BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

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

DIRECT TESTIMONY

of

BENNIE F. WEEKS

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
Commission	New Mexico Public Regulation Commission
DSI	Dry Sorbent Injection
EOY	end-of-year
FOM	fixed operation and maintenance
Harrington	Harrington Generating Station
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NCF	net capacity factor
NYMEX	New York Mercantile Exchange
PPA	purchased power agreement
PVRR	present value of revenue requirement
Sagamore	Sagamore Wind Project
SDA	Spray Dryer Absorber
SPP	Southwest Power Pool
SPS	Southwestern Public Service Company, a New Mexico corporation
Stipulation	Unanimous Comprehensive Stipulation in Case No. 19-00170-UT

Acronym/Defined Term	**Meaning**
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	Harrington Generating Station Analysis
BFW-2(USB)	Harrington Generating Station Strategist *Workpapers* – Financial Forecast Base Case
BFW-3(USB)	Harrington Generating Station Strategist *Workpapers* – Financial Forecast High Case
BFW-4(USB)	Harrington Generating Station Strategist *Workpapers* – Financial Forecast Low Case
BFW-5(USB)	Harrington Generating Station Strategist *Workpapers* – Planning Forecast Base Case
BFW-6(USB)	Harrington Generating Station Strategist *Workpapers* – Planning Forecast High Case
BFW-7(USB)	Harrington Generating Station Strategist *Workpapers* – Planning Forecast Low Case
BFW-8(USB)	Tolk Generating Station Analysis *Workpapers*
BFW-9(USB)	Sagamore Wind Project Strategist *Workpapers*

(*Workpapers will be provided in Attachment WAG-1(USB) to the Direct Testimony of William A. Grant under Folder Name:* BFW-2 through BFW-9)

Case No. 20-00238-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. I was previously Manager of Resource Planning and Bidding. Currently, I hold a rotational position in the Strategy and Planning Department.

Q. Please briefly outline your responsibilities.

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 the Resource Planning process;
- present an analysis supporting SPS's plan to cease coal operations at the Harrington Generating Station ("Harrington") by end-of-year ("EOY") 2024 to comply with ambient air quality standards;
- provide a current generation forecast for Tolk Generating Station Units 1 & 2 ("Tolk") that continues to support an EOY 2032 retirement date and supports SPS's request to align the remaining depreciable life of the plant with the retirement date;
- present SPS's re-evaluation of the economic benefits associated with the Sagamore Wind Project ("Sagamore") in relation to SPS's decision to proceed with construction of the facility; and
- explain that SPS's capacity resources allow SPS to provide reliable service to its customers and ensure that SPS is able to meet demand.

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

A. SPS's analysis regarding Harrington supports SPS's plan to cease coal operations at the plant by EOY 2024 to comply with ambient air quality standards in accordance with an agreed order between the Texas Commission on Environmental Quality and SPS. As explained by SPS witness William A. Grant, SPS intends to convert the plant's fuel source to natural gas at that time.

With respect to Tolk, SPS's current generation forecast continues to support the EOY 2032 retirement date for generating purposes that was approved by the Commission in Case No. 19-00170-UT[1] and also supports SPS's request in this case to align the remaining useful life of generation assets of the plant with the 2032 retirement date for depreciation purposes. As explained by SPS witness Richard L. Belt, the plant's water supply is insufficient to allow for generation operations of the plant after 2032 and as explained by Mr. Grant, the Tolk units will continue to operate as synchronous condensers after the remaining assets are retired.

SPS's re-evaluation of the economic benefits of Sagamore confirms that the facility is economic and will provide benefits to SPS and its customers in accordance with the Modified Unanimous Comprehensive Stipulation in Case No. 17-00044-UT.[2]

[1] *See 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, Final Order Adopting Certification of Stipulation (May 20, 2020).

[2] *In the Matter of Southwestern Public Service Company's Application Requesting: (1) Issuance of a Certificate of Public Convenience and Necessity Authorizing Construction and Operation of Wind Generation and Associated Facilities, and Related Ratemaking Principles Including an Allowance for Funds Used During Construction for the Wind Generation and Associated Facilities; and (2) Approval of a Purchased Power Agreement to Obtain Wind-Generated Energy;* Case No. 17-00044-UT; Modified Unanimous Comprehensive Stipulation (Mar. 28, 2018).

And finally, SPS's capacity resources were prudently incurred and allow SPS to provide safe and reliable service to its customers.

Q. Were Attachments BFW-1 and BFW-2(USB) through BFW-9(USB) 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 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 uses customer electric demand and energy forecasts to determine the appropriate sources of electric supply that should be developed to meet 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 at least 12% of its peak demand forecast, pursuant to

SPP's rules for net planning capability. Compliance with the SPP planning reserve margin is one of many considerations in the resource planning process and does not substitute for overall resource planning approaches that are necessary to ensure SPS customers' needs will be met. Other considerations include operational constraints, such as congestion management and transmission stability, and ensuring there is ample energy available to serve the load.

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 the amount of renewable resources in a supply portfolio). SPS currently uses EnCompass[3] in its evaluation of the economic value of resource alternatives.

[3] EnCompass is owned by Anchor Power. Xcel Energy has a licensing agreement with Anchor Power for use of the model.

Q. SPS previously used Strategist for its resource planning. Why is SPS now using EnCompass?

A. Strategist is no longer a supported product by its vendor. Also, as the mix of generating resources dynamically changes throughout the industry, with increasing reliance on intermittent and storage resources, there is a need for more detailed analyses regarding the impact of plans on operations.

Q. Did SPS use Strategist for any analyses presented in this case?

A. Yes. The Harrington and Sagamore analyses were conducted in Strategist prior to SPS completing the transition to the EnCompass model.

Q. What is EnCompass?

A. EnCompass is a production costing model that uses an algorithm to determine the least-cost resource for a utility system from a prescribed set of resource technologies under given sets of constraints and assumptions. The EnCompass model includes: (1) a modern "solve anything" algorithm; (2) hourly operation detail (accurately captures ramp rates, start-up, etc.); and (3) enhanced storage logic and ancillary services. The model is also able to perform utility capital accounting (revenue requirements).

In addition to the usual input variables needed for a production costing model, EnCompass incorporates a wide variety of resource expansion planning parameters to develop a coordinated, integrated plan that best suits the utility system being analyzed. For example, EnCompass incorporates resource expansion planning parameters such as: 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 EnCompass model.

A. The EnCompass model includes only a portion of the total electric system costs SPS incurs to provide electric service to its customers. The following lists summarize the costs that are typically included in the EnCompass model and those that are excluded.

Costs Included in EnCompass

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

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

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

Costs <u>Not</u> Included in the EnCompass Base Model

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

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

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

4. Capital costs for emission control systems; and

5. Administrative and general costs.

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

A. (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 S&P Global. 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 current weightings for each component at various time intervals of the forecast period are shown in Table BFW-1 below:

Table BFW-1: Natural Gas Forecast Weightings

Months	NYMEX	IHS Energy	S&P Global	Wood MacKenzie
Current Year + 2 Years	100.0%	0.0%	0.0%	0.0%
Thereafter	25.0%	25.0%	25.0%	25.0%

(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 proposal 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.

SPS uses a simple average of long-term on-peak and off-peak implied heat rate forecasts provided by Wood Mackenzie, S&P Global and IHS Markit for SPP South Hub. The implied heat rates, denominated in million British thermal units/megawatt-hour, are then multiplied by SPS's long-term natural gas price forecast to convert the implied heat rate values into energy prices. 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 EnCompass analyses.

A. Fundamental natural gas price forecasts, like those used in SPS's analyses, consider changes in supply and demand conditions including: (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. ECONOMIC ANALYSIS OF THE HARRINGTON GENERATING UNITS

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

A. In this section of my testimony, I present the economic analysis that supports SPS's request to cease coal operations at Harrington by EOY 2024 and also supports SPS's plan to convert Harrington's fuel supply from coal to natural gas. Mr. Grant describes the factors that led to the need for the analysis in his direct testimony.

Q. Are you aware that in this case, SPS is only requesting authorization to accelerate depreciation of the coal-specific parts of the facility?

A. Yes.

Q. Please briefly describe Harrington.

A. Harrington consists of three coal-powered steam turbine units located in Potter County, Texas with a total net capacity of 1,050 megawatts ("MW"). Harrington Unit 1 has a net capacity of 340 MW and a current retirement date of 2036; Harrington Unit 2 has a net capacity of 355 MW and a current retirement date of 2038; and Harrington Unit 3 has a net capacity of 355 MW and a current retirement date of 2040.

Q. Please describe SPS's analysis regarding Harrington.

A. First, SPS determined compliance solutions that included: (1) maintaining coal operations by installing environmental controls to comply with National Ambient

Air Quality Standards ("NAAQS"); or (2) ceasing coal operations, by either converting the units to operate on natural gas or by retiring the units. SPS also considered a combination of these solutions, for example, installing environmental controls on two units and retiring the remaining unit.

SPS also evaluated and continues to explore ways to maximize the use of existing generator interconnection rights. For example, SPS is exploring the opportunity of utilizing surplus interconnection availability to install up to 340 MW of solar at the Harrington location.

SPS conducted several different sensitivity analyses for each of the compliance solutions, including base, low and high gas prices, financial and planning load forecast, and base, low, and high environmental capital costs.

Q. What environmental controls would be necessary to maintain coal operations at Harrington?

A. SPS evaluated two different environmental control solutions: Dry Sorbent Injection ("DSI") and Spray Dryer Absorber ("SDA"). The cost of installing DSI is estimated to be $85M - $90M per unit and the cost of installing SDA is estimated to be $170M - $185M per unit. To comply with NAAQS, environmental controls are required on all units that maintain coal operations.

Q. What did SPS conclude regarding its ability to maintain coal operations at Harrington?

A. Attachment BFW-1 to my testimony shows the present value of revenue requirement ("PVRR") results of all scenarios and sensitivities analyzed. The results of the Strategist analysis conclusively demonstrate that installing capital-intensive environmental controls on one or more units is among the least favorable alternatives. Without the installation of environmental controls, SPS has no feasible alternative other than to cease coal operations at Harrington. [4]

Q. What did SPS conclude regarding the termination of coal operations at Harrington?

A. Converting the Harrington units to operate on natural gas is a low cost and low risk solution for NAAQS compliance. Once converted, the Harrington units will continue to provide low-cost capacity, dispatchable energy, and transmission reliability benefits. The conversion to natural gas also provides additional environmental benefits, such as a reduction in carbon dioxide emissions, when compared to continued coal operations. SPS's analysis also demonstrates the acquisition of additional solar resources could provide additional economic benefits in the future.

[4] Attachments BFW-2(USB) through BFW-7(USB) are the workpapers that relate to this analysis and are provided in Attachment WAG-1 (USB) to the Direct Testimony of Mr. Grant.

V. 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 Case No. 19-00170-UT, SPS sought authorization to shorten the service life of and abandon Tolk for generation operations and provided detailed analyses supporting the request. Ultimately, a Unanimous Comprehensive Stipulation ("Stipulation") was approved by the Commission on May 20, 2020. Section II of the Stipulation addresses retirement of Tolk and authorizes SPS to abandon the units for generation purposes in 2032. The Stipulation, which was approved by the Commission in Case No. 19-00170-UT, further provides that Tolk's depreciation rates will be calculated based on a remaining useful life through December 31, 2037 and that "The Signatories will not oppose the full application of depreciation rates associated with the 2032 abandonment date in SPS's next base rate case (to be filed in or about January 2021)." In this section of my testimony, I present an updated generation forecast that continues to support SPS's request to retire its two Tolk generating units no later than EOY 2032.

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 MW. Tolk Unit 1 ("T1") has a nominal net capacity of 540 MW and a current retirement date of 2032; Tolk Unit 2 ("T2")

has a nominal net capacity of 542 MW and a current retirement date of 2032. SPS witness Mr. Belt discusses Tolk and its water availability issues in detail in his direct testimony. Mr. Belt also discusses the most recent water study and impacts to the water supply for Tolk.

Q. Please explain how SPS updated and evaluated the impact of water availability for Tolk.

A. Using the most up-to-date model data assumptions, Resource Planning ran two operational scenarios under two load sensitivities in EnCompass to determine the annual capacity factors for the Tolk units.

The scenarios are:

- T1 and T2 economic dispatch on economics in all months beginning 2022;
- T1 and T2 economic dispatch in the summer months (June-September) and offline in off-peak months (October-May).

The load sensitivities are:

- financial forecast
- planning forecast

The resulting capacity factors from EnCompass were provided to Mr. Belt to determine the economically recoverable groundwater depletion date range ("water depletion window"), which he describes in his direct testimony.

Q. What is the difference between the financial forecast and the planning forecast?

A. As I explain below in Section VII of my testimony, SPS prepares two demand and energy forecasts – the financial forecast and the planning forecast. As the name suggests, the financial forecast is primarily used for financial planning, while the planning forecast is predominantly used for resource planning evaluations and includes additional projected oil and gas loads.

Q. What do the financial forecast and planning forecast case analyses show regarding the retirement of the Tolk generating units?

A. Using both the financial forecast and planning forecast, after implementing seasonal operations beginning in 2021, the annual projected generation of the Tolk units continues to support a 2032 retirement date. Without implementing seasonal operations, the annual projected generation of the Tolk units supports a 2026 retirement date for Tolk. Mr. Belt describes in detail how the economically recoverable groundwater depletion date range and retirement date are calculated from the annual projected generation of the Tolk units.[5]

[5] Attachment BFW-8(USB) are the workpapers that relate to this analysis and are provided in Attachment WAG-1 (USB) to the Direct Testimony of Mr. Grant.

VI. ECONOMIC ANALYSIS REGARDING THE SAGAMORE WIND PROJECT

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

A. I will discuss the economic analysis that SPS performed to determine whether it should proceed with the construction and operation of Sagamore.

Q. Did SPS continue to evaluate the economic benefits of Sagamore after the Commission approved the project in Case No. 17-00044-UT?

A. Yes.

Q. Why did SPS continue to evaluate the economic benefits of Sagamore after the project was approved?

A. In Case No. 17-00044-UT, the Commission approved a Unanimous Comprehensive Stipulation that issued a Certificate of Public Convenience and Necessity to SPS for the Hale and Sagamore Wind Facilities. In doing so, the Commission determined that SPS's proposal to construct and operate the facilities was prudent and would provide economic benefits to customers.[6] While construction of the Hale project was planned to begin very quickly following

[6] *See* Case No. 17-00044-UT, Final Order Adopting Certification of Stipulation with Modification (Mar. 21, 2018); Notice of Signatories' Concurrence in Final Order Adopting Certification of Stipulation with Modification (Mar. 28, 2018).

approval – and did so – Sagamore had a longer passage of time between approval and both the planned and then actual start of construction. Accordingly, SPS performed further analyses to ensure that construction and operation of Sagamore remained economic and prudent.

Q. When did SPS perform its analysis regarding the economic benefits of Sagamore to determine whether it would proceed with construction of the project?

A. As explained by Mr. Grant, SPS had to decide whether to proceed with the construction of Sagamore by August 26, 2019. As a result, SPS updated its analysis of the economic benefits of the project leading up to that date.

Q. Please describe the analysis that SPS performed in determining whether to proceed with the project.

A. SPS updated the Strategist economic analysis to include the latest information available. The updated inputs and assumptions included, but were not limited to:

- natural gas forecast (including a low gas price scenario);
- load forecast;
- corporate tax rate;
- optimized expansion plan;

- capacity factor; and
- construction estimate inclusive of anticipated network upgrades and updated development costs.

Q. What are the results of the updated analysis for Sagamore?

A. SPS's initial updated analysis, completed in August 2019, showed net energy savings to customers (net of the base rate impact of the project) ranging from $63M PVRR to $223M PVRR. Once the modelling assumptions for that analysis were finalized, the updated analysis shows net energy savings ranging from $64M PVRR to $230M PVRR. The results of the updated analysis are shown in Table BFW-2 (next page). The Sagamore project provides significant energy savings to customers while meeting the settlement commitments and conditions of approval from the Commission including the cost cap, the net capacity factor ("NCF") guarantee, and the 10-year net benefits guarantee.[7]

[7] Attachment BFW-9(USB) are the workpapers that relate to this analysis and are provided in Attachment WAG-1 (USB) to the Direct Testimony of Mr. Grant.

Table BFW-2

	Base Gas		Low Gas	
	Base NCF	Lower NCF	Base NCF	Lower NCF
$MM	910.4	910.4	910.4	910.4
NCF	53.8%	52.20%	53.80%	52.20%
LCOE	$21.79	$23.07	$21.79	$23.07
Levelized 30-yr Gas Price	$2.87	$2.87	$2.28	$2.28
30-yr PVRR Energy-Only Savings	$230M	$189M	$101M	$64M

Q. Does Sagamore provide other benefits that are not captured in the updated economic analysis?

A. Yes. Other benefits that Sagamore provides include:

- system carbon reductions;
- contribution to future Energy Transition Act renewable energy credit requirements;
- inherent capacity value;
- a more reliable transmission system; and
- protection against increasing gas prices.

Q. Based on the analysis and benefits discussed above, did SPS decide to proceed with the construction of Sagamore?

A. Yes.

VII. SPS'S GENERATING CAPACITY

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

A. I will discuss SPS's generating capacity in relation to demand and energy forecasts.

A. Demand Forecast

Q. Can you describe SPS's demand and energy forecasts?

A. Yes. SPS has traditionally used a single demand and energy forecast for financial planning and resource planning purposes. Although oil and gas development in the New Mexico portion of the Permian Basin continues to experience growth, the projected load growth is not 100% certain to materialize due to volatility in the industry. The fluctuating plans for capital expansion in the oil sector directly impact SPS's resource planning. A conservative approach (to generation resource planning) is to design a system capable of serving the most likely oil-related load growth, but no more than the most likely load growth, which could result in SPS's inability to provide service to some new loads (including non-oil loads). Another approach is to design a generation resource plan capable of covering the most likely load growth plus some level of load growth uncertainty.

The choice between a conservative and flexible approach to generation resource planning depends upon many competing factors, including the risks

created due to the size of the potential variability in new load growth, the rate and timing of this new load growth, and the cost of the ability to reliably serve this additional new load growth variability.

Accordingly, SPS now prepares two demand and energy forecasts – the financial forecast and the planning forecast. As the name suggests, the financial forecast is primarily used for financial planning, while the planning forecast is predominantly used for resource planning evaluations and includes the additional oil and gas loads.

Q. How is the planning forecast demand developed?

A. SPS's Customer Relations group maintains close contact with SPS's large industrial customers, including customers doing business in the New Mexico portion of the Permian Basin ("SE New Mexico"). The industrial customers provide Customer Relations their projected load additions for the next five to six years. These projected load additions are not captured in the historical loads used to develop the financial forecast. To account for the projected new load, SPS increases the financial forecast by one standard deviation.

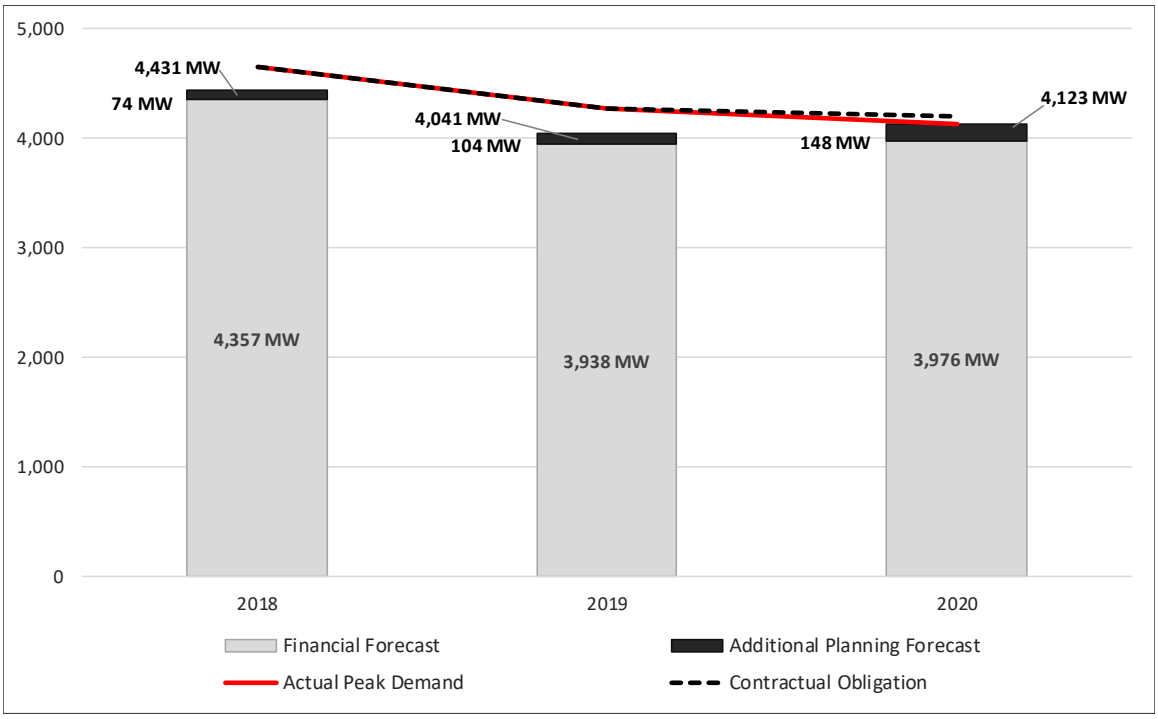
SPS uses a Monte Carlo simulation that ascribes probabilistic characteristics to selected inputs and the output of a model. In these models,

probability distributions are defined for exogenous variables with inherent uncertainty associated with their forecast values. Probability distributions are a realistic way of describing uncertainty in variables. SPS uses a probability distribution equal to one standard deviation increase from the mean forecast. It is common to use one standard deviation as a sensitivity measure.

Q. Would you recommend using the financial or planning forecast when evaluating SPS's capacity position?

A. The planning forecast would represent a more accurate projection of SPS's capacity position if oil and gas load continues to increase. Although of course one cannot be certain that this growth will materialize, as I demonstrate below in Figure BFW-1, SPS's actual loads have consistently exceeded the financial and planning demand forecast. The dotted line in 2020 represents the amount of contractual load obligation that did not materialize on the annual demand peak. I describe the impact of the contractual load obligation later in my testimony.

Figure BFW-1: Financial / Planning Forecast vs Actual Peak Demand



Q. Do other factors impact SPS's long-term resource planning?

A. Yes. First, the long-term planning forecast is weather normalized. In other words, for historical years, the weather normalization process involves subtracting weather-impacted energy sales or peak demand from actual sales or peak demand before projecting the future demand and energy. It is reasonable to assume that actual peak demand could be higher due to weather.

Second, the long-term planning forecast typically includes wholesale contractual obligations that SPS is required to serve, including the obligation to provide planning reserves. Typically, the contractual obligation allows the off-taker to take or decline the energy in any given hour. SPS, as the supplier, must plan to provide generation service in all hours. As shown in Figure BFW-1 and on line 23 of Schedule P-11, SPS planned to serve 172 MW in the months of June 2020 and July 2020. However, in real-time, the off-taker did not take the energy. If the off-taker had taken the full amount of energy, the Peak Demand for June and July would have been higher and would have resulted in a lower reserve margin.

B. Net Planning Capability

Q. Does SPS include the net planning capability from renewable energy resources in its long-term capacity planning?

A. Yes. For long-term capacity planning purposes, the net planning capability of renewable energy should be included. The SPP Planning Criteria afford the Load Responsible Entity the option to include renewable net planning capability as part of its resource adequacy. Historically, SPS has acquired its renewable resources as economic energy for its customers but has taken the opportunity to include a net planning capability in its total available capacity. Including the renewable net

planning capability (at no cost) allows SPS to defer high-cost plant additions in the future, reducing higher cost rate impacts to customers as shown in Schedule P-11.

Q. Do SPS's customers benefit from capacity attributed to renewable resources, even though those resources do not provide reliable capacity and supply that can be called upon as needed?

A. Yes. A substantial portion of SPS's resources (particularly the renewable resources) have been added for their energy contributions, but SPS has also taken measures to provide customers with economic benefits through accrediting the resources with capacity. For example, SPS has purchased power agreements ("PPA") that total 1,641 MW. SPS pays for the energy produced by those facilities and under SPP's current net planning capability criteria, they provide the equivalent of 478 MW of capacity value. SPS (and, in turn, its customers) receive the value of that capacity. It is important to nevertheless recognize that while SPS has secured these economic benefits for customers, SPS cannot prudently assume those resources will be available whenever needed to reliably supply customers.

Q. Should the net planning capability for renewable energy be considered in the amount of capacity to be included in SPS's base period net plant?

A. No. When determining capacity to be included in a rate case base period, only the amount of capacity included in the base period net plant should be considered. As

shown on Schedule P-11 at lines 7 and 22, without the net planning capability of SPS's existing renewable facilities, SPS would be in a deficit position in almost all historical months and years, which would cause an immediate need to acquire additional capacity.

Q. Is the SPP 12% planning reserve margin requirement a reasonable standard to use in determining whether SPS's system has capacity in excess of the generation needed to appropriately and cost-effectively serve its customers?

A. No, it is not. Relying on the SPP 12% planning reserve margin requirement is misleading because it ignores that it is often prudent and appropriate to add or retain resources because they benefit SPS's system and provide energy value to customers as shown in Schedule P-11. For example, many of SPS's older natural gas units benefit customers by providing necessary transmission stability on SPS's system. In addition, as SPS explained in Case No. 19-00170-UT, these older units provide energy savings when natural gas prices are low. And, although SPS's renewable PPAs also provide capacity, the carbon-free attributes of these renewable resources benefit SPS and its customers.

Particularly in a time of expansion of renewable resources, the capacity attributed to SPS's system resources may appear high. In fact, however, SPS's renewable resources provide low-cost energy to serve customers - but also need

sufficient back-up firm supply in times of low renewable production. Moreover, the 12% planning reserve margin is a floor, not a ceiling or even a target. If SPS made planning decisions around hitting that specific reserve margin, that would distort its generation mix and the timing of supply additions, and the resulting planning approach would neither benefit customers nor reliably serve them.

Q. Was SPS's acquisition of the resources in its portfolio prudent?

A. Yes. All of SPS's resource acquisitions were approved by the Commission and benefit SPS's customers.

Q. Does SPS's long-term resource planning, including its capacity resources, allow SPS to address contingencies and ensure that SPS is able to provide safe and reliable service to its customers?

A. Yes.

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

A. Yes.

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

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

VERIFICATION

On this day, December 26, 2020, I, Bennie F. Weeks, swear and affirm under penalty of perjury under the law of the State of New Mexico, that my testimony contained in Direct Testimony of Bennie F. Weeks is true and correct.

/s/ Bennie F. Weeks
BENNIE F. WEEKS

Southwestern Public Service Company

Harrington Generating Station Analysis

Table 1: Financial Forecast – Base Gas

	2040		2054	
Scenario	**PVRR**	**Rank**	**PVRR**	**Rank**
Fully Maintain Coal Operations				
DSI on all units	$135	7	$239	7
SDA on all units	$346	8	$449	8
Partially Maintain Coal Operations				
Convert two units to gas + DSI on remaining unit	$13	3	$117	3
Convert one unit to gas + DSI on remaining units	$79	6	$183	6
Retire two units + DSI on remaining unit	$70	4	$126	4
Retire one unit + DSI on remaining units	$74	5	$160	5
Cease Coal Operations				
Convert all units to gas	($80)	1	$24	2
Retire all units	$0	2	$0	1
SPP Generator Replacement / Surplus Interconnection				
Convert 2 units to gas + convert 1 unit to SC + solar	($108)		($83)	
Convert all units to gas + Solar	($126)		($55)	

Southwestern Public Service Company

Harrington Generating Station Analysis

Table 2: Planning Forecast – Base Gas

	2040		2054	
Scenario	**PVRR**	**Rank**	**PVRR**	**Rank**
Fully Maintain Coal Operations				
DSI on all units	$188	7	$283	7
SDA on all units	$397	8	$492	8
Partially Maintain Coal Operations				
Convert two units to gas + DSI on remaining unit	$70	3	$165	4
Convert one unit to gas + DSI on remaining units	$136	5	$231	6
Retire two units + DSI on remaining unit	$80	4	$121	3
Retire one unit + DSI on remaining units	$146	6	$224	5
Cease Coal Operations				
Convert all units to gas	($26)	1	$69	2
Retire all units	$0	2	$0	1
SPP Generator Replacement / Surplus Interconnection				
Convert 2 units to gas + convert 1 unit to SC + solar	($47)		($28)	
Convert all units to gas + Solar	($71)		($4)	

Southwestern Public Service Company

Harrington Generating Station Analysis

Table 3: Financial Forecast – High Gas

	2040		2054	
Scenario	**PVRR**	**Rank**	**PVRR**	**Rank**
Fully Maintain Coal Operations				
DSI on all units	($62)	5	$42	7
SDA on all units	$144	8	$248	8
Partially Maintain Coal Operations				
Convert two units to gas + DSI on remaining unit	($98)	2	$6	3
Convert one unit to gas + DSI on remaining units	($78)	3	$25	6
Retire two units + DSI on remaining unit	($2)	6	$14	4
Retire one unit + DSI on remaining units	($69)	4	$17	5
Cease Coal Operations				
Convert all units to gas	($133)	1	($29)	1
Retire all units	$0	7	$0	2
SPP Generator Replacement / Surplus Interconnection				
Convert 2 units to gas + convert 1 unit to SC + solar	($180)		($199)	
Convert all units to gas + Solar	($220)		($191)	

Southwestern Public Service Company

Harrington Generating Station Analysis

Table 4: Planning Forecast – High Gas

	2040		2054	
Scenario	**PVRR**	**Rank**	**PVRR**	**Rank**
Fully Maintain Coal Operations				
DSI on all units	($14)	4	$81	7
SDA on all units	$190	8	$285	8
Partially Maintain Coal Operations				
Convert two units to gas + DSI on remaining unit	($43)	2	$52	4
Convert one unit to gas + DSI on remaining units	($27)	3	$68	5
Retire two units + DSI on remaining unit	($3)	5	$37	3
Retire one unit + DSI on remaining units	$0	6	$77	6
Cease Coal Operations				
Convert all units to gas	($78)	1	$17	2
Retire all units	$0	6	$0	1
SPP Generator Replacement / Surplus Interconnection				
Convert 2 units to gas + convert 1 unit to SC + solar	($114)		($136)	
Convert all units to gas + Solar	($163)		($137)	

Southwestern Public Service Company

Harrington Generating Station Analysis

Table 5: Financial Forecast – Low Gas

	2040		2054	
Scenario	**PVRR**	**Rank**	**PVRR**	**Rank**
Fully Maintain Coal Operations				
DSI on all units	$250	7	$354	7
SDA on all units	$469	8	$573	8
Partially Maintain Coal Operations				
Convert two units to gas + DSI on remaining unit	$54	3	$158	3
Convert one unit to gas + DSI on remaining units	$161	6	$265	6
Retire two units + DSI on remaining unit	$106	4	$187	4
Retire one unit + DSI on remaining units	$153	5	$239	5
Cease Coal Operations				
Convert all units to gas	($83)	1	$21	2
Retire all units	$0	2	$0	1
SPP Generator Replacement / Surplus Interconnection				
Convert 2 units to gas + convert 1 unit to SC + solar	($79)		($27)	
Convert all units to gas + Solar	($96)		$3	

Southwestern Public Service Company

Harrington Generating Station Analysis

Table 6: Planning Forecast – Low Gas

	2040		2054	
Scenario	**PVRR**	**Rank**	**PVRR**	**Rank**
Fully Maintain Coal Operations				
DSI on all units	$305	7	$400	7
SDA on all units	$523	8	$618	8
Partially Maintain Coal Operations				
Convert two units to gas + DSI on remaining unit	$112	3	$207	4
Convert one unit to gas + DSI on remaining units	$219	5	$315	6
Retire two units + DSI on remaining unit	$127	4	$168	3
Retire one unit + DSI on remaining units	$227	6	$305	5
Cease Coal Operations				
Convert all units to gas	($29)	1	$66	2
Retire all units	$0	2	$0	1

SPP Generator Replacement / Surplus Interconnection Options				
Convert 2 units to gas + convert 1 unit to SC + solar	($19)		$26	
Convert all units to gas + Solar	($41)		$53	

Harrington Generating Station Strategist

Workpapers

Financial Forecast Base Case

Attachment BFW-2(USB) is provided in electronic format in

Attachment WAG-1(USB) to the Direct Testimony of William A. Grant

Harrington Generating Station Strategist

Workpapers

Financial Forecast High Case

Attachment BFW-3(USB) is provided in electronic format in

Attachment WAG-1(USB) to the Direct Testimony of William A. Grant

Harrington Generating Station Strategist

Workpapers

Financial Forecast Low Case

Attachment BFW-4(USB) is provided in electronic format in

Attachment WAG-1(USB) to the Direct Testimony of William A. Grant

Harrington Generating Station Strategist

Workpapers

Planning Forecast Base Case

Attachment BFW-5(USB) is provided in electronic format in

Attachment WAG-1(USB) to the Direct Testimony of William A. Grant

Harrington Generating Station Strategist

Workpapers

Planning Forecast High Case

Attachment BFW-6(USB) is provided in electronic format in

Attachment WAG-1(USB) to the Direct Testimony of William A. Grant

Harrington Generating Station Strategist

Workpapers

Planning Forecast Low Case

Attachment BFW-7(USB) is provided in

electronic format in

Attachment WAG-1(USB) to the

Direct Testimony of William A. Grant

Tolk Generating Station Analysis

Workpapers

Attachment BFW-8(USB) is provided in

electronic format in

Attachment WAG-1(USB) to the

Direct Testimony of William A. Grant

Sagamore Wind Project Strategist

Workpapers

Attachment BFW-9(USB) is provided in

electronic format in

Attachment WAG-1(USB) to the

Direct Testimony of William A. Grant