

The Average Net Unit Heat rate is affected by several factors including, but not limited to, unit loading, measured generation, measured fuel consumption, measured fuel heating value, and overall process degradation. Heat rate determination is subject to measurement errors due to several factors including: type of instruments used, number of test points collected, and condition of the equipment being tested. SPS works to minimize uncertainties associated with power and fuel measurement through frequent calibration of measurement devices and installation of more accurate measurement devices.

Economic dispatching of SPS's units results in unit operation that varies from minimum load to full load. It is difficult to account for these variations in load when considering a design heat rate. Design heat rates are typically associated with a particular load point. Generally, operation at less than full load results in higher heat rates than full load operation. Caution is advised when comparing a heat rate at any specific load point with an average heat rate, which includes start-up fuel consumption, low load operation, and station power. Heat rate is greatly affected, usually negatively, by variations in unit loading.

Q. Has SPS made any comparisons of the heat rates of its units to the heat rates of other utilities' units?

A. Yes. Attachment DAL-RR-2 compares the heat rates of SPS's coal plants to those of other regional utilities for 2015 and 2016. SPS's coal units' heat rates compare favorably with other regional utilities, ranking 3rd out of 10 in 2015 and

4th out of 10 in 2016. Attachment DAL-RR-3 compares the heat rates of all of SPS's plants (gas and coal units) to those of other regional utilities for 2015 and 2016. The heat rates of SPS's gas and coal units also compare favorably to other regional utilities, ranking 3rd out of 20 in 2015 and 5th out of 20 in 2016.

Q. Why does the heat rate of a generating unit deteriorate over time?

A. Heat rate is a measure of the efficiency of a unit. There are many factors that cause the efficiency of a generating unit to deteriorate. The following are some major reasons that plant performance becomes less optimal over time:

- deposits, erosion, and foreign object damage to turbine rotating and stationary blading;
- excessive seal clearances on the turbine blading, which allow steam to bypass the blading;
- buildup of deposits on and between boiler tubing, which reduces heat transfer and increases fan horsepower requirements;
- oxidation inside boiler tubes, which also reduces heat transfer through the tubes;
- plugging and oxidation of air preheaters, which reduce heat transfer from flue gas to incoming air and also increase required fan horsepower;
- oxidation and deposits on (and/or in) feedwater heater tubes, which reduce heat transfer from the extraction steam to the feedwater;
- erosion or holes, or both, on the partition plates in feedwater heaters, which allows feedwater to bypass the heaters;
- pump performance degradation due to increased seal clearances and/or impeller erosion;
- corrosion of inner surfaces of piping, which increases friction loss;
- steam or high-energy water leaking through valves and/or steam traps, which develop leaks over time;

- oxidation and deposit buildups on condenser tubes, which reduce heat transfer through the tubes; and

- deterioration of cooling tower fill due to ice damage, algae growth, and so forth, which reduces heat transfer between air and water.

The efficiency of a generating unit decreases over time, but some tasks can be performed to regain most of the lost efficiency. For example, boiler tubes can be cleaned, turbine blade damage can be repaired, new turbine seals can be installed, leaking valves and steam traps can be repaired or replaced, and so forth. SPS currently has programs specifically designed to implement these tasks. Moreover, as described in this section, SPS works to maintain and improve the efficiency of its generating units.

Q. Has SPS implemented any plant performance assurance projects that have resulted in customer benefit?

A. Yes. The following capital projects were completed during the Updated Test Year and are typical of SPS's on-going efforts to maintain optimal performance:

- Harrington 2: Replace Air Preheater Cold End Baskets
- Harrington 2: Replace #3 High Pressure Feedwater Heater
- Harrington 2: Replace Boiler Corner Tubes
- Tolk 2: Replace Burners
- Tolk 2: Replace RH Outlet Terminal Tubes
- Tolk 2: Replace Turbine Nozzle Block
- Tolk 2: Replace Baghouse Bags

In addition to capital projects, SPS routinely performs O&M projects that benefit performance. Some examples are:

- Boiler Grit Blasting & Chemical Cleaning
- Air Heater Washing
- Condenser Tube Cleaning
- Turbine Blade Repairs

These measures benefit SPS customers by ensuring that the units are running efficiently, which minimizes fuel costs.

Q. Are there any other programs SPS uses for performance assurance?

A. Yes. SPS uses a turbine steam-path analysis program and other performance test methods in its performance assurance program.

Q. Please describe the turbine steam-path analysis program.

A. The purpose of this ongoing program is to economically optimize the performance of steam turbines through sound maintenance practices. The analysis consists of two phases: (1) pre-inspection test data is collected and analyzed for indications of turbine performance degradation; and (2) during the overhaul, numerous measurements and observations are made to further evaluate the condition of the turbine. After appropriate engineering and economic analyses are completed, repairs are made, if economically justified.

During the pre-inspection analysis, test data is analyzed for the following steam-path problems: solid particle erosion, foreign object damage, deposits, and steam-path leakage. As problems are identified, the extent of the damage and the probability of the component's failure are evaluated. The projected effect of these problems on fuel costs is also determined. With this knowledge, a determination is made as to which components need to be replaced and the repair procedures

needed. The pre-inspection information is then furnished to the plant maintenance department for scheduling repairs, ordering parts, and preparing repair procedures.

When the turbine is disassembled for inspection, the following evaluations are performed:

- Turbine nozzle and blade erosion and damage are assessed. Measurements are taken for throat and pitch dimension. The impact of these problems on heat rate is established;
- Measurements are made to determine deposit thickness and the degree of coverage on nozzles and blades. The result of excessive deposits on heat rate is calculated;
- Steam seal and steam packing clearances are measured, and the alignment of rotating and stationary components is evaluated. Their impact on heat rate is calculated; and
- The measurements and calculated values are used to cost justify the repair or replace worn or damaged components.

Q. What are the costs of implementation and the estimated financial benefits resulting from the steam-path analysis program?

A. The cost to conduct a steam-path analysis can be as much as $20,000 per inspection. During the Updated Test Year, steam path audits were conducted on Harrington Unit 2 in September 2016 for the High Pressure ("HP") and Intermediate Pressure ("IP") turbines, Tolk Unit 2 in February 2017 for the HP and IP turbines. Table DAL-RR-18 displays potential fuel savings identified as a result of this inspection.

Table DAL-RR-18
Potential Improvements from Steam Path Audits

	Potential Annual Fuel Savings (Total Company)	Capacity Recoverable (kilowatt)	Heat Rate Improvement (Btu/net-kWh)
Harrington 1 HP-IP Turbine Audit	$535,665	4,545	133
Tolk 2 HP-IP Turbine Audit	$803,799	6,132	111

Q. Please describe the other performance test methods used in SPS's performance assurance program.

A. SPS also uses the following test methods in its performance assurance program:

- **The Unit Heat Rate Test.** SPS currently uses two different test methods to determine the net unit heat rates for its units. The two methods are the input-output method and the heat balance method. As indicated previously, heat rate is a measure of unit efficiency.

- **The Variable Throttle Pressure Operation Test.** This test determines the operational mode that results in the optimum heat rate throughout the load range. This testing helps define how boiler pressure can be reduced at lower loads to improve unit heat rate. Heat rate improves because: (i) there is less pressure drop across the turbine steam admission valves; (ii) and less power is required to pump the feedwater into the boiler drum.

- **The Unit Equipment Condition and Efficiency Test.** These tests measure energy in and energy out. The results are compared with previous test results and/or design efficiency. On major plant equipment within the steam cycle, efficiency tests are periodically conducted to determine if there has been any degradation in the performance of the components, such as a boiler feed pump, condensate pump compressor, cycle heat exchanger, or cooling tower. From the results of this test, the cost benefit for replacing or reconditioning equipment parts can be evaluated, which enables SPS to make informed decisions.

D. Training of Plant Operators and Maintenance Personnel

Q. Do SPS plant operators receive training in efficient operating practices?

A. Yes. Every operator in the plant receives training to operate the equipment reliably, efficiently, and safely. No operator is allowed to perform operating duties or is promoted to a higher level until successfully completing the required training and passing the appropriate tests. Each test consists of a written and demonstration portion.

Q. Briefly describe SPS's power plant training programs.

A. Power plant personnel are required to complete a two to four-year apprentice program depending on the individual's progress. Training includes classroom, computer-based, programmed text, video, and on the job training. Apprenticeships are available in the areas of Operations, Maintenance, Electrical, Instrument, Technician, and Chemist Technician programs. Following apprentice training, power plant personnel are continually provided training in their area of operations. On an on-going basis, SPS provides operator refresher and scenario training. Operator refresher training reviews all of the major systems and cycles every three to four years. Scenario training is conducted about once a month with a simulator to go through "what if" scenarios in the plant.

To assist in identifying and coordinating training, SPS has formed a Regional Training Activity Committee that includes at least one member from each power plant and each of the following disciplines: Safety, Environmental, Engineering, Management, and Human Resources. This committee meets quarterly to discuss the training needs for each SPS plant.

XIII. RESULTS OF SPS'S OPERATION AND MAINTENANCE PRACTICES

Q. What topics do you discuss in this section of your testimony?

A. I explain that SPS's O&M practices for its generation facilities are effective. I also discuss how SPP market operations affect SPS's generation facilities.

Q. What indications are there that SPS's O&M practices regarding generation facilities are effective?

A. Several comparisons indicate that SPS's practices have been highly effective. First, Attachments DAL-RR-4, DAL-RR-5, and DAL-RR-6 graphically display the EAF of SPS's coal-fueled plants, Tolk and Harrington Stations, and its larger gas-fueled units compared with the national average from the North American Electric Reliability Corporation/Generating Availability Data System ("NERC/GADS") for historical periods.[6] EAF is the ratio of the time a unit was available for full-load operation (or at full capacity) over the time a unit was planned to be available for such operation expressed as a percentage. Optimally, the EAF should be as close to 100% of a unit's capacity as possible. These tables reflect that SPS's coal and gas fueled units have historically averaged a higher availability than the national average for comparable sized units.

Second, Attachments DAL-RR-7, DAL-RR-8, and DAL-RR-9 display FORs of SPS's coal-fueled units and larger gas-fueled units compared to NERC/GADS data. The FOR indicates how much time SPS's units were off-line because of an unscheduled outage; the smaller the FOR, the better. SPS's coal and gas units generally have a much lower FOR than the national average.

[6] NERC/GADS data is not available for 2016.

Q. Please describe Tolk's historical EAF and FOR.

A. In 2015 and 2016, Tolk's EAF was better than the NERC average for units of similar size in 2015. Indications show that Tolk's EAF for 2016 is also better than the NERC average in previous years.

In comparison to NERC/GADS averages for 2015, Tolk achieved the following performance during 2015 and 2016:

Table DAL-RR-19
Tolk Operation Statistics Comparison*

	NERC 2015	Tolk 2015	Tolk 2016
EAF	79.99%	86.04%	90.05%
FOR	6.26%	2.11%	5.16%

*Comparison based on units of similar size.

Q. Please describe Harrington's historical EAF and FOR.

A. In comparison to NERC/GADS averages for 2015, Harrington achieved the following performance during 2015 and 2016:

Table DAL-RR-20
Harrington Operational Statistics Comparison*

	NERC 2015	Harrington 2015	Harrington 2016
EAF	80.03%	86.92%	86.80%
FOR	6.14%	2.77%	3.04%

*Comparison based on units of similar size.

Q. Please describe the historical EAF and FOR for SPS's gas fueled units.

A. SPS's gas-fueled units have had an EAF better than, or comparable to, the NERC/GADS averages. Attachment DAL-RR-6 shows that SPS's gas-fueled units have generally outperformed the NERC/GADS averages since 2006. SPS's larger gas-fueled units have performed better than the NERC/GADS FOR averages, even though some of the gas units have been used for peaking and

cycling service, which causes greater wear and tear on the unit than other operating regimes. Attachment DAL-RR-9 shows that SPS's gas-fueled units have generally had a much lower FOR than the NERC/GADS averages since 2006.

Q. Are EAF and FOR indicators of efficient maintenance and operation practices?

A. Yes. Both EAF and FOR are indicators of efficient maintenance and operation practices, because they relate to the percentage of time that the units were available and ready for dispatch to full load. This is especially important to SPS's customers since better unit availability helps ensure utilization of the lowest cost dispatchable energy.

Q. Are you aware of any other indicators of operating efficiency?

A. Yes. As I previously discussed, Attachment DAL-RR-2 compares the heat rates of SPS's coal plants to those of other regional utilities for 2015 and 2016. SPS's coal units' heat rates compare favorably to other regional utilities. Attachment DAL-RR-3 compares the heat rates of all of SPS's plants (gas and coal units) to those of other regional utilities for 2015 and 2016. For the reasons I explained earlier, SPS's production fleet is reliable and efficient considering the age and condition of the units.

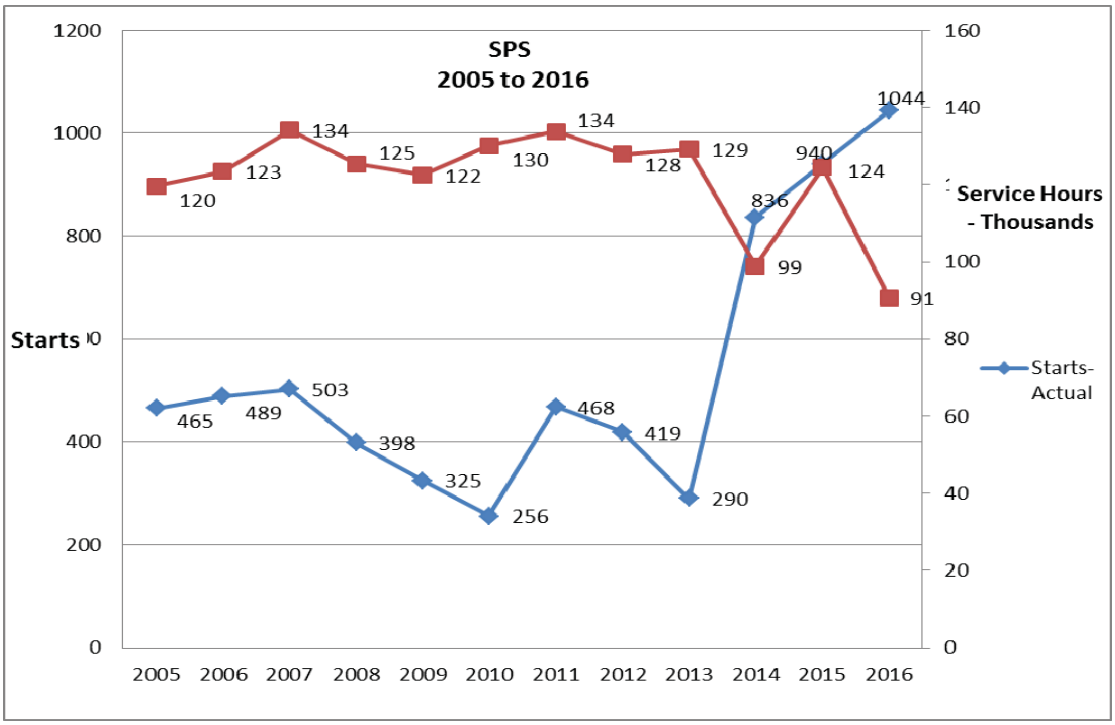
Q. Has the operation of SPS's units changed since the implementation of the SPP Integrated Marketplace in March 2014?

A. Yes. In March 2014, SPP implemented a new marketplace for the region, which moved the SPP to a two-settlement, locational marginal price energy market model. This new market structure has had the effect of increasing unit starts and

decreasing plant operating hours. Unit starts is the process of preparing the unit to come back on-line either from reserve shut down or outage. The process begins with placing the steam unit's equipment back into service and firing the boiler to establish the proper steam temperature and pressure. Once achieved, the turbine is rolled to predetermined speeds to warm the casing and rotor prior to synchronization speed (3600 rpm). Once this is established, the generator is synchronized to the electrical system.

Table DAL-RR-21 reflects the correlation between unit starts and operating hours from 2005 to 2016. The increase in wind generation on the system has also caused the unit loads to swing and increased the cyclic impact to the system. Table DAL-RR-21 shows the relationship between unit starts and the total service hours for the units.

Table DAL-RR-21
SPS Unit Starts and Operating Hours 2005 - 2016



Q. Have the increases in unit starts affected the unit equipment?

A. Yes. Since the increase in starts began, the units have experienced an increase in boiler, motor, and other equipment failures. The increase in failures has resulted in increased maintenance and repair cost. For example, Maddox Unit 1, Plant X Unit 3, and Plant X Unit 4 have experienced boiler casing tears and boiler tube leaks from cycle fatigue. Additionally, Nichols Units 2 and 3 and Cunningham Unit 2 have had motor failures.

Q. What affect will the cycling of the units have on SPS's O&M costs going forward?

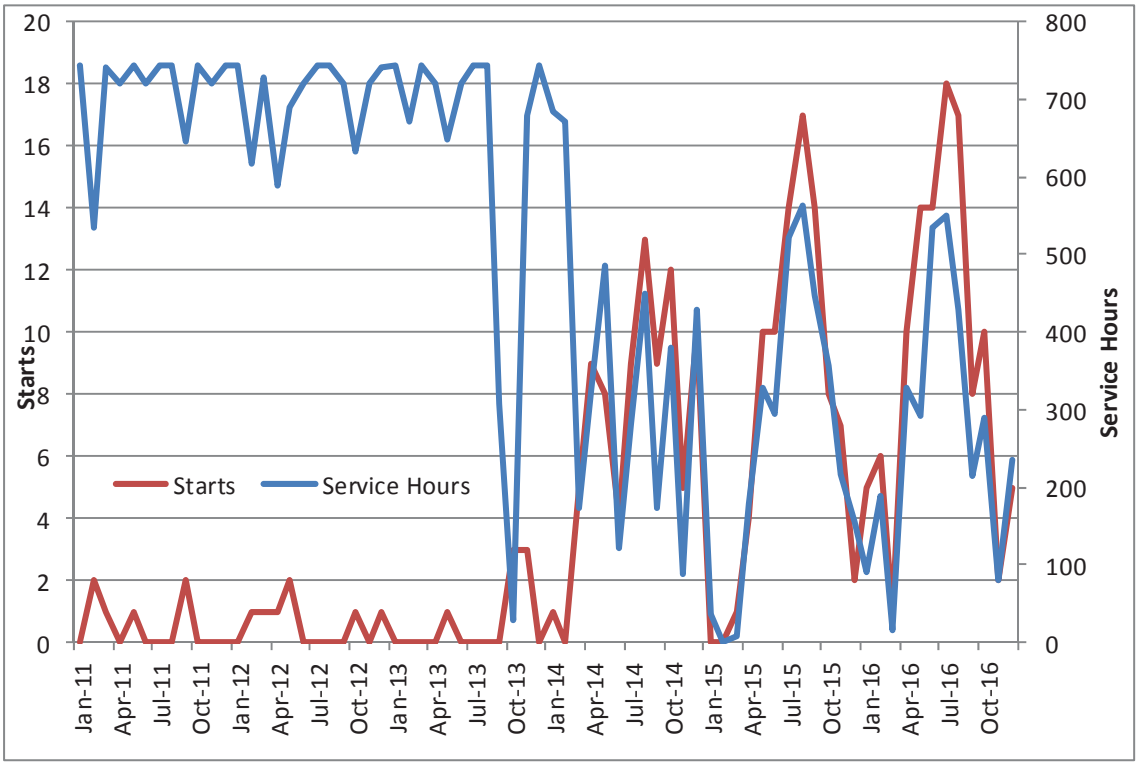
A. SPS will likely see an increase in O&M costs associated with the continued cycling of the units. In the past, the units were brought on line and stayed on line for long periods. The equipment stayed in a steady state of temperature and the load was raised and lowered as needed. Motors ran continually, and were not shut down and started again as frequently as they are in today's market. With increases in boiler tube failures, boiler casing failures allowed hot gases to leak out of the boiler, and motor failures increased. These failures can reduce the reliable operation of the units and increase repair costs.

Q. How has the SPP Integrated Marketplace affected the operation of some of SPS's older gas units?

A. Table DAL-RR-22 (on the next page) is an example of the increase in starts to the Nichols Unit 3 and Table DAL-RR-23 (two pages down) is an example to Plant X Unit 4 unit operation. Both are examples of the changes in dispatching these

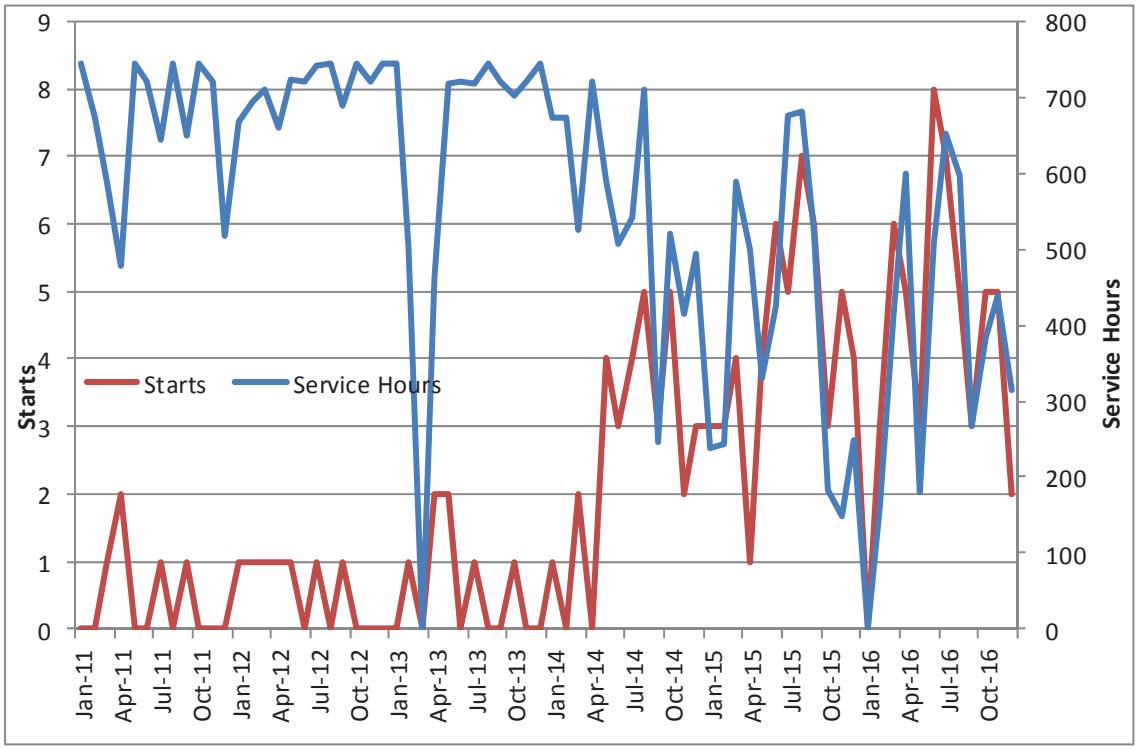
units. Nichols Unit 3 has had increased motor failures and Plant X Unit 4 has had boiler casing and boiler tube failures.[7]

Table DAL-RR-22
Nichols Unit 3 Starts and Service Hours 2011 - 2016



[7] These graphs also show overhauls at Plant X Unit 4 for 6 weeks in 2013 and Nichols Unit 3 in 2013 for 5 weeks.

Table DAL-RR-23
Plant X Unit 4 Starts and Service Hours 2011 - 2016



XIV. OUTAGES

Q. Has SPS provided a summary of all generating unit outages during the Test Year?

A. Yes. In Schedule H-6.2a, SPS lists and summarizes all forced outages during the Test Year. Schedule H-6.2b lists and summarizes all planned outages during the same period.

Q. What does SPS do to bring a unit back on-line after an unplanned outage?

A. As I discussed earlier, SPS has a thorough inspection program, as well as scheduled and predictive maintenance programs for its units. SPS takes all reasonable steps to avoid unplanned outages, but occasionally events occur that are unavoidable. When these events occur, however, SPS has processes and procedures in place to react quickly to the outage and get units back on-line in an efficient and safe manner. Once a unit experiences an outage, plant engineers and technical staff quickly evaluate the unit to determine what caused the outage. SPS then immediately takes steps to make any necessary repairs, considering any safety issues that may be implicated. In evaluating the problem, engineers and technical staff assess whether it is reasonable and prudent to have additional repairs or upgrades performed while the unit must remain down for repair of the initial problem.

Q. Were there significant operational events during the Updated Test Year that affected the availability of SPS's generating units?

A. Yes. There were five events that caused a forced outage and large loss in equivalent MWh during the Updated Test Year. Table DAL-RR-24 below is a

summary of the largest forced outages by equivalent MWh over the Updated Test Year.

Table DAL-RR-24
Largest Forced Outages by MWh

Date	Unit	Net Dep. Cap. (MW)	Type	Fuel Source	Description	Equivalent MWh
9/22/2016	Tolk 1	532	Steam	Coal	Rupture in ACW piping at the circulating water pit	228,343
11/22/2016	Jones 1	243	Steam	Gas	Rupture in Main Steam line	66,027
6/16/2017	Maddox 2	63	Combustion Turbine	Gas	DC Lube Oil Pump Repairs	64,467
10/10/2016	Tolk 1	532	Steam	Coal	Condenser tube leak	47,827
8/9/2016	Tolk 2	535	Steam	Coal	Generator tripped due to severe rain/lightning	42,684

The most common events that have otherwise affected availability of SPS's units were outages caused by boiler tube leaks.

When reasonably feasible, SPS undertakes minor upgrades and repairs to non-affected equipment during unplanned outages in order to best utilize the downtime. Typically, these minor upgrades and repairs are those that would otherwise be performed during a scheduled outage. Any work performed that is unrelated to the unplanned outage work is made with an emphasis on returning the unit to service as quickly as possible.

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

A. Yes.

AFFIDAVIT

STATE OF TEXAS)
)
COUNTY OF POTTER)

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

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

DAVID A. LOW

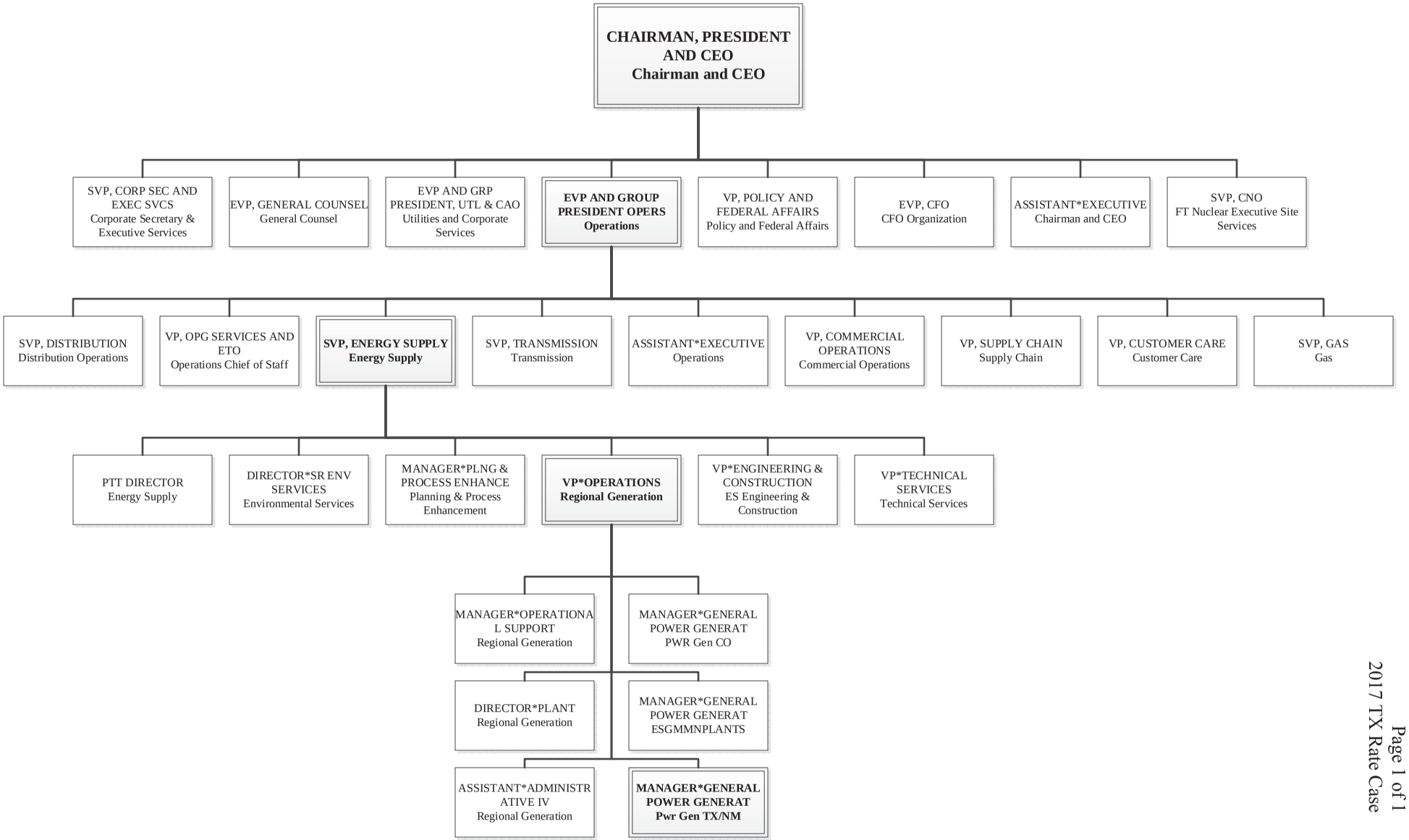
Subscribed and sworn to before me this 8th day of August, 2017 by DAVID A. LOW.

CARRIE OLIVER
Notary Public, State of Texas
Comm. Expires 06-08-2020
Notary ID 13069198-2

Notary Public, State of Texas

My Commission Expires: 6-8-2020

Southwestern Public Service Company
Organization Chart – Energy Supply
As of March 31, 2017



Southwestern Public Service Company

2015 & 2016 Heat Rates for Utilities Serving Texas - Coal Only

Coal					
Rank	**Ultimate Parent**	**2015 HR**	**Rank**	**Ultimate Parent**	**2016 HR**
1	Dynegy Inc.	10,130	1	Dynegy Inc.	10,080
2	NRG Energy, Inc.	10,452	2	American Electric Power Company, Inc.	10,292
3	**Xcel Energy Inc.**	**10,452**	3	NRG Energy, Inc.	10,549
4	CPS Energy	10,596	4	**Xcel Energy Inc.**	**10,566**
5	Texas Municipal Power Agency	10,637	5	CPS Energy	10,642
6	Multi-Owned	10,743	6	Multi-Owned	10,719
7	American Electric Power Company, Inc.	11,149	7	Texas Municipal Power Agency	10,749
8	Vistra Energy Corp.	11,369	8	Vistra Energy Corp.	11,041
9	San Miguel Electric Cooperative, Inc.	12,692	9	San Miguel Electric Cooperative, Inc.	12,804
10	Valero Energy Corporation	18,118	10	Valero Energy Corporation	14,754

Notes: Heat Rate values reported by Ultimate Parent
Data Set includes the latest data from SNL (8/4/2017)

Southwestern Public Service Company

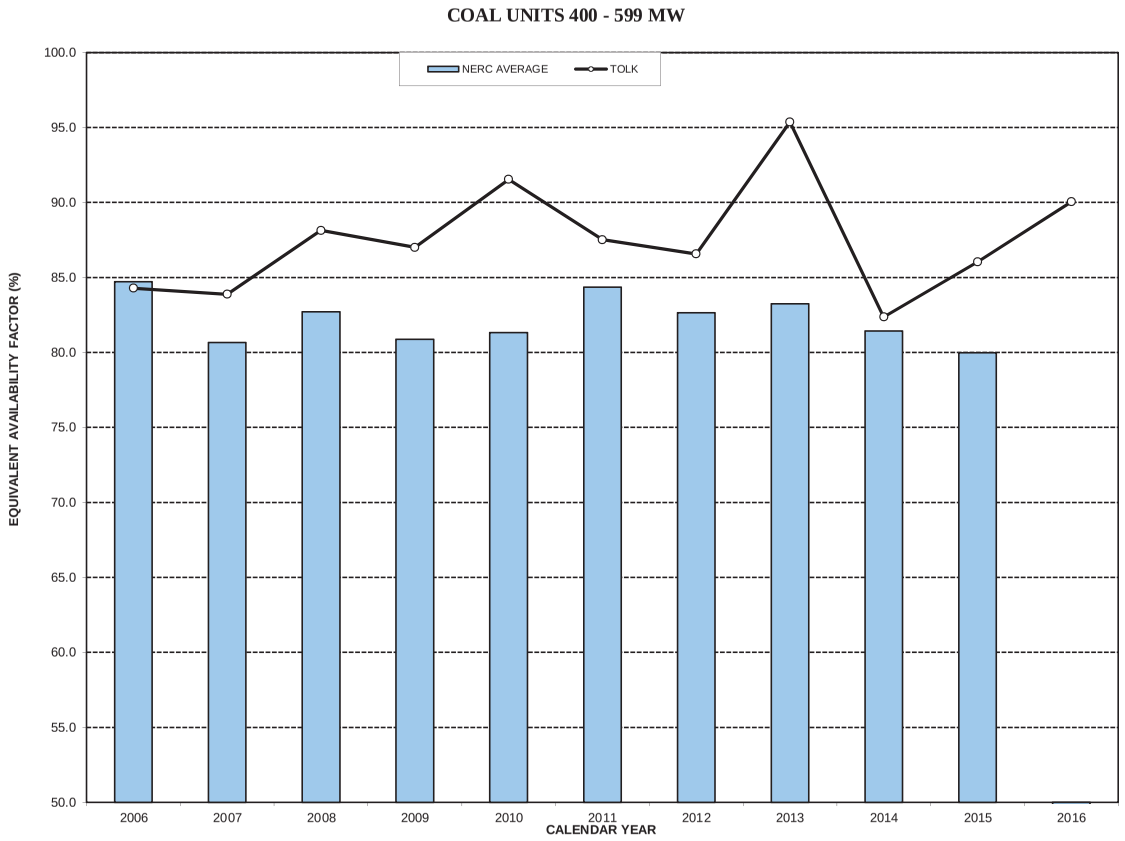
2015 & 2016 Heat Rates for Utilities Serving Texas - All

All					
Rank	**Ultimate Parent**	**2015 HR**	**Rank**	**Ultimate Parent**	**2016 HR**
1	Entergy Corporation	10,534	1	Dynegy Inc.	10,080
2	Texas Municipal Power Agency	10,637	2	Entergy Corporation	10,528
3	**Xcel Energy Inc.**	**10,937**	3	Texas Municipal Power Agency	10,749
4	Dynegy Inc.	11,493	4	Lower Colorado River Authority	10,791
5	Multi-Owned	11,500	5	**Xcel Energy Inc.**	**11,015**
6	Golden Spread Electric Cooperative, Inc.	11,533	6	Multi-Owned	11,081
7	Austin Energy	11,868	7	Austin Energy	11,314
8	Lower Colorado River Authority	11,952	8	Riverstone Holdings LLC	11,367
9	American Electric Power Company, Inc.	12,043	9	CPS Energy	11,485
10	CPS Energy	12,114	10	Golden Spread Electric Cooperative, Inc.	11,526
11	Vistra Energy Corp.	12,225	11	Invenergy LLC	11,602
12	Koch Refining Co	12,466	12	American Electric Power Company, Inc.	12,377
13	Riverstone Holdings LLC	12,582	13	Exelon Corporation	12,477
14	San Miguel Electric Cooperative, Inc.	12,692	14	Vistra Energy Corp.	12,565
15	Lubbock City of	12,709	15	San Miguel Electric Cooperative, Inc.	12,804
16	Bryan City Of	12,715	16	El Paso Electric Company	12,856
17	Celanese Engineering Resin, Inc.	12,742	17	Exxon Mobil Corporation	12,955
18	El Paso Electric Company	12,753	18	Phillips 66	13,329
19	East Texas Electric Co-op, Inc.	12,755	19	Brazos Electric Power Cooperative Inc.	13,433
20	Brazos Electric Power Cooperative Inc.	12,928	20	Formosa Plastics Corporation, USA	13,456

Notes: Heat Rate values reported by Ultimate Parent
Data Set includes the latest data from SNL (8/4/2017)

Southwestern Public Service Company

Tolk Station Annual Equivalent Availability Factors
Through Calendar Year 2016



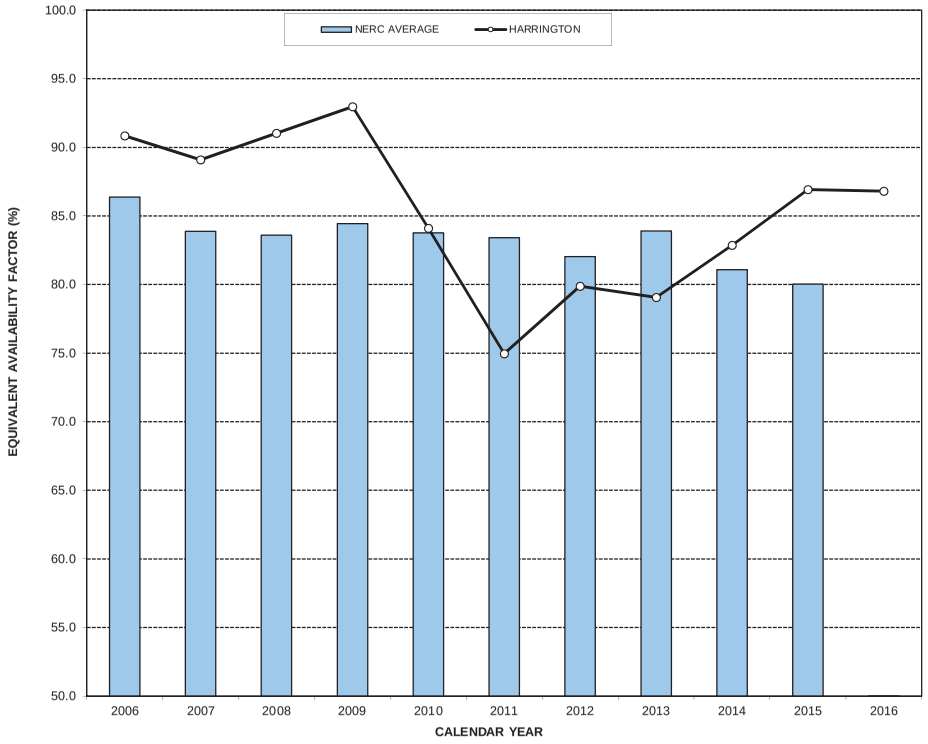
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
TOLK	84.29	83.88	88.14	87.01	91.54	87.52	86.57	95.37	82.37	86.04	90.05
NERC AVERAGE	84.72	80.66	82.72	80.88	81.33	84.35	82.64	83.25	81.43	79.99	N/A

NERC Average data taken from 2007- 2011 GADS Generating Availability Report and the 2013, 2014 and 2015 Generating Unit Statistical Brochure - All Units Reporting
http://www.nerc.com
Unit data taken from Meridian

Southwestern Public Service Company

Harrington Station Annual Equivalent Availability Factors
Through Calendar Year 2016

COAL UNITS 300 - 399 MW

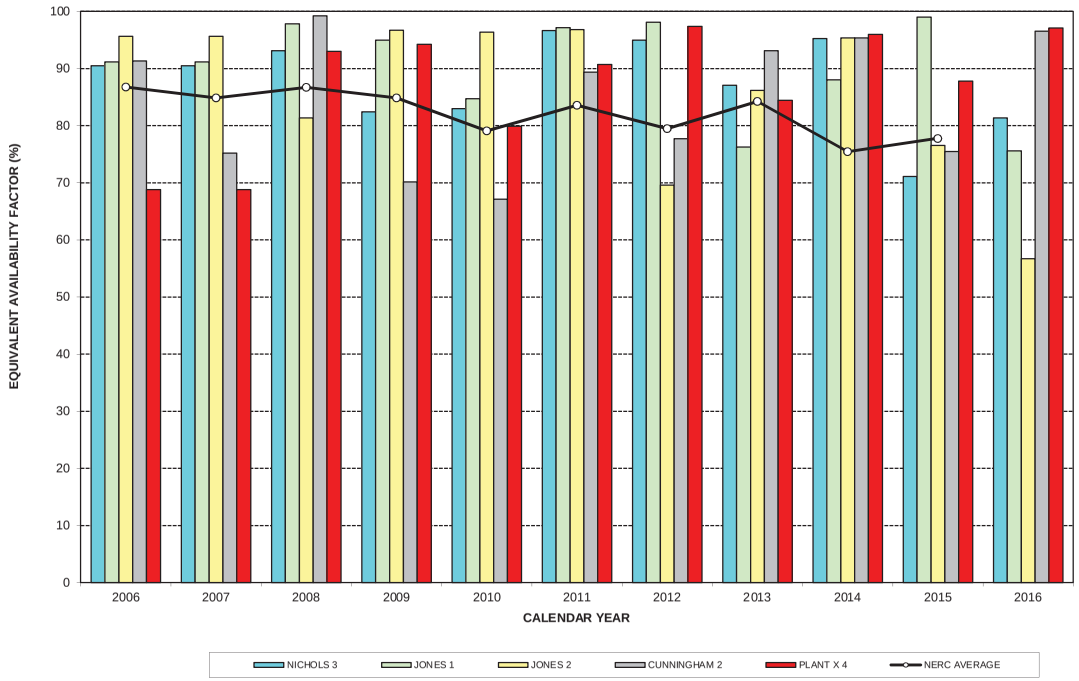


	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
HARRINGTON	90.8	89.1	91	93	84.1	75	79.9	79.1	82.87	86.92	86.80
NERC AVERAGE	86.4	83.9	83.6	84.4	83.8	83.4	82	83.9	81.09	80.03	N/A

NERC Average data taken from 2007- 2011 GADS Generating Availability Report and the 2013, 2014 and 2015 Generating Unit
http://www.nerc.com
Unit data taken from Meridian

Southwestern Public Service Company

Gas Units (200-299 MW) Annual Equivalent Availability Factors
Through Calendar Year 2016

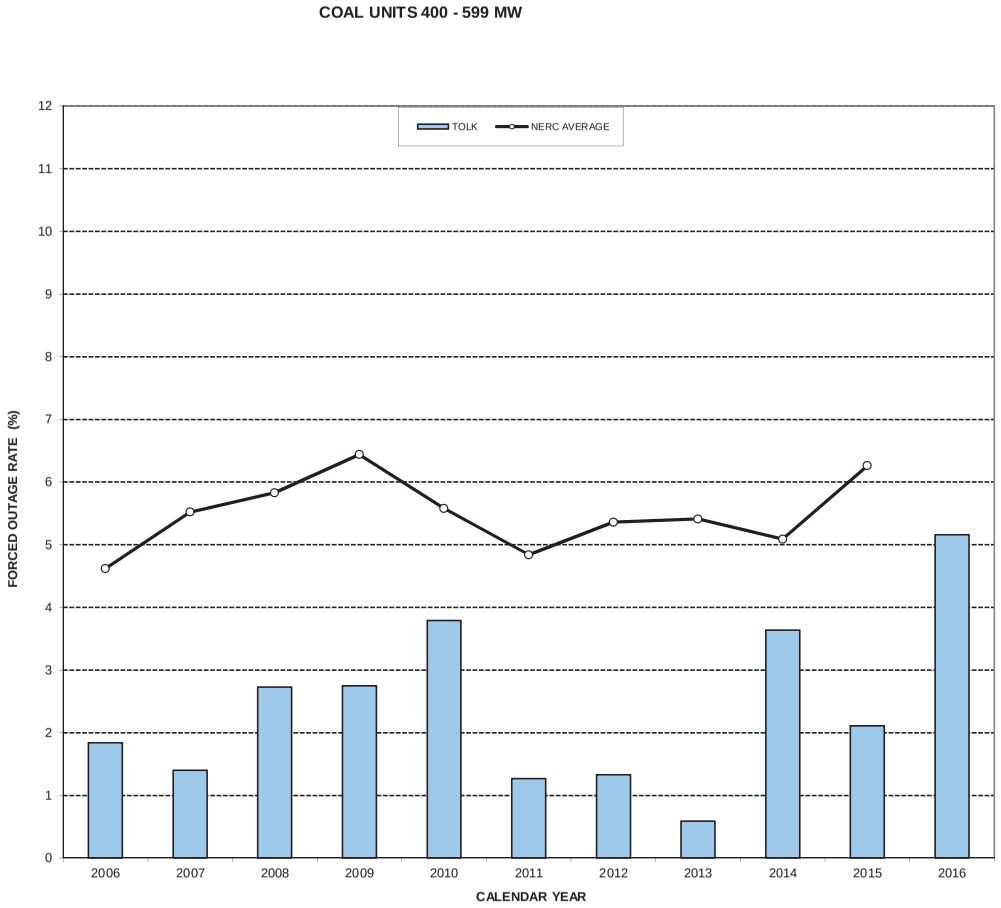


	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
NICHOLS 3	90.51	90.51	93.15	82.45	82.99	96.68	95.01	87.1	95.24	71.11	81.35
JONES 1	91.19	91.19	97.83	94.98	84.74	97.17	98.1	76.29	88.04	99.03	75.58
JONES 2	95.64	95.64	81.37	96.7	96.36	96.85	69.6	86.17	95.40	76.58	56.74
CUNNINGHAM 2	91.33	75.22	99.22	70.16	67.14	89.4	77.71	93.14	95.36	75.48	96.56
PLANT X 4	68.84	68.84	93.05	94.25	79.9	90.7	97.38	84.43	96.00	87.82	97.11
NERC AVERAGE	86.78	84.86	86.74	84.9	79.13	83.6	79.48	84.25	75.47	77.79	

NERC Average data taken from 2007- 2011 GADS Generating Availability Report and the 2013, 2014 and 2015 Generating Unit Statistical Brochure - All Units Reporting (NERC Data - Gas Primary 200-299 MW range)
http://www.nerc.com
Unit data taken from Meridian

Southwestern Public Service Company

Tolk Station Annual Forced Outage Rates (FOR)
Through Calendar Year 2016



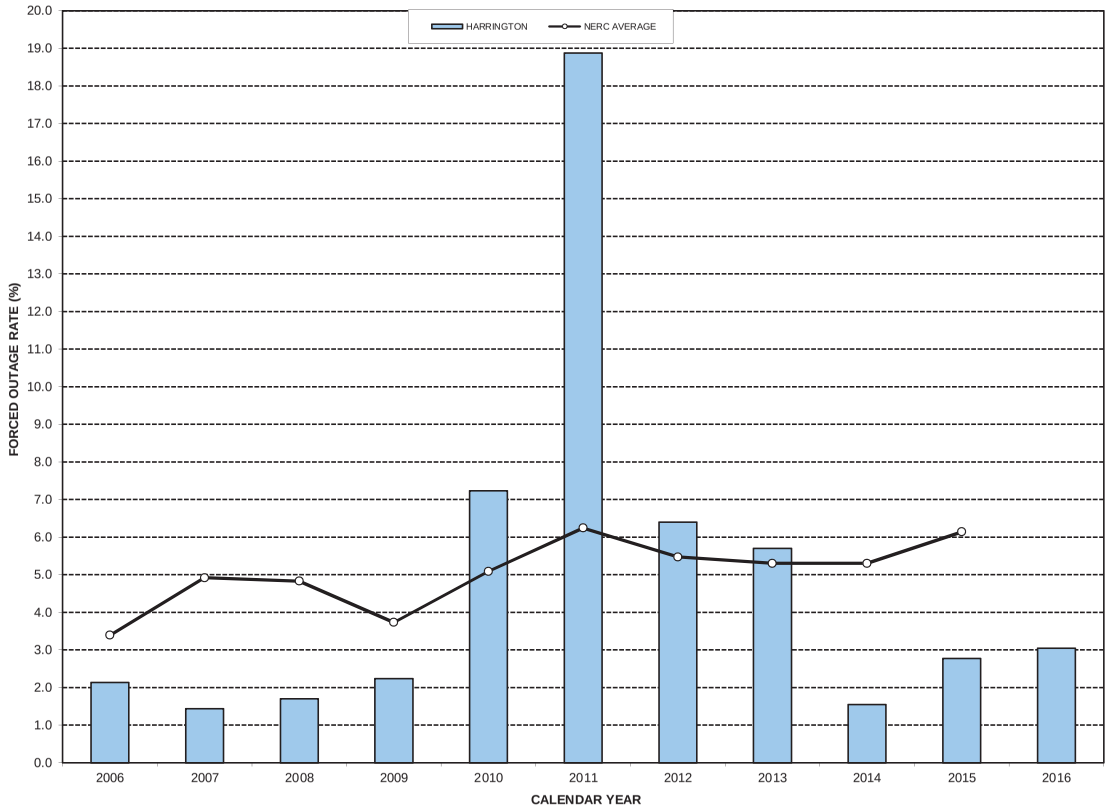
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
TOLK	1.84	1.40	2.73	2.75	3.79	1.27	1.33	0.59	3.64	2.11	5.16
NERC AVERAGE	4.62	5.52	5.83	6.44	5.58	4.84	5.36	5.41	5.09	6.26	

NERC Average data taken from 2007- 2011 GADS Generating Availability Report and the 2013, 2014 and 2015 Generating Unit Statistical Brochure - All Units Reporting
http://www.nerc.com
Unit data taken from Meridian

Southwestern Public Service Company

Harrington Station Annual Forced Outage Rates (FOR)
Through Calendar Year 2016

COAL UNITS 300 - 399 MW

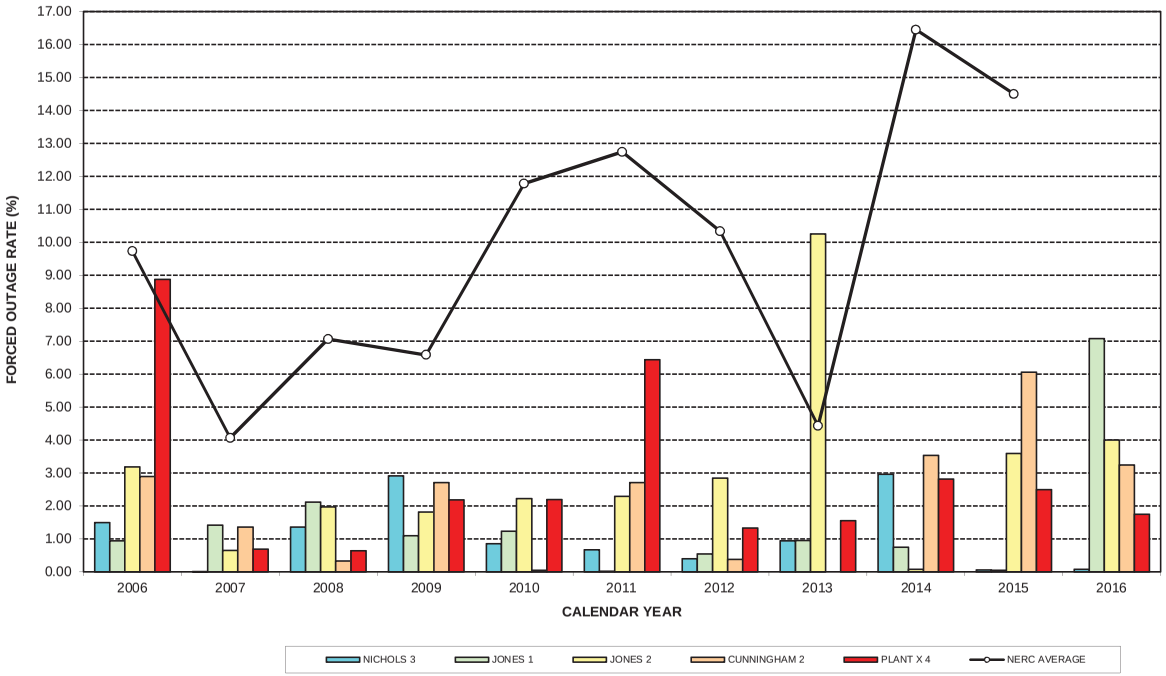


	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
HARRINGTON	2.13	1.44	1.70	2.24	7.23	18.87	6.40	5.70	1.55	2.77	3.04
NERC AVERAGE	3.39	4.92	4.83	3.73	5.09	6.24	5.47	5.30	5.30	6.14	

Data taken from 2007- 2011 GADS Generating Availability Report and the 2013, 2014 and 2015 Generating Unit Statistical Brochure - All Units Reporting
http://www.nerc.com
Unit data taken from Meridian.

Southwestern Public Service Company

Gas Units (200-299 MW) Forced Outage Rates (FOR)
Through Calendar Year 2016



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
NICHOLS 3	1.49	0.01	1.36	2.91	0.85	0.67	0.39	0.94	2.96	0.05	0.07
JONES 1	0.94	1.41	2.11	1.09	1.23	0.02	0.54	0.95	0.74	0.04	7.08
JONES 2	3.18	0.65	1.97	1.81	2.22	2.29	2.84	10.25	0.07	3.59	4.00
CUNNINGHAM 2	2.89	1.36	0.33	2.71	0.04	2.71	0.37	0.00	3.53	6.06	3.24
PLANT X 4	8.87	0.69	0.64	2.18	2.19	6.43	1.33	1.55	2.81	2.49	1.74
NERC AVERAGE	9.73	4.06	7.06	6.58	11.78	12.74	10.33	4.43	16.45	14.50	

NERC Average data taken from 2007- 2011 GADS Generating Availability Report and the 2013, 2014 and 2015 Generating Unit Statistical Brochure - All Units Reporting (NERC Data - Gas Primary 200-299 MW range)
http://www.nerc.com
Unit data taken from Meridian

Southwestern Public Service Company

SPS Native Operation and Maintenance Expenses

Total Company SPS Operation and Maintenance Expenses

Line No.	FERC Acct	Account Description	Native SPS O&M Expense through the Updated Test Year (Jul '16-Jun '17)	Updated Test Year Affiliate O&M Expense (Jul '16-Jun '17)	Total Company Requested O&M
	Production				
1	**500**	**Operation Supervision and Engineering**	**$ 1,738,725**	**$ 349,802**	**$ 2,088,527**
2	501.35*	Coal Non-Mine; Non-Freight	42,397,713	-	42,397,713
3	**501.70**	**Coal Ash Sales**	**(2,927,058)**	**662,239**	**(2,264,819)**
4	501.80	Fuel Procurement-Labor	-	-	-
5	**502**	**Steam Expenses**	**10,376,239**	**45,937**	**10,422,176**
6	**505**	**Electric Expenses**	**10,369,906**	**6,308**	**10,376,214**
7	**506**	**Miscellaneous Steam Power Expenses**	**5,609,951**	**7,565,004**	**13,174,955**
8	**507**	**Rents**	**1,958,848**	**3,134,717**	**5,093,565**
9	**509**	**Steam Operation SO2 Allowance Expense**	**4,062**	**-**	**4,062**
10	**510**	**Maintenance Supervision and Engineering**	**1,155,689**	**496,778**	**1,652,468**
11	**511**	**Maintenance of Structures**	**5,344,136**	**39,985**	**5,384,121**
12	**512**	**Maintenance of Boiler Plant**	**17,599,649**	**223,731**	**17,823,379**
13	**513**	**Maintenance of Electric Plant**	**10,384,021**	**497,182**	**10,881,203**
14	**514**	**Maintenance of Miscellaneous Steam Plant**	**8,815,068**	**4,326,369**	**13,141,437**
15	**546**	**Operation Supervision and Engineering**	**39,297**	**12,132**	**51,429**
16	**548**	**Generation Expenses**	**380,939**	**-**	**380,939**
17	**549**	**Misc Other Power Generation Expenses**	**107,052**	**142,079**	**249,132**
18	**550**	**Rents**	**15,270**	**231,235**	**246,506**
19	**551**	**Maintenance Supervision and Engineering**	**1,349**	**460**	**1,809**
20	**552**	**Maintenance of Structures**	**124,701**	**19,860**	**144,561**
21	**553**	**Maintenance of Generating and Electric Equipment**	**2,441,347**	**82,116**	**2,523,462**
22	**554**	**Maintenance of Misc Other Power Generation Plant**	**49,268**	**-**	**49,268**
23	556	System Control and Load Dispatching	33,732	1,145,702	1,179,435
24	**557**	**Purchased Power Other**	**410,695**	**611,007**	**1,021,701**
25	557.9*	REC Costs	2,681,904	-	2,681,904
26	**Total Production O&M Expense**		**$ 119,112,503**	**$ 19,592,644**	**$ 138,705,148**

Southwestern Public Service Company

SPS Native Operation and Maintenance Expenses

Total Company SPS Operation and Maintenance Expenses

Line No.	FERC Acct	Account Description	Native SPS O&M Expense through the Updated Test Year (Jul '16-Jun '17)	Updated Test Year Affiliate O&M Expense (Jul '16-Jun '17)	Total Company Requested O&M
	Transmission				
27	560	Operation Supervision and Engineering	$ (3,314,144)	$ 10,705,438	$ 7,391,294
28	561.1	Load Dispatch - Reliability	81,737	-	81,737
29	561.2	Load Dispatch - Monitor and Operate Trans. System	2,464,187	1,661,765	4,125,952
30	561.4	Scheduling, System Control and Dispatching Services	2,870,522	-	2,870,522
31	561.5	Reliability, Planning and Standards Development	26,809	85	26,893
32	561.6	Transmission Service Studies	298,144	54,855	352,999
33	561.7	Generation Interconnection Studies	(76,211)	11,838	(64,372)
34	561.8	Reliability Planning and Standards Development Services	2,449,230	-	2,449,230
35	562	Station Expenses	408,559	134,901	543,460
36	563	Overhead Line Expenses	240,851	38,251	279,102
37	565	Wheeling Lamar DC Tie	-	-	-
38	565	Wheeling Meter Charges	140,973	-	140,973
39	565	Wheeling Miscellaneous	4,434	-	4,434
40	565	Wheeling Schedule 11	95,306,590	-	95,306,590
41	565	Wheeling Schedule 11 - Wholesale	25,896,264	-	25,896,264
42	565	Wheeling Schedule 12	1,448,814	-	1,448,814
43	565	Wheeling Schedule 12 - Wholesale	357,358	-	357,358
44	565	Wheeling Schedule 1 - Wholesale	564,627	-	564,627
45	565	Wheeling Schedule 2	76,940	-	76,940
46	565	W-Wheeling Schedule 2 - Wholesale	22,253	-	22,253
47	565	Wheeling Schedule 7&8	8,168	-	8,168
48	565	Wheeling Schedule 9	237,748	-	237,748
49	565	Wheeling Schedule 9 - Wholesale	23,971,650	-	23,971,650
50	565	Z2 Direct Assigned Upgrade Charge	33,381	-	33,381
51	565	Z2 Direct Assigned Upgrade Charge - Wholesale	4,024	-	4,024
52	565	Z2 Schedule 11 Charges	1,347,343	-	1,347,343
53	565	Z2 Schedule 11 Charges - Wholesale	2,289,514	-	2,289,514
54	566	Misc Transmission Expenses	605,844	1,144,147	1,749,991
55	567	Rents	700,648	1,058,670	1,759,318
56	568	Maintenance Supervision and Engineering	(38,353)	178,179	139,826
57	570	Maintenance of Station Equipment	4,340,893	7,622	4,348,515
58	571	Maintenance of Overhead Lines	1,236,185	46,415	1,282,600
59	573	Maintenance of Misc Transmission Plant	-	-	-
60	**Sub-Total Transmission O&M Expenses**		**$ 164,004,983**	**$ 15,042,166**	**$ 179,047,149**
	Regional Market Expenses				
61	575.1	Operation Supervision	$ 2,128	$ 169,181	$ 171,308
62	575.2	Day-Ahead and Real-Time Market Administration	5,583	158,430	164,013
63	575.5	Ancillary Services Market Administration	15,421	6,749	22,170
64	575.6	Market Monitoring and Compliance	-	16,211	16,211
65	575.7	Market Admin, Monitoring, and Compliance Services	5,271,282	-	5,271,282
66	575.8	Regional Market Rents	-	-	-
67	**Total Regional Market Expenses**		**$ 5,294,413**	**$ 350,570**	**$ 5,644,983**
68	**Total Transmission O&M Expenses**		**$ 169,299,396**	**$ 15,392,735**	**$ 184,692,132**

Southwestern Public Service Company

SPS Native Operation and Maintenance Expenses

Total Company SPS Operation and Maintenance Expenses

Line No.	FERC Acct	Account Description	Native SPS O&M Expense through the Updated Test Year (Jul '16-Jun '17)	Updated Test Year Affiliate O&M Expense (Jul '16-Jun '17)	Total Company Requested O&M
	Distribution				
69	580	Operation Supervision and Engineering	$ 935,647	$ 2,702,611	$ 3,638,257
70	581	Load Dispatching	183,774	282,954	466,728
71	582	Station Expenses	183,925	131,978	315,903
72	583	Overhead Line Expenses	621,629	97,506	719,136
73	584	Underground Line Expenses	431,221	-	431,221
74	585	Street Lighting and Signal Systems Expenses	864,756	-	864,756
75	586	Meter Expenses	2,672,225	260,525	2,932,751
76	587	Customer Installations Expenses	1,144,833	5,645	1,150,478
77	588	Misc Distribution Expense	7,521,857	737,492	8,259,349
78	589	Rents	872,865	985,757	1,858,622
79	590	Maintenance Supervision and Engineering	68,754	13,452	82,206
80	591	Maintenance of Structures	27,266	-	27,266
81	592	Maintenance of Station Equipment	2,051,972	5,393	2,057,365
82	593	Maintenance of Overhead Lines	12,693,776	155,073	12,848,849
83	594	Maintenance of Underground Lines	165,718	-	165,718
84	595	Maintenance of Line Transformers	124,968	-	124,968
85	596	Maintenance of Street Lighting and Signal Systems	214,832	-	214,832
86	597	Maintenance of Meters	14,958	-	14,958
87	598	Maintenance of Misc Distribution Plant	1,955	-	1,955
88	**Total Distribution O&M Expenses**		**$ 30,796,931**	**$ 5,378,386**	**$ 36,175,317**
	Customer Accounts				
89	901	Supervision	$ 770	$ 31,569	$ 32,339
90	902	Meter Reading Expenses	4,221,253	338,795	4,560,048
91	903	Customer Records and Collection Expenses	4,691,739	4,273,965	8,965,705
92	904*	Uncollectible Expenses	5,043,713	-	5,043,713
93	904*	Uncollectible Expenses	195,130	-	195,130
94	DEPINT	Customer Deposit Interest Expense	55,903	-	55,903
95	**Total Customer Accounts Expense**		**$ 14,208,509**	**$ 4,644,329**	**$ 18,852,838**
	Customer Service				
96	908	Customer Asst Expense	$ 2,927,140	$ 365,211	$ 3,292,351
97	908.00	Historical EE Amortization	1,676,890	-	1,676,890
98	908.01	EE Amortization - Texas	-	-	-
99	908.03	EE Amortization - New Mexico	-	-	-
100	908.04	SaversSwitch	738,330	-	738,330
101	909	Informational and Instructional Advertising Expense	(185,157)	185,157	-
102	**Total Customer Service Expense**		**$ 5,157,203**	**$ 550,369**	**$ 5,707,571**
	Sales				
103	912.00	Demonstration and Selling Expense-Economic Development	$ 127,289	$ 1,019	$ 128,309
104	**Total Sales Expense**		**$ 127,289**	**$ 1,019**	**$ 128,309**

Southwestern Public Service Company

SPS Native Operation and Maintenance Expenses

Total Company SPS Operation and Maintenance Expenses

Line No.	FERC Acct	Account Description	Native SPS O&M Expense through the Updated Test Year (Jul '16-Jun '17)	Updated Test Year Affiliate O&M Expense (Jul '16-Jun '17)	Total Company Requested O&M
	Administrative and General Expenses				
105	920*	Administrative and General Salaries	$ 2,934,239	$ 19,926,657	$ 22,860,896
106	921	Office Supplies and Expenses	2,690,980	14,483,675	17,174,655
107	922*	Administrative Expenses Transferred-Credit	(11,101,608)	(76,161)	(11,177,769)
108	923	Outside Services Employed	1,428,691	7,475,561	8,904,252
109	924	Property Insurance	3,418,525	2,554	3,421,079
110	925*	Injuries and Damages	1,219,425	3,271,200	4,490,625
111	926.01*	Employee Pensions and Benefits	20,515,763	11,886,376	32,402,138
112	926.03*	Deferred Pension Expense	(1,166,775)	-	(1,166,775)
113	928	Regulatory Commission Expense - TX	5,259,872	-	5,259,872
114	928.01	Regulatory Commission Expense - NM	2,897,136	-	2,897,136
115	928.02	Regulatory Commission Expense - Wholesale	(1,645)	-	(1,645)
116	928.04	Regulatory Commission Expense - Misc	176,642	4,012	180,654
117	929	Duplicate Charges-Credit	(1,079,956)	-	(1,079,956)
118	930.11	General Advertising Expenses	-	-	-
119	930.20	Misc General Expenses	120,591	200,298	320,889
120	931	Rents	436,682	9,776,482	10,213,164
121	935	Maintenance of General Plant	16,778	373,054	389,832
122		Recoverable Contributions, Dues, and Donations	2,570,844	-	2,570,844
123	**Total Administrative and General Expenses**		**$ 30,336,183**	**$ 67,323,709**	**$ 97,659,891**
124	**Total Operations and Maintenance Expense**		**$ 369,038,014**	**$ 112,883,191**	**$ 481,921,206**

Note: All amounts included in this attachment are included in the cost of service study provided as Attachment APF-RR1

The noted attachments contain the calculation procedure and example calculations used to arrive at the values provided in Table DAL-RR-17.

Unit	Average Net Heat Rate (Btu/kWh)	Adjusted Design Net Heat Rate (Btu/kWh)	Percent Difference
Harrington 1	10,777	10,427	3.35%
Harrington 2	10,926	10,276	6.32%
Harrington 3	10,606	10,200	3.99%
Tolk 1	10,565	10,008	5.56%
Tolk 2	10,175	9,946	2.31%

Attachment 1 …… Average Net Heat Rate
Attachment 2 …… Adjusted Design Net Heat Rate

Calculations for Average Net Heat Rate

$$AverageNetHeatrate = \frac{FuelConsumption}{NetUnitOutput} \times 1000$$

Fuel Consumption (in MMBTU) and the Net Unit Output are taken from Schedule H-12.3a (Unit Data).

Harrington 1

$$\frac{15{,}437{,}812 MMBTU}{1{,}432{,}490\, MWh} \cdot 1000 = 10{,}777 \frac{BTU}{kWh}$$

Harrington 2

$$\frac{20{,}757{,}650 MMBTU}{1{,}899{,}926 MWh} \cdot 1000 = 10{,}926 \frac{BTU}{kWh}$$

Harrington 3

$$\frac{17{,}890{,}945 MMBTU}{1{,}686{,}795 MWh} \cdot 1000 = 10{,}606 \frac{BTU}{kWh}$$

Tolk 1

$$\frac{28{,}275{,}507 MMBTU}{2{,}676{,}435 MWh} \cdot 1000 = 10{,}565 \frac{BTU}{kWh}$$

Tolk 2

$$\frac{27{,}589{,}790 MMBTU}{2{,}711{,}511 MWh} \cdot 1000 = 10{,}175 \frac{BTU}{kWh}$$

Calculations for Adjusted Design Net Heat Rate – General

1.) Determine Average Load for Period

$$AverageLoadForPeriod = GrossMaximumCapacity \times GrossCapacityFactor$$

Where Gross Maximum Capacity is the official Gross Maximum Capacity, and Gross Capacity Factor is calculated as shown under Calculations for Gross Capacity Factor.

2.) Determine Design Net Heat Rate

Design Net Heat Rate at Average Load for Period is determined using Figure 1: *Harrington and Tolk Design Heat rates* (page 7).

3.) Determine Average Net Heat Rate

$$AverageNetHeatRate = DesignNetHeatRate \times \frac{DesignBoilerEfficiency}{TestBoilerEfficiency} \times DegradationFactor$$

The Degradation Factor is estimated from information in the American Society of Mechanical Engineers Performance Test Code Number 6 for Steam Turbines and is assumed to be 2%.

Summary of XES Expenses to SPS by Affiliate Class and Billing Method
For Twelve Months ended June 30, 2017
David Low

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Line No.	**Affiliate Class**	**Billing Method (Cost Center)**	**Allocation Method**	**XES Billings for Class to SPS (Total Company) (FERC Acct. 400-935)**	**Exclusions**	**Per Book**	**Pro Formas**	**Requested Amount (Total Company)**	**% of Class Charges**
1	ES Engineering & Construction	200063 - Executive - Corporate Governance	Assets/Revenue/No. of Employees	$ 446.41	$ -	$ 446.41	$ (65.48)	$ 380.93	0.02%
2		200074 - Corporate Systems	Assets/Revenue/No. of Employees	638.82	-	638.82	(93.71)	545.11	0.03%
3		200135 - Energy Supply Business Resources	MWH Generation	83,957.28	-	83,957.28	(8,296.46)	75,660.82	4.21%
4		200139 - ES Engineering & Construction OPCo's	MWH Generation	10,838.59	-	10,838.59	(1,009.76)	9,828.83	0.55%
5		200142 - ES Engineering & Construction South	MWH Generation	62.89	-	62.89	24.37	87.26	0.00%
6		200145 - ES Engineering & Construction North	MWH Generation	-	-	-	-	-	0.00%
7		200181 - ES Environmental Policy & Services OPCo's	Electric PTD Gas TD Plant	876.79	-	876.79	(88.92)	787.87	0.04%
8		Direct	Direct	1,956,225.53	-	1,956,225.53	(245,133.10)	1,711,092.43	95.15%
10	**ES Engineering & Construction Total**			**$ 2,053,046.31**	**$ -**	**$ 2,053,046.31**	**$ (254,663.06)**	**$ 1,798,383.25**	**100.00%**
11	ES Environmental	200181 - ES Environmental Policy & Services OPCo's	Electric PTD Gas TD Plant	$ 126,554.16	$ -	$ 126,554.16	$ (64,419.67)	$ 62,134.49	6.73%
12		Direct	Direct	986,621.41	-	986,621.41	(126,034.17)	860,587.24	93.27%
14	**ES Environmental Total**			**$ 1,113,175.57**	**$ -**	**$ 1,113,175.57**	**$ (190,453.84)**	**$ 922,721.73**	**100.00%**
15	ES Technical Services	200063 - Executive - Corporate Governance	Assets/Revenue/No. of Employees	$ 193.24	$ -	$ 193.24	$ (28.35)	$ 164.89	0.00%
16		200074 - Corporate Systems	Assets/Revenue/No. of Employees	517.14	-	517.14	(75.86)	441.28	0.00%
17		200079 - Federal Lobbying	Assets/Revenue/No. of Employees	30.34	(30.34)	-	-	-	0.00%
18		200122 - Transmission Electric FERC 560 (E&S)	Electric Transmission Plant	29.96	-	29.96	(4.39)	25.57	0.00%

Summary of XES Expenses to SPS by Affiliate Class and Billing Method
For Twelve Months ended June 30, 2017
David Low

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Line No.	**Affiliate Class**	**Billing Method (Cost Center)**	**Allocation Method**	**XES Billings for Class to SPS (Total Company) (FERC Acct. 400-935)**	**Exclusions**	**Per Book**	**Pro Formas**	**Requested Amount (Total Company)**	**% of Class Charges**
19		200135 - Energy Supply Business Resources	MWH Generation	157,543.87	-	157,543.87	(13,842.71)	143,701.16	1.18%
20		200137 - ES Misc Power Expense Op Co's	MWH Generation	247,047.19	-	247,047.19	(19,336.83)	227,710.36	1.87%
21		200138 - ES Operations Management OPCo's	MWH Generation	512,926.33	(93.62)	512,832.71	(48,155.15)	464,677.56	3.81%
22		200146 - Energy Markets - Regulated Trading (Gen Book)	MWH Hours Sold	31.65	-	31.65	(4.64)	27.01	0.00%
23		200177 - Rates Electric	Revenue	367.64	-	367.64	(53.93)	313.71	0.00%
24		Direct	Direct	13,670,421.15	(38.00)	13,670,383.15	(2,320,779.81)	11,349,603.34	93.13%
26	**ES Technical Services Total**			**$ 14,589,108.51**	**$ (161.96)**	**$14,588,946.55**	**$ (2,402,281.67)**	**$12,186,664.88**	**100.00%**
27	ES VP Energy Supply	200074 - Corporate Systems	Assets/Revenue/No. of Employees	$ 8,205.14	$ -	$ 8,205.14	$ (1,203.57)	$ 7,001.57	6.64%
28		200078 - Governmental Affairs	Assets/Revenue/No. of Employees	(27,311.00)	-	(27,311.00)	(119.55)	(27,430.55)	-26.02%
29		200135 - Energy Supply Business Resources	MWH Generation	95,627.01	-	95,627.01	(9,114.60)	86,512.41	82.07%
30		200138 - ES Operations Management OPCo's	MWH Generation	20,681.28	-	20,681.28	(3,033.63)	17,647.65	16.74%
31		Direct	Direct	24,249.92	(101.47)	24,148.45	(2,470.54)	21,677.91	20.57%
33	**ES VP Energy Supply Total**			**$ 121,452.35**	**$ (101.47)**	**$ 121,350.88**	**$ (15,941.89)**	**$ 105,408.99**	**100.00%**
34	ES VP Operations	200078 - Governmental Affairs	Assets/Revenue/No. of Employees	$ 41,653.19	$ -	$ 41,653.19	$ (3,573.70)	$ 38,079.49	10.77%
35		200135 - Energy Supply Business Resources	MWH Generation	(11,407.37)	-	(11,407.37)	(0.38)	(11,407.75)	-3.23%
36		200137 - ES Misc Power Expense Op Co's	MWH Generation	43,504.15	-	43,504.15	(5,521.25)	37,982.90	10.74%
37		200138 - ES Operations Management OPCo's	MWH Generation	21,774.80	-	21,774.80	(3,194.03)	18,580.77	5.25%

Summary of XES Expenses to SPS by Affiliate Class and Billing Method
For Twelve Months ended June 30, 2017
David Low

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Line No.	**Affiliate Class**	**Billing Method (Cost Center)**	**Allocation Method**	**XES Billings for Class to SPS (Total Company) (FERC Acct. 400-935)**	**Exclusions**	**Per Book**	**Pro Formas**	**Requested Amount (Total Company)**	**% of Class Charges**
38		200143 - ES Misc Power Expense North	MWH Generation	-	-	-	-	-	0.00%
39		200144 - ES Operations Management North	MWH Generation	-	-	-	-	-	0.00%
40		Direct	Direct	286,854.86	-	286,854.86	(16,366.27)	270,488.59	76.47%
42	**ES VP Operations Total**			**$ 382,379.63**	**$ -**	**$ 382,379.63**	**$ (28,655.62)**	**$ 353,724.01**	**100.00%**
43	**Total - Witness David Low**			**$ 18,259,162.37**	**$ (263.43)**	**$18,258,898.94**	**$ (2,891,996.09)**	**$15,366,902.85**	
	Amounts may not add or tie to other schedules due to rounding								

Southwestern Public Service Company

XES Expenses by Affiliate Class, Activity, Billing Method and FERC Account

David A. Low

2017 TX Rate Case

APPLICATION OF
SOUTHWESTERN PUBLIC SERVICE COMPANY
FOR AUTHORITY TO CHANGE RATES

DAL-RR-B(CD)

Exclusions from XES Expenses to SPS by Affiliate Class and FERC Account
For Twelve Months ended June 30, 2017
David Low

(A)	(B)	(C)	(D)	(E)
Line No.	**Affiliate Class**	**FERC Account**	**Explanation for Exclusions**	**Exclusions (Total Company)**
1	ES Technical Services	426.4 - Expendit for cert civic, politic and related activ	Below the Line	$ (123.96)
2	ES Technical Services	426.5 - Other deductions	Below the Line	(38.00)
3	**ES Technical Services Total**			**$ (161.96)**
4	ES VP Energy Supply	426.1 - Donations	Below the Line	$ (80.00)
5	ES VP Energy Supply	426.5 - Other deductions	Below the Line	(21.47)
6	**ES VP Energy Supply Total**			**$ (101.47)**
7		**Total - Witness David Low**		**$ (263.43)**
	Amounts may not add or tie to other schedules due to rounding.			

Pro Forma Adjustments to XES Expenses by Affiliate Class and FERC Account
For Twelve Months ended June 30, 2017
David Low

(A)	(B)	(C)	(D)	(E)	(F)
Line No.	Affiliate Class	FERC Account	Explanation for Pro Formas	Sponsor	Pro Formas (Total Company)
1	ES Eng & Const	506 - Miscellaneous steam power expenses	Business Area Adjustment	David Low	$ (26.70)
2	ES Eng & Const	506 - Miscellaneous steam power expenses	Financial Goals Incentive	Jill Reed	(20,184.75)
3	ES Eng & Const	506 - Miscellaneous steam power expenses	Incentive	Arthur Freitas/Jill Reed	(144,360.43)
4	ES Eng & Const	510 - Maintenance supervision and engineering	Incentive	Arthur Freitas/Jill Reed	1.02
5	ES Eng & Const	510 - Maintenance supervision and engineering	Business Area Adjustment	David Low	(37,728.90)
6	ES Eng & Const	510 - Maintenance supervision and engineering	Financial Goals Incentive	Jill Reed	(156.46)
7	ES Eng & Const	510 - Maintenance supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(6,395.74)
8	ES Eng & Const	511 - Maintenance of structures	Financial Goals Incentive	Jill Reed	(185.20)
9	ES Eng & Const	511 - Maintenance of structures	Incentive	Arthur Freitas/Jill Reed	(1,586.29)
10	ES Eng & Const	512 - Maintenance of boiler plant	Business Area Adjustment	David Low	(10,869.02)
11	ES Eng & Const	512 - Maintenance of boiler plant	Financial Goals Incentive	Jill Reed	(788.97)
12	ES Eng & Const	512 - Maintenance of boiler plant	Incentive	Arthur Freitas/Jill Reed	(6,207.61)
13	ES Eng & Const	513 - Maintenance of electric plant	Incentive	Arthur Freitas/Jill Reed	(36.80)
14	ES Eng & Const	514 - Maintenance of miscellaneous steam plant	Financial Goals Incentive	Jill Reed	(43.01)
15	ES Eng & Const	514 - Maintenance of miscellaneous steam plant	Incentive	Arthur Freitas/Jill Reed	(797.27)
16	ES Eng & Const	551 - Maintenance supervision and engineering	Incentive	Arthur Freitas/Jill Reed	0.04
17	ES Eng & Const	551 - Maintenance supervision and engineering	Financial Goals Incentive	Jill Reed	(5.43)
18	ES Eng & Const	551 - Maintenance supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(29.88)
19	ES Eng & Const	560 - Operation supervision and engineering	Business Area Adjustment	David Low	(82.92)
20	ES Eng & Const	560 - Operation supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(129.98)

Pro Forma Adjustments to XES Expenses by Affiliate Class and FERC Account
For Twelve Months ended June 30, 2017
David Low

(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Affiliate Class**	**FERC Account**	**Explanation for Pro Formas**	**Sponsor**	**Pro Formas (Total Company)**
21	ES Eng & Const	920 - Administrative and general salaries	Incentive	Arthur Freitas/Jill Reed	(12.07)
22	ES Eng & Const	920 - Administrative and general salaries	Financial Goals Incentive	Jill Reed	(3,057.61)
23	ES Eng & Const	920 - Administrative and general salaries	Incentive	Arthur Freitas/Jill Reed	(31,819.01)
	ES Eng & Const	926 - Employee pensions and benefits	3% Wage Adjustment	Arthur Freitas/Jill Reed	7,348.66
24	ES Eng & Const	926 - Employee pensions and benefits	Pension & Benefits Adjustment	Arthur Freitas/Richard Schrubbe	2,491.27
25				**ES Eng & Const Total**	**$ (254,663.06)**
26	ES Environmental	502 - Steam expenses	Incentive	Arthur Freitas/Jill Reed	$ (343.62)
27	ES Environmental	506 - Miscellaneous steam power expenses	Business Area Adjustment	David Low	(31,404.38)
28	ES Environmental	506 - Miscellaneous steam power expenses	Financial Goals Incentive	Jill Reed	(5,678.38)
29	ES Environmental	506 - Miscellaneous steam power expenses	Incentive	Arthur Freitas/Jill Reed	(36,883.37)
30	ES Environmental	512 - Maintenance of boiler plant	Incentive	Arthur Freitas/Jill Reed	(56.01)
31	ES Environmental	514 - Maintenance of miscellaneous steam plant	Incentive	Arthur Freitas/Jill Reed	(138.34)
32	ES Environmental	549 - Miscellaneous other power generation expenses	Financial Goals Incentive	Jill Reed	(54.42)
33	ES Environmental	549 - Miscellaneous other power generation expenses	Incentive	Arthur Freitas/Jill Reed	(583.81)
34	ES Environmental	560 - Operation supervision and engineering	Financial Goals Incentive	Jill Reed	(449.24)
35	ES Environmental	560 - Operation supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(2,697.58)
36	ES Environmental	590 - Maintenance supervision and engineering	Financial Goals Incentive	Jill Reed	(383.85)
37	ES Environmental	590 - Maintenance supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(2,151.50)
38	ES Environmental	920 - Administrative and general salaries	Incentive	Arthur Freitas/Jill Reed	(3.38)
39	ES Environmental	920 - Administrative and general salaries	Financial Goals Incentive	Jill Reed	(8,339.69)
40	ES Environmental	920 - Administrative and general salaries	Incentive	**Arthur Freitas/Jill Reed**	(52,590.29)
41	ES Environmental	921 - Office supplies and expenses	Business Area Adjustment	David Low	(54,930.60)
42	ES Environmental	926 - Employee pensions and benefits	3% Wage Adjustment	Arthur Freitas/Jill Reed	4,656.16

Pro Forma Adjustments to XES Expenses by Affiliate Class and FERC Account
For Twelve Months ended June 30, 2017
David Low

(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Affiliate Class**	**FERC Account**	**Explanation for Pro Formas**	**Sponsor**	**Pro Formas (Total Company)**
43	ES Environmental	926 - Employee pensions and benefits	Pension & Benefits Adjustment	Arthur Freitas/Richard Schrubbe	1,578.49
44				**ES Environmental Total**	**$ (190,453.83)**
45	ES Technical Svcs	500 - Operation supervision and engineering	Financial Goals Incentive	Jill Reed	$ (5,388.29)
46	ES Technical Svcs	500 - Operation supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(48,863.21)
47	ES Technical Svcs	502 - Steam expenses	Financial Goals Incentive	Jill Reed	(662.09)
48	ES Technical Svcs	502 - Steam expenses	Incentive	Arthur Freitas/Jill Reed	(4,174.50)
49	ES Technical Svcs	505 - Electric expenses	Incentive	Arthur Freitas/Jill Reed	(898.31)
50	ES Technical Svcs	506 - Miscellaneous steam power expenses	Business Area Adjustment	David Low	(457,239.17)
51	ES Technical Svcs	506 - Miscellaneous steam power expenses	Financial Goals Incentive	Jill Reed	(71,321.05)
52	ES Technical Svcs	506 - Miscellaneous steam power expenses	Incentive	Arthur Freitas/Jill Reed	(417,913.47)
53	ES Technical Svcs	510 - Maintenance supervision and engineering	Financial Goals Incentive	Jill Reed	(7,977.21)
54	ES Technical Svcs	510 - Maintenance supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(40,004.67)
55	ES Technical Svcs	512 - Maintenance of boiler plant	Business Area Adjustment	David Low	(12,654.65)
56	ES Technical Svcs	512 - Maintenance of boiler plant	Financial Goals Incentive	Jill Reed	(4,074.12)
57	ES Technical Svcs	512 - Maintenance of boiler plant	Incentive	Arthur Freitas/Jill Reed	(36,179.78)
58	ES Technical Svcs	513 - Maintenance of electric plant	Business Area Adjustment	David Low	(44,962.83)
59	ES Technical Svcs	513 - Maintenance of electric plant	Financial Goals Incentive	Jill Reed	(9,592.01)
60	ES Technical Svcs	513 - Maintenance of electric plant	Incentive	Arthur Freitas/Jill Reed	(79,328.30)
61	ES Technical Svcs	514 - Maintenance of miscellaneous steam plant	Business Area Adjustment	David Low	(581,983.24)
62	ES Technical Svcs	514 - Maintenance of miscellaneous steam plant	Financial Goals Incentive	Jill Reed	(68,223.11)
63	ES Technical Svcs	514 - Maintenance of miscellaneous steam plant	Incentive	Arthur Freitas/Jill Reed	(388,014.80)
64	ES Technical Svcs	546 - Operation supervision and engineering	Financial Goals Incentive	Jill Reed	(225.97)

Pro Forma Adjustments to XES Expenses by Affiliate Class and FERC Account
For Twelve Months ended June 30, 2017
David Low

(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Affiliate Class**	**FERC Account**	**Explanation for Pro Formas**	**Sponsor**	**Pro Formas (Total Company)**
65	ES Technical Svcs	546 - Operation supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(2,318.39)
66	ES Technical Svcs	549 - Miscellaneous other power generation expenses	Financial Goals Incentive	Jill Reed	(141.42)
67	ES Technical Svcs	549 - Miscellaneous other power generation expenses	Incentive	Arthur Freitas/Jill Reed	(837.06)
68	ES Technical Svcs	552 - Maintenance of structures	Financial Goals Incentive	Jill Reed	(471.49)
69	ES Technical Svcs	552 - Maintenance of structures	Incentive	Arthur Freitas/Jill Reed	(2,756.59)
70	ES Technical Svcs	553 - Maintenance of generating and electric plant	Financial Goals Incentive	Jill Reed	(1,228.18)
71	ES Technical Svcs	553 - Maintenance of generating and electric plant	Incentive	Arthur Freitas/Jill Reed	(10,582.81)
72	ES Technical Svcs	560 - Operation supervision and engineering	Business Area Adjustment	David Low	(82.92)
73	ES Technical Svcs	560 - Operation supervision and engineering	Financial Goals Incentive	Jill Reed	0.44
74	ES Technical Svcs	560 - Operation supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(1,459.18)
75	ES Technical Svcs	561.2 - Load dispatch-Monitor and operate transmiss system	Business Area Adjustment	David Low	(695.80)
76	ES Technical Svcs	561.2 - Load dispatch-Monitor and operate transmiss system	Financial Goals Incentive	Jill Reed	5.42
77	ES Technical Svcs	561.2 - Load dispatch-Monitor and operate transmiss system	Incentive	Arthur Freitas/Jill Reed	(449.55)
78	ES Technical Svcs	920 - Administrative and general salaries	Financial Goals Incentive	Jill Reed	(17,419.08)
79	ES Technical Svcs	920 - Administrative and general salaries	Incentive	Arthur Freitas/Jill Reed	(126,103.83)
80	ES Technical Svcs	921 - Office supplies and expenses	Business Area Adjustment	David Low	(34,212.98)
81	ES Technical Svcs	926 - Employee pensions and benefits	3% Wage Adjustment	Arthur Freitas/Jill Reed	56,872.26
82	ES Technical Svcs	926 - Employee pensions and benefits	Pension & Benefits Adjustment	Arthur Freitas/Richard Schrubbe	19,280.28
83				**ES Technical Svcs Total**	**$ (2,402,281.67)**
84	ES VP Enrg Supply	500 - Operation supervision and engineering	Incentive	Arthur Freitas/Jill Reed	$ (2,871.86)

Pro Forma Adjustments to XES Expenses by Affiliate Class and FERC Account
For Twelve Months ended June 30, 2017
David Low

(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Affiliate Class**	**FERC Account**	**Explanation for Pro Formas**	**Sponsor**	**Pro Formas (Total Company)**
85	ES VP Enrg Supply	546 - Operation supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(161.77)
86	ES VP Enrg Supply	920 - Administrative and general salaries	Financial Goals Incentive	Jill Reed	(1,853.65)
87	ES VP Enrg Supply	920 - Administrative and general salaries	Incentive	Arthur Freitas/Jill Reed	(11,678.32)
88	ES VP Enrg Supply	921 - Office supplies and expenses	Business Area Adjustment	David Low	(253.31)
89	ES VP Enrg Supply	926 - Employee pensions and benefits	3% Wage Adjustment	Arthur Freitas/Jill Reed	654.98
90	ES VP Enrg Supply	926 - Employee pensions and benefits	Pension & Benefits Adjustment	Arthur Freitas/Richard Schrubbe	222.04
91				**ES VP Enrg Supply Total**	**$ (15,941.89)**
92	ES VP Operations	500 - Operation supervision and engineering	Incentive	Arthur Freitas/Jill Reed	$ (2,998.50)
93	ES VP Operations	506 - Miscellaneous steam power expenses	Financial Goals Incentive	Jill Reed	(326.55)
94	ES VP Operations	506 - Miscellaneous steam power expenses	Incentive	Arthur Freitas/Jill Reed	(6,159.67)
95	ES VP Operations	546 - Operation supervision and engineering	Incentive	Arthur Freitas/Jill Reed	(195.53)
96	ES VP Operations	549 - Miscellaneous other power generation expenses	Financial Goals Incentive	Jill Reed	(10.82)
97	ES VP Operations	549 - Miscellaneous other power generation expenses	Incentive	Arthur Freitas/Jill Reed	(316.70)
98	ES VP Operations	920 - Administrative and general salaries	Financial Goals Incentive	Jill Reed	(3,058.06)
99	ES VP Operations	920 - Administrative and general salaries	Incentive	Arthur Freitas/Jill Reed	(17,154.73)
100	ES VP Operations	921 - Office supplies and expenses	Business Area Adjustment	David Low	(47.82)
101	ES VP Operations	926 - Employee pensions and benefits	3% Wage Adjustment	Arthur Freitas/Jill Reed	1,204.43
102	ES VP Operations	926 - Employee pensions and benefits	Pension & Benefits Adjustment	Arthur Freitas/Richard Schrubbe	408.31
103				**ES VP Operations Total**	**$ (28,655.62)**
104				**Total - Witness David Low**	**$ (2,891,996.07)**
	Amounts may not add or tie to other schedules due to rounding				