BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S APPLICATION FOR: (1) REVISION OF ITS RETAIL RATES UNDER ADVICE NOTICE NO. 282; (2) AUTHORIZATION AND APPROVAL TO SHORTEN THE SERVICE LIFE OF AND ABANDON ITS TOLK GENERATING STATION UNITS; AND (3) OTHER RELATED RELIEF,	)	**CASE NO. 19-00170-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

DIRECT TESTIMONY

of

BENNIE F. WEEKS

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

TABLE OF CONTENTS

GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
BAU	business-as-usual
Commission	New Mexico Public Regulation Commission
EOY	end-of-year
FOM	fixed operation and maintenance
MW	megawatt
NYMEX	New York Mercantile Exchange
PIRA	Petroleum Industry Research Associates
PPA	Purchased Power Agreement
RFP	Rate Filing Package
SPP	Southwest Power Pool
SPS	Southwestern Public Service Company, a New Mexico corporation
T1	Tolk Unit 1
T2	Tolk Unit 2
Tolk	Tolk Generating Station
VOM	variable operational and maintenance
Xcel Energy	Xcel Energy Inc.
XES	Xcel Energy Services Inc.

LIST OF ATTACHMENTS

Attachment	**Description**
BFW-1(CD)	Strategist Base Case Analysis Workpapers
BFW-2(CD)	Strategist Thermal Case Analysis Workpapers
BFW-3(CD)	Strategist Low Load Case Analysis Workpapers

(*Workpapers will be provided on CD included in Attachment WAG-1(CD) to the Direct Testimony of William A. Grant under Folder Names:* BFW-1, BFW-2, and BFW-3)

Case No. 19-00170-UT
Direct Testimony
of
Bennie F. Weeks

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Bennie F. Weeks. My business address is 790 S. 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 Xcel Energy Services Inc. ("XES"), the service company subsidiary of Xcel Energy, as Manager of Resource Planning and Bidding.

Q. Please briefly outline your responsibilities as Manager of Resource Planning and Bidding.

A. My duties include managing analysts and planners in the development of strategic resource planning, including: need assessment, planning, and financial analysis of various resource and purchase/sales options. I am also responsible for managing various state resource planning processes to ensure that regulatory requirements are fulfilled.

Q. Please describe your educational background.

A. I graduated from West Texas State University in May 1976, receiving a Bachelor of Science degree with a double major in Mathematics and Physical Education. Additionally, I have 23 continuing education units in the business field.

Q. Please describe your professional experience.

A. I began employment with SPS in September 1979 as a meter reader. I became an Engineering Estimator in the Fuel Administration Department in 1981. As an estimator, I prepared monthly fuel plans and the five-year fuel budget. In 1984, I became Senior Production Costing Specialist in Fuel Acquisition and Administration. In that position, I performed studies for fuel budgets, capital projects, fuel contracts, alternative operating procedures, and other special projects. I was responsible for a production costing model (PROMOD) and coordinated and developed the short-term and long-term fuel and energy planning and budgeting for the SPS generating system. In October 2000, I became a Case Specialist in Regulatory Administration for SPS managing all aspects of regulatory cases. I accepted my current position in October 2008.

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

A. Yes. I have attended many utility-related classes and seminars hosted by SPS and utility consulting firms.

Q. Have you filed testimony before any regulatory authorities?

A. Yes. I have filed testimony before the New Mexico Public Regulation Commission ("Commission") and Public Utility Commission of Texas regarding SPS's resource planning and acquisition processes. I have also testified before the Federal Energy Regulatory Commission regarding off-system sales.

II. ASSIGNMENT AND SUMMARY OF TESTIMONY AND RECOMMENDATIONS

Q. What is your assignment in this proceeding?

A. My testimony will provide an overview of SPS's resource planning process and evaluation methods and will discuss the economic analysis supporting SPS's decision to move up the retirement date of its Tolk Generating Station ("Tolk") to end-of-year ("EOY") 2032. In addition, I sponsor Rate Filing Package ("RFP") Schedule P-11.

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

A. The Commission should grant SPS's request for a revised retirement date for Tolk. The economic analysis presented in my testimony demonstrates that SPS's proposal to retire Tolk by EOY 2032 is reasonable and prudent.

Q. Were Attachments BFW-1(CD), BFW-2(CD), BFW-3(CD), and the RFP schedule you sponsor prepared by you or under your direct supervision and control?

A. Yes.

Q. Was RFP Schedule P-11, which you sponsor, prepared by you or under your direct supervision and control?

A. Yes.

Q. Do you incorporate RFP Schedule P-11 that you sponsor into your testimony?

A. Yes.

III. SPS'S RESOURCE PLANNING PROCESS AND EVALUATION METHODS

Q. Please generally describe SPS's resource planning process.

A. In its simplest form, electric resource planning is the process of using forecasts of customer electric demand and energy to determine the appropriate sources of electric supply that should be developed to meet those customer requirements in a cost-effective and reliable fashion. In conducting resource planning, SPS compares its existing firm generating resources, including owned generating capacity and firm purchased power, to its projected annual peak firm load obligation over the planning period. Required reserve margins are included to determine SPS's capacity position.

Q. Please describe the reserve margin requirement.

A. To provide reliable service, all electric utilities must have more capacity available than the projected peak load to allow for system contingencies, including generating unit or transmission outages, and potential increases in actual load. The available capacity in excess of the projected peak load is referred to as the "reserve margin." Reserve margin requirements are frequently specified by the group of interconnected utilities to which the utility belongs. SPS is a member of

the Southwest Power Pool ("SPP"), which currently requires each member to have a planning reserve margin of 12.0% of its peak demand forecast.

Q. What process does SPS use to assess its electric resource needs to serve customer load?

A. SPS's assessment of electric resource need includes determining both the magnitude of need as well as the type of resources needed (i.e., peaking, intermediate, or baseload). Additionally, resource need assessment must, depending on the jurisdiction, be conducted in accordance with regulatory requirements specifying resource assessment processes and resource specific acquisitions (e.g., requirements for integrated resource planning and amounts of renewable resources in a supply portfolio). SPS uses Strategist[1] in its evaluation of the economic value of resource alternatives.

Q. What is Strategist?

A. Strategist is a resource planning model specifically designed to determine the least-cost resource mix for a utility system from a prescribed set of resource technologies under given sets of constraints and assumptions. Strategist incorporates a wide variety of resource expansion planning parameters to develop

[1] Strategist is one model in a portfolio of modeling tools owned by ABB (ASEA Brown Boveri). Xcel Energy has a licensing agreement with ABB for use of the Strategist model.

a coordinated integrated plan that best suits the utility system being analyzed. Examples of resource expansion planning parameters incorporated by Strategist are: alternative generation technologies available to meet future needs; renewable energy resources; unit capacity sizes; heat rates; load management; conservation programs; reliability limits; emissions trading; and environmental compliance options**.**

Q. Please describe the costs that SPS incorporates in the Strategist model for purposes of long-range resource expansion planning.

A. The Strategist model includes only a portion of the total electric system costs SPS incurs to provide electric service to its customers. The following list summarizes the costs that are typically included in Strategist and those that are excluded from the model:

Costs Included in Strategist

1. Fuel costs for all electric power supply resources (owned and purchased) and market energy costs (which are forecasted based on gas prices);
2. Purchased energy costs for all electric power supply resources;
3. Capacity costs of purchased power;
4. Variable operational and maintenance ("VOM") costs of purchased power;

5. Capital costs for new electric generation facilities added to meet future load;

6. Energy costs for new wind and solar generation facilities added to meet future energy need;

7. Electric transmission interconnection and network upgrade costs for new generation;

8. Emissions and emission costs for CO_2, SO_2, and NOx;

9. Fixed operation and maintenance ("FOM") costs for existing and new generation facilities;

10. VOM costs for existing and new generation facilities; and

11. Remaining book value of SPS-owned generating units.

Costs <u>Not</u> Included in Strategist

1. Remaining book value of existing electric transmission or distribution facilities;

2. Capital costs for planned electric transmission upgrades or distribution facilities;

3. Capital costs for emission control systems; and

4. Administrative and general costs.

Q. What are some of the major assumptions that influence Strategist's evaluation of the least cost resource mix?

A. The following assumptions are likely the most influential in the Strategist modeling evaluation of the least cost resource mix:

1) **Natural Gas Price Forecast** – The price of natural gas is a significant variable. SPS uses a combination of market prices and fundamental price forecasts, based on multiple highly respected, industry leading sources, to calculate monthly delivered gas prices. As the foundation of the gas price forecast, Henry Hub natural gas prices are developed using a blend of market information (New York Mercantile Exchange ("NYMEX") futures prices) and long-term fundamentally-based forecasts from Wood Mackenzie, IHS Energy, and Petroleum Industry Research Associates ("PIRA"). The forecast is fully market-based for the first few years, then transitions into blending the four sources to develop a composite forecast. The Henry Hub forecast is adjusted for regional basis differentials and specific delivery costs for each generating unit to develop final model inputs. The weightings for each component at various time intervals of the forecast period are consistent with SPS's prior proceedings at the Commission and are shown in Table BFW-1 below:

Table BFW-1: Natural Gas Forecast Weightings

Months	NYMEX	IHS Energy*	PIRA	Wood MacKenzie
1-36	100.0%	0.0%	0.0%	0.0%
37-48	74.5%	8.5%	8.5%	8.5%
49-60	49.7%	16.8%	16.8%	16.8%
61-end of forecast period	25.0%	25.0%	25.0%	25.0%

*formerly known as CERA or Global Insight

2) **Coal Price Forecast** – Coal price forecasts are developed using two major inputs: (1) current coal contract volumes and prices combined with (2) current estimates of required spot market coal volumes and prices. Typically, coal volumes and prices are under contract on a plant by plant

basis for a one to five-year term with annual spot volumes filling the remainder of the estimated fuel requirements of the coal plant. The spot coal price forecasts are developed by averaging price forecasts provided by multiple industry-leading consulting firms, as well as price indicators from recent request for proposals responses for coal supply.

3) **Market Electricity Prices** – In addition to resources that exist within SPS's service territory, SPS has access to a regional market located outside its service territory. SPS is a member of the SPP, which operates as a consolidated balancing authority and dispatches all available generation resources within its boundaries. This consolidated dispatch allows SPS access to energy resources outside SPS's service territory for purchases, as well as the opportunity to sell from its generating sources to other market participants.

To determine the price at which SPS may buy from or sell into the SPP market, power prices are derived using an average of the market-implied-heat-rate forecasts from Wood Mackenzie, IHS Energy, and PIRA. The average of the market-implied-heat-rate forecasts are then multiplied by the blended natural gas forecast (as described above) to derive a market price for electricity. This process is repeated for all months, distinguishing between on and off-peak prices, through the end of the modeling period.

4) **Demand and Energy Forecast** – Projections of future energy sales and coincident peak demand are fundamental inputs into SPS's resource need assessment. SPS forecasts retail energy sales and customers by rate class for each jurisdiction. Retail coincident peak demand is forecasted in the aggregate at the total SPS level. The wholesale energy sales and coincident peak demand forecasts are developed at the individual customer level of detail. SPS models its forecasts on a monthly basis and uses monthly historical data to develop the customer, energy sales, and coincident peak demand forecasts. Annual energy sales are an aggregation of the monthly energy sales estimates. Energy sales are forecasted at the delivery point and peak demand is forecasted at the generating source.

Q. Regarding Table BFW-1 above, why does SPS rely entirely on NYMEX for near-term natural gas pricing data?

A. SPS relies on market prices in the near-term portion of the forecast to reflect current market conditions. The first three to five years of the natural gas market as reflected by NYMEX are relatively liquid and actively quoted in the marketplace. Thus, NYMEX accurately reflects the near-term market outlook for natural gas prices.

Q. Is it a common practice for utilities to rely on NYMEX for near-term natural gas pricing data?

A. Yes. Based on my experience, it is common for utilities to rely on NYMEX for near-term natural gas pricing data.

Q. Please provide more detail regarding the fundamental long-term blended natural gas pricing forecasts discussed above, which SPS utilizes in its Strategist analyses.

A. Fundamental natural gas price forecasts, like those used in SPS's analyses, consider changes in supply and demand conditions such as: (1) specific long-term trends, such as an increase in liquefied natural gas export terminals (which could lead to higher natural gas prices in the future); or (2) the expectation that the cost

of scarce resources will increase as natural gas reserves decline and it becomes more expensive to locate and extract the remaining natural gas from the ground. For these reasons, absent robust (and heavily traded) market trade data, it is reasonable to rely on fundamental natural gas price forecasts.

Q. Is it common for utilities to rely on fundamental natural gas price forecasts?

A. Yes. Based on my experience, it is common for utilities to rely on fundamental natural gas price forecasts.

Q. Why does SPS use a blend of the fundamental natural gas forecasts?

A. SPS uses a blend of the fundamental natural gas forecasts to capture multiple fundamental views in the forecasting process and to mitigate the impact of any biases that may be imbedded in the respective forecasts. For example, if SPS were to only rely on one forecast and there was a bias in the forecast, then the intermediate and long-term natural gas pricing forecast would reflect 100% of that particular bias. By using multiple forecasts, SPS is able to mitigate the impacts of the bias in any one forecast.

IV. STRATEGIST ECONOMIC ANALYSIS OF THE IMPACTS OF WATER LIMITATIONS AND RETIREMENT OF THE TOLK GENERATING UNITS

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

A. In this section of my testimony, I present the economic analysis that supports SPS's request to retire its two Tolk generating units at EOY 2032. SPS performed this analysis using the Strategist model, which I described in Section III of my testimony. After discussing the assumptions that SPS used in its Strategist analysis regarding Tolk, I provide the result of the analysis, which demonstrates the projected present value revenue requirement of various operating scenarios/sensitivities regarding the retirement dates of the two Tolk units.

SPS witness Mark Lytal discusses the considerations underlying SPS's proposed changes to the useful lives of the Tolk units and explains the development of the cost inputs that Xcel Energy's Energy Supply group provided to the Resource Planning group for purposes of the Strategist analysis. SPS witnesses Dane A. Watson and Laurie J. Wold discuss how the proposed changes to the retirement dates for the Tolk units affect SPS's depreciation rates.

A. Strategist Modeling

Q. Please briefly describe Tolk.

A. Tolk consists of two coal-powered steam turbine units, located in Lamb County, Texas with a total net capacity of 1,082 megawatt ("MW"). Tolk Unit 1 ("T1") has a net capacity of 540 MW and a current retirement date of 2042; Tolk Unit 2 ("T2") has a net capacity of 542 MW and a current retirement date of 2045. Mr. Lytal discusses Tolk and its water availability issues in detail in his direct testimony.

Q. Please describe how SPS used Strategist to develop its proposed changes to the retirement dates of the Tolk generating units.

A. SPS used Strategist to determine the costs and benefits of five operational scenarios for the Tolk generating units under different time horizons and operating parameters. To develop these scenarios, the Strategist model performs a complete commitment and dispatch simulation of the SPS portfolio of resources, while optimizing a resource expansion plan using the input assumptions described earlier in my testimony and factoring in the input assumptions regarding water limitations at Tolk.

Q. Please describe SPS's process for evaluating the impact of water availability for the Tolk generating units.

A. Mr. Lytal describes this process in detail in his direct testimony. In summary, personnel from the Water Resources and Energy Supply departments within XES first determined when the water supply for Tolk would be depleted assuming Tolk operations remain business-as-usual ("BAU") with no additional water rights acquisitions. Under the BAU assumption, the economic depletion range (expressed in years of service) was determined to be 2024 – 2026. Based on this BAU economic depletion range, Resource Planning developed scenarios that incorporate various ranges of reduced operations at Tolk in an attempt to extend the economic depletion range of the groundwater supply. The scenarios were vetted with Water Resources and Energy Supply personnel to determine a new economic water depletion range for each scenario. As shown in Attachment ML-6(CD) to Mr. Lytal's direct testimony, each scenario has an economic depletion range that spans approximately three years. As Mr. Lytal discusses in his direct testimony, Energy Supply developed cost estimates for each scenario, including on-going capital expenditures and FOM for Tolk. Please refer to Attachment ML-6(CD) to Mr. Lytal's testimony for the estimated cost inputs for each scenario.

Q. What scenarios were used for the Strategist analysis?

A. The scenarios used for the analysis are:

- Scenario 1 (**Economic Dispatch**):

  Tolk operations BAU to projected water depletion

  - Retire T1 & T2 at EOY 2025.

- Scenario 2 (**Reduced Operations of Both Units as follows**):

  2019 and 2020 – T1 and T2 economic dispatch (June-September) and minimum load in off-peak months (or equivalent generation) (October-May).

  2021 and beyond – T1 and T2 economic dispatch (June-September) and offline in off-peak months (October-May).

  - Synchronous condenser(s) installed on both units by EOY 2020
  - Retire T1 and T2 at EOY 2031

- Scenario 3 (**Reduced Operations of Both Units as follows**):

  2019 and 2020 - T1 and T2 economic dispatch (June-September), minimum load in off-peak months (or equivalent generation) (October-May).

  2021 and beyond - T1 and T2 economic dispatch (June-September), one unit offline and second unit at minimum (or equivalent generation) in off-peak months (October-May).

  - Synchronous condenser(s) installed on one unit by EOY 2020
  - Retire T1 and T2 at EOY 2028

- Scenario 4 (**Reduced Operations of Both Units as follows**):

  Fall 2019 and beyond – T1 and T2 economic dispatch (June-September) and minimum load in off-peak months (or equivalent generation) (October-May).

  - Retire T1 and T2 at EOY 2027

- Scenario 5 (**Economic Dispatch/Staggered Retirement**):

  2019 through 2021 – T1 and T2 economic dispatch (June-September), minimum load in off-peak months (or equivalent generation) (October-May).

  2022 and beyond – T2 economic dispatch.

  - Synchronous condenser(s) installed on T1 by EOY 2021
  - Retire T1 at EOY 2021 and retire T2 at EOY 2031.

Q. Why did you choose these scenarios for modeling in Strategist?

A. The objective was to develop scenarios that would allow SPS to keep the Tolk units online and maximize the amount of energy available from those resources. These scenarios are the most feasible from that perspective. In Case No. 17-00255-UT[2], SPS modeled scenarios that included retiring the Tolk units at the end of their currently approved service lives in 2042 and 2045. As explained by SPS witness William A. Grant, SPS did not perform that analysis here because it

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

is not feasible for SPS to continue running the Tolk units until the end of their current service lives.

Q. What was the next step in evaluating the effect of the economic depletion ranges?

A. SPS developed a reference case (Scenario 1) that assumed existing Purchased Power Agreements ("PPA") and thermal resources (with the exception of the Tolk generating units) expire at their PPA termination date, or at the end of the depreciable lives that SPS proposes in this case, as discussed by Mr. Lytal.

Each scenario was modeled taking into account the cost estimates developed by Energy Supply personnel. Mr. Lytal provides the cost estimates used in developing SPS's Tolk analysis. The resulting costs of each scenario were compared to the reference case (Scenario 1) and ranked from lowest to highest cost.

Q. Did SPS perform any other sensitivity analysis to determine the costs and benefits of each operating scenario?

A. Yes. As I described earlier in my testimony, many costs are included in the Strategist analysis, one of which is the gas and market energy cost forecast (Base Forecast). SPS performed additional sensitivity analyses assuming a high gas and

energy market price forecast (High Forecast) and a low gas and energy market forecast (Low Forecast), which are discussed below.

B. Results of Strategist Analysis

Q. What was the initial analysis performed by SPS?

A. SPS developed a Base Case analysis that includes all base assumptions that I described earlier in my testimony, including but not limited to the gas and market energy cost forecast (Base Forecast). Sensitivity analyses were performed assuming a high gas and energy market price forecast (High Forecast) and a low gas and energy market forecast (Low Forecast). The High Forecast and Low Forecast price assumptions were developed by applying a rate of growth that is reduced by 50% and increased by 150%.

Q. What are the results of the Strategist Base Case analysis regarding the retirement of the Tolk generating units?

A. A summary of the results of SPS's Strategist Base Case analysis is shown in Table BFW-2. The workpapers that relate to this analysis are provided in Attachment BFW-1(CD). As shown in Table BFW-2, under the base assumptions for electric sales and natural gas prices, and the expected level of operation,

maintenance, and capital expense for the Tolk units, Scenario 2 is the most cost-effective alternative in all the gas forecast sensitivity analyses.

Table BFW-2

Base - Base Forecast						
	2019-2054 PVRR Total ($M)	2019-2054 PVRR Costs/(Savings) ($M)	Rank	2019-2033 PVRR Total ($M)	2019-2033 PVRR Costs/(Savings) ($M)	Rank
Scenario 1	16,743	0	2	10,009	0	2
Scenario 2	16,725	(17)	1	9,916	(93)	1
Scenario 3	16,802	59	3	10,039	29	3
Scenario 4	16,802	60	4	10,049	40	4
Scenario 5	16,892	149	5	10,050	40	5
Base - Low Forecast						
	2019-2054 PVRR Total ($M)	2019-2054 PVRR Costs/(Savings) ($M)	Rank	2019-2033 PVRR Total ($M)	2019-2033 PVRR Costs/(Savings) ($M)	Rank
Scenario 1	15,676	0	2	9,823	0	2
Scenario 2	15,661	(15)	1	9,733	(90)	1
Scenario 3	15,736	61	3	9,854	31	3
Scenario 4	15,738	62	4	9,864	42	5
Scenario 5	15,743	68	5	9,856	33	4
Base - High Forecast						
	2019-2054 PVRR Total ($M)	2019-2054 PVRR Costs/(Savings) ($M)	Rank	2019-2033 PVRR Total ($M)	2019-2033 PVRR Costs/(Savings) ($M)	Rank
Scenario 1	18,258	0	2	10,217	0	2
Scenario 2	18,239	(19)	1	10,122	(95)	1
Scenario 3	18,316	58	3	10,245	28	3
Scenario 4	18,316	58	4	10,255	38	4
Scenario 5	18,533	275	5	10,268	51	5

Q. Please describe Scenario 2 in more detail.

A. As described earlier in my testimony, Scenario 2 assumes a start date for reduced operations at Tolk Station beginning in 2019. The reduced operations assume T1 and T2 will operate at minimum load (or equivalent generation) for the months of October – May and are available for economic dispatch for the months of June – September of each year. This operating schedule continues through EOY 2020. Beginning in 2021, T1 and T2 are off-line October – May each year and are available for economic dispatch for the months of June – September.

Also, as described by SPS witness Jarred Cooley, it will be necessary to install one or more synchronous condenser(s) at Tolk. Because of the time required to acquire and install the synchronous condenser(s), it is not feasible to take both Tolk generating units off-line during the off-peak months beginning in 2019. Scenario 2 assumes two synchronous condensers are installed by EOY 2020.

Q. If SPS's analysis shows that the retirement date for Tolk could be earlier than 2032, why does SPS propose a 2032 retirement date for ratemaking purposes?

A. SPS is proposing a 2032 retirement date to be conservative for ratemaking purposes. SPS first requested the retirement date EOY 2032 in Case No.

17-00255-UT, but the request was denied. As explained by Mr. Lytal, the useful lives of the Tolk units have diminished due to further decline in the aquifer. However, as discussed by Mr. Grant, SPS has taken steps to make it feasible to operate the Tolk units until 2032. Many factors will impact the useful life of the Tolk units, including future water usage from the aquifer, load requirements on the SPS system, and fuel prices. For these reasons, SPS is proposing an EOY 2032 retirement date for Tolk in this rate case.

C. Additional Strategist Analysis

Q. Did SPS perform any other analyses to determine the costs and benefits of each operating scenario?

A. Yes. As I describe above, the Base Case analysis included many input assumptions. One of those assumptions was the energy cost for new wind and solar generation facilities. The resulting resource expansion plan in each of the operating scenarios analyzed in the Base Case includes new solar and wind generation. SPS performed additional analyses assuming that only thermal resources are available for resource expansion planning purposes (Thermal Case). SPS did a Base Forecast, High Forecast, and Low Forecast sensitivity analysis on the Thermal Case. Results of the Thermal Case analysis are shown below in

Table BFW-3. The workpapers that relate to this analysis are provided in Attachment BFW-2(CD).

Table BFW-3

Thermal - Base Forecast						
	2019-2054 PVRR Total ($M)	**2019-2054 PVRR Costs/(Savings) ($M)**	**Rank**	**2019-2033 PVRR Total ($M)**	**2019-2033 PVRR Costs/(Savings) ($M)**	**Rank**
Scenario 1	17,675	0	**2**	10,378	0	**2**
Scenario 2	17,612	(62)	**1**	10,236	(142)	**1**
Scenario 3	17,733	59	**3**	10,407	29	**4**
Scenario 4	17,737	62	**4**	10,406	28	**3**
Scenario 5	17,874	199	**5**	10,464	86	**5**
Thermal - Low Forecast						
	2019-2054 PVRR Total ($M)	**2019-2054 PVRR Costs/(Savings) ($M)**	**Rank**	**2019-2033 PVRR Total ($M)**	**2019-2033 PVRR Costs/(Savings) ($M)**	**Rank**
Scenario 1	16,291	0	**2**	10,106	0	**2**
Scenario 2	16,233	(58)	**1**	9,968	(138)	**1**
Scenario 3	16,351	60	**4**	10,137	31	**4**
Scenario 4	16,351	60	**3**	10,132	26	**3**
Scenario 5	16,473	182	**5**	10,203	97	**5**
Thermal - High Forecast						
	2019-2054 PVRR Total ($M)	**2019-2054 PVRR Costs/(Savings) ($M)**	**Rank**	**2019-2033 PVRR Total ($M)**	**2019-2033 PVRR Costs/(Savings) ($M)**	**Rank**
Scenario 1	19,634	0	**2**	10,685	0	**2**
Scenario 2	19,563	(70)	**1**	10,534	(150)	**1**
Scenario 3	19,689	56	**3**	10,711	26	**3**
Scenario 4	19,700	66	**4**	10,717	32	**4**
Scenario 5	19,860	226	**5**	10,755	70	**5**

Q. What do the results of the Thermal Case analysis show?

A. The results of the Thermal Case analysis show that Scenario 2 is the most cost-effective alternative in all the gas forecast sensitivity analyses.

Q. Were other sensitivity analyses performed by SPS?

A. Yes. SPS performed a low load analysis on the Base Case and Thermal Case (Low Load Case). The gas and market price sensitivities were also performed on the Low Load Case. Table BFW-4 (next two pages) shows the results of the Low Load Case. The workpapers that relate to this analysis are provided in Attachment BFW-3(CD).

Table BFW-4

Base Low Load - Base Forecast						
	2019-2054 PVRR Total ($M)	2019-2054 PVRR Costs/(Savings) ($M)	Rank	2019-2033 PVRR Total ($M)	2019-2033 PVRR Costs/(Savings) ($M)	Rank
Scenario 1	14,644	0	2	8,833	0	3
Scenario 2	14,656	12	3	8,832	(1)	2
Scenario 3	14,746	102	4	8,954	121	5
Scenario 4	14,752	107	5	8,945	112	4
Scenario 5	14,631	(14)	1	8,803	(30)	1
Base Low Load - Low Forecast						
	2019-2054 PVRR Total ($M)	2019-2054 PVRR Costs/(Savings) ($M)	Rank	2019-2033 PVRR Total ($M)	2019-2033 PVRR Costs/(Savings) ($M)	Rank
Scenario 1	13,783	0	3	8,697	0	3
Scenario 2	13,742	(41)	2	8,688	(9)	2
Scenario 3	13,830	47	5	8,809	112	5
Scenario 4	13,830	47	4	8,796	99	4
Scenario 5	13,732	(51)	1	8,675	(23)	1
Base Low Load - High Forecast						
	2019-2054 PVRR Total ($M)	2019-2054 PVRR Costs/(Savings) ($M)	Rank	2019-2033 PVRR Total ($M)	2019-2033 PVRR Costs/(Savings) ($M)	Rank
Scenario 1	15,877	0	1	8,985	0	2
Scenario 2	15,963	87	3	8,991	7	3
Scenario 3	16,054	178	4	9,115	130	5
Scenario 4	16,071	195	5	9,112	127	4
Scenario 5	15,919	43	2	8,944	(41)	1

Table BFW-4 (continued)

Thermal Low Load - Base Forecast						
	2019-2054 PVRR Total ($M)	2019-2054 PVRR Costs/(Savings) ($M)	Rank	2019-2033 PVRR Total ($M)	2019-2033 PVRR Costs/(Savings) ($M)	Rank
Scenario 1	15,612	0	2	9,236	0	3
Scenario 2	15,477	(135)	1	9,012	(224)	1
Scenario 3	15,632	20	3	9,225	(11)	2
Scenario 4	15,652	41	4	9,256	20	5
Scenario 5	15,661	49	5	9,238	2	4
Thermal Low Load - Low Forecast						
	2019-2054 PVRR Total ($M)	2019-2054 PVRR Costs/(Savings) ($M)	Rank	2019-2033 PVRR Total ($M)	2019-2033 PVRR Costs/(Savings) ($M)	Rank
Scenario 1	14,502	0	2	9,040	0	3
Scenario 2	14,370	(132)	1	8,819	(221)	1
Scenario 3	14,525	23	3	9,032	(9)	2
Scenario 4	14,545	44	5	9,064	23	5
Scenario 5	14,525	23	4	9,050	9	4
Thermal Low Load - High Forecast						
	2019-2054 PVRR Total ($M)	2019-2054 PVRR Costs/(Savings) ($M)	Rank	2019-2033 PVRR Total ($M)	2019-2033 PVRR Costs/(Savings) ($M)	Rank
Scenario 1	17,193	0	2	9,455	0	4
Scenario 2	17,056	(137)	1	9,228	(227)	1
Scenario 3	17,211	18	3	9,441	(14)	2
Scenario 4	17,231	38	4	9,472	17	5
Scenario 5	17,284	91	5	9,450	(5)	3

Q. What do the results of the Low Load Case analysis show?

A. Although the Base Low Load analysis shows that Scenario 5 is the most cost-effective, that result only occurred in three of the 12 sensitivities that SPS analyzed. Scenario 2 is ranked #2 in the Base and High Forecasts and #3 in the Low Forecast sensitivities. The Thermal Low Load analysis shows that Scenario 2 is the most cost-effective alternative in all the gas forecast sensitivities.

D. Conclusion

Q. What conclusion can be drawn based on the results of the Tolk operating scenario analyses?

A. Based on the results of Base Case, Thermal Case, and Low Load analysis as described earlier in my testimony, Scenario 2 is the most cost-effective option and SPS is requesting an EOY 2032 retirement date for Tolk in this rate case.

Q. If SPS's plan to manage the operations of Tolk to a planned EOY 2032 retirement date is not accepted, then what will be the consequence?

A. Rejection of SPS's plan would indicate the Commission's desire for SPS to resume "normal" operations at Tolk and not conserve water to manage the life of the plant. That would have the effect of further shortening the useful lives of the Tolk units to EOY 2025 instead of EOY 2032. This would, in turn, cause the

need for the acquisition of a large amount of generation capacity to meet SPP's reliability requirements and the transmission needs on the SPS system. The earlier acquisition of capacity will cause an earlier cost impact to customers. This is illustrated in Table BFW-2. The majority of the savings in Scenario 2 occurs in the first 15 years of the analysis. Attempting to keep the capacity provided by the Tolk plant until 2032 minimizes the cost impact to customers.

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

A. Yes.

VERIFICATION

STATE OF TEXAS)
) ss.
COUNTY OF POTTER)

BENNIE F. WEEKS, first being sworn on her oath, states:

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

Bennie F. Weeks
BENNIE F. WEEKS

SUBSCRIBED AND SWORN TO before me this 20 day of June, 2019 by BENNIE F. WEEKS.

MARY C. JOHNSON
Notary Public, State of Texas
Notary ID #12084834
My Commission Expires 08-28-2020

Mary C Johnson
Notary Public of the State of Texas
My Commission Expires: 8-28-2020

Strategist Base Case Analysis Workpapers

Attachment BFW-1(CD)

is provided in electronic

format in

Attachment WAG-1(CD) to the

Direct Testimony of William A. Grant

Strategist Thermal Case Analysis Workpapers

Attachment BFW-2(CD)

is provided in electronic

format in

Attachment WAG-1(CD) to the

Direct Testimony of William A. Grant

Strategist Low Load Case Analysis Workpapers

Attachment BFW-3(CD)

is provided in electronic

format in

Attachment WAG-1(CD) to the

Direct Testimony of William A. Grant