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. 312; (2) AUTHORITY TO ABANDON THE PLANT X UNIT 1, PLANT X UNIT 2, AND CUNNINGHAM UNIT 1 GENERATING STATIONS AND AMEND THE ABANDONMENT DATE OF THE TOLK GENERATING STATION; AND (3) OTHER ASSOCIATED RELIEF,	)	**CASE NO. 22-00286-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

DIRECT TESTIMONY

of

BEN R. ELSEY

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
CCN	Certificate of Public Convenience and Necessity
Cunningham	Cunningham Generating Station
ELCC	effective load carrying capability
EOY	end-of-year
GWh	Gigawatt-hours
Harrington	Harrington Generating Station
MW	megawatt
IRATF	Improved Resource Adequacy Task Force
IRP	Integrated Resource Plan
Nichols	Nichols Generating Station
NREL	National Renewable Energy Laboratory
NYMEX	New York Mercantile Exchange
O&M	Operation & Maintenance
Plant X	Plant X Generating Station
PPA	purchased power agreement
PVRR	present value of revenue requirement

Acronym/Defined Term	**Meaning**
RFP	Request for Proposal
Southwest Power Pool	Southwest Power Pool Inc.
SPS	Southwestern Public Service Company, a New Mexico corporation
SPS 2020-21 Tolk Analysis	extensive re-analysis in 2020-2021 that ultimately concluded with a filing SPS made as part of its 2021 Integrated Resource Plan filed with the NMPRC in July 2021
Tolk	Tolk Generating Station
Tolk Optimization Plan	reducing operations to conserve water and preserve the capacity of the Tolk units
VOM	variable operation and maintenance
Xcel Energy	Xcel Energy Inc.

LIST OF ATTACHMENTS

Attachment	**Description**
BRE-1	Tolk Generating Station Analysis *Workpapers* – PVRR Summary - Planning Forecast (*Filename*: BRE-1.xlsx)
BRE-2	Tolk Generating Station Analysis *Workpapers* – PVRR Summary - Financial Forecast (*Filename*: BRE-2.xlsx)
BRE-3	Tolk Generating Station Analysis *Workpapers* – PVRR Summary - Planning Forecast – High wind cost sensitivity (*Filename*: BRE-3.xlsx)
BRE-4	Tolk Generating Station Analysis *Workpapers* – PVRR Summary - Financial Forecast – High wind cost sensitivity (*Filename*: BRE-4.xlsx)

Case No. 22-00286-UT
Direct Testimony
of
Ben R. Elsey

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Ben R. Elsey. My business address is 1800 Larimer, Denver, Colorado, 80202

Q. On whose behalf are you testifying in this proceeding?

A. I am filing testimony on behalf of Southwestern Public Service Company, a New Mexico corporation ("SPS") and wholly-owned electric utility subsidiary of Xcel Energy Inc. ("Xcel Energy").

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

A. I am employed by Xcel Energy as Manager, Resource Planning & Bidding.

Q. Please briefly outline your responsibilities as Manager, Resource Planning & 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.

Case No. 22-00286-UT
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Q. Please summarize your educational background.

A. I graduated from City College, Plymouth in Great Britain with a Higher National Certificate in Building Studies. Since relocating to the United States, I have graduated with an Associate's Degree in Business Administration and a Bachelor's Degree in Accounting.

Q. Please describe your professional experience.

A. I began employment with Xcel Energy in June 2012 as a Project Control Specialist in the Engineering and Construction department within Energy Supply. In 2015, I moved into the role of Construction Estimator within the same department. In 2017, I assumed the role of Resource Planning Analyst II, and I was promoted to my current role of Manager, Resource Planning and Bidding in 2020. Prior to joining Xcel Energy, I worked for various construction companies in Great Britain and the United States as an estimator, quantity surveyor, and contracts manager.

Q. Have you testified or filed testimony before any regulatory authorities?

A. Yes. I filed testimony on behalf of SPS with the New Mexico Public Regulation Commission ("Commission") in SPS's 2018, 2019, 2020, 2021, and 2022 Renewable Portfolio Standard filings, Case Nos. 18-00201-UT, 19-00134-UT, 20-00143-UT, 21-00172-UT, and 22-00177-UT, and in SPS's Certificate of Public

Convenience and Necessity ("CCN") proceeding to convert the Harrington Generating Station ("Harrington") from coal to natural gas, Case No. 21-00200-UT. I also filed testimony in SPS's CCN case to convert Harrington from coal to natural gas before the Public Utility Commission of Texas, Docket No. 52485.

II. <u>ASSIGNMENT AND SUMMARY OF TESTIMONY AND RECOMMENDATIONS</u>

Q. What is your assignment in this proceeding?

A. I have several assignments. In my testimony, I will:

1. provide an overview of the process for SPS's resource planning and assessment of resource needs;
2. explain that SPS's capacity resources allow SPS to provide reliable service to its customers and ensure that SPS is able to meet customer demand;
3. describe SPS's changing capacity position, including with respect to the service lives of Nichols Units 1 and 2; and
4. provide an updated Tolk Generating Station ("Tolk") Analysis that supports: (1) SPS's modification to the Tolk Optimization Plan[1] to increase the annual generation of the Tolk Units; and (2) SPS's request for authority to retire coal operations at Tolk by end of year ("EOY") 2028.

Q. Please summarize the key points, recommendations, and conclusions in your testimony.

A. SPS's resource planning process is reasonable and has resulted in the prudent acquisition of resources, including purchased power agreements ("PPAs"), to meet the needs of SPS's customers. These resources result in reasonable and necessary costs for the generation needed to provide electric service.

[1] Plan for reducing operations to conserve water and preserve the capacity of the Tolk units.

I explain that SPS's generating capacity and PPAs allow SPS to provide reliable service to its customers and ensure that SPS can meet expected demand.

I describe SPS's changing capacity position, including the recent increase in the Southwest Power Pool Inc.'s ("Southwest Power Pool") minimum planning reserve margin requirements, the expected continued load growth on the SPS system, and changing resource adequacy requirements. I explain that it is prudent to extend the service lives of Nichols Generating Station ("Nichols") Units 1 and 2 to meet the Southwest Power Pool's new requirements as well as SPS's growing capacity need.

With respect to Tolk, SPS's updated Tolk Analysis supports SPS's modification to the Tolk Optimization Plan to increase the annual generation of the Tolk units, through economical dispatch of the units to an annual combined target of 4,000 GWh/year[2]. This economical dispatch throughout the year will benefit customers by offsetting a recent sharp increase in natural gas prices and higher forecasted gas prices in the future. Further, as discussed by SPS witness Richard Belt, groundwater analyses support the conclusion that the groundwater supply and well-production needed for coal operations at Tolk will likely be economically

[2] Gigawatt hours

depleted after 2028. These items, along with the expectation that the cost of certain generation technologies that would replace Tolk capacity in the future will benefit from the recently passed Inflation Reduction Act's federal tax law changes, support SPS's request for authority to retire coal operations at the plant by December 31, 2028.[3]

Q. Were Attachments BRE-1 through BRE-4 prepared by you or under your direct supervision and control?

A. Yes.

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

A. Yes.

Q. Do you incorporate Rate Filing Package Schedule P-11 into your testimony?

A. Yes.

[3] SPS witness Brooke A. Trammell discusses SPS's request to abandon generation facilities in more detail in her direct testimony.

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 reliable and cost-effective manner. In conducting resource planning, SPS compares its existing generating resources, including owned generating capacity and purchased power, to its projected annual peak firm load obligation over the planning period. Minimum planning reserve margins are included to determine SPS's capacity position. I discuss SPS's capacity position in more detail in Section IV of my direct testimony.

Q. Please describe the minimum planning reserve margin requirement.

A. To provide reliable service, all electric utilities must have a minimum level of capacity that exceeds the projected peak load to allow for system contingencies, including generating unit or transmission outages and other uncertainties. The available capacity in excess of the projected peak load is referred to as the "planning reserve margin." Planning 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, which requires each member to have a minimum planning reserve margin of 15% of its peak demand forecast, pursuant to Southwest Power Pool's rules for net planning capability.[4] Compliance with the Southwest Power Pool minimum 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 adequately plan for expected SPS customer needs. Other considerations include, but are not limited to, operational constraints, such as congestion management and transmission stability, and ensuring there is sufficient energy available to serve forecasted load at all times.

Q. Why is the planning reserve margin established by the Southwest Power Pool a minimum?

A. Southwest Power Pool establishes a consistent minimum planning reserve margin for each load responsible entity in the entire 14-state Southwest Power Pool region. Establishing appropriate minimum reserves is intended to ensure that the Southwest Power Pool will have sufficient capacity to serve peak demand obligations across its overall footprint. Depending on the unique needs and characteristics of a particular load serving entity's system, however, it may decide to carry capacity at

[4] In July of 2022, the Southwest Power Pool increased the reserve margin requirement from 12% to 15% effective during the summer of 2023.

an amount higher than the Southwest Power Pool's minimum planning reserve margin percentage.

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

A. SPS's assessment of electric resource needs includes determining both the magnitude of need as well as the type of resources needed. 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 determines the types of resources that its electric supply system needs by evaluating how different resource technologies integrate with SPS's existing electric supply to serve the overall system capacity and energy needs in a reliable and least-cost manner. Typical solutions for meeting resource needs consist of the following: enhancing current resources, demand management, acquiring new resources, and conducting competitive bid solicitations for new long-term or short-term energy and capacity. The ultimate decision is made based on the reliability and economic value of the alternatives, the risks inherent in each alternative, the ability to install the generation in a timely manner, and other factors affecting the project's value to SPS and its customers. SPS has utilized computer software in its resource planning modeling processes for decades and currently uses EnCompass[5] in its evaluation of the economic value of resource alternatives.

Q. What is EnCompass?

A. EnCompass is a production costing model that uses an algorithm to determine the most cost-effective portfolio of resources 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; and (3) enhanced storage logic and ancillary services. The model is also able to perform utility capital accounting (i.e., revenue requirement calculations).

In addition to the usual input variables required 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

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

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 into the EnCompass model.

A. The EnCompass model includes the critical generation costs SPS incurs to provide electric service to its customers. The following list summarizes the costs that are typically included in the EnCompass model.

1. *Fuel & Variable O&M*[6]
   - Fuel costs for all electric power supply resources (owned and purchased) and market energy costs
   - Variable operation and maintenance ("VOM") costs for existing and new generation facilities added to meet future need
   - Energy costs for new generation facilities added to meet future need
2. *Costs of Purchased Power*
   - Purchased energy costs for all electric power supply resources
   - Capacity costs of purchased power
   - VOM costs of purchased power
3. *Costs of Company-owned Generation*
   - Fixed operation and maintenance costs for existing and new generation facilities
   - Capital costs for new electric generation facilities added to meet future load

[6] Operation and maintenance

4. *Transmission* Costs

- Electric transmission interconnection and network upgrade costs for new generation (whether company-owned or acquired through a PPA)

5. *Remaining Book Life*

- Remaining book value of SPS-owned generating units

Q. What are some of the major assumptions that influence EnCompass's evaluation of the most reliable and cost-effective portfolio of resources?

A. The major assumptions influencing the EnCompass evaluation include:

(1) Natural Gas Price Forecast – The price of natural gas is an important 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 BRE-1 (next page):

Table BRE-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. That is, SPS is a member of the Southwest Power Pool, 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 of 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 as the basis for prices for assumed purchases from the Southwest Power Pool 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 BRE-1 above, why does SPS rely entirely on NYMEX for its near-term natural gas pricing forecast?

A. SPS relies on market prices in the near-term portion of the forecast to reflect current market conditions. The first three 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. After the first three years, why does SPS rely on a blend of fundamental natural gas forecasts for the long-term natural gas forecast?

A. Absent robust (and heavily traded) market trade data, it is reasonable to rely on fundamental natural gas price forecasts that consider projected changes in supply and demand conditions for long-term natural gas forecasts. 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 relying too heavily on a single forecast.

Q. How does SPS incorporate system reliability into the EnCompass model?

A. As I describe above, SPS incorporates the company's demand and energy requirements in the EnCompass model—both of which are critical factors for maintaining system reliability. To ensure SPS can meet its forecasted peak system demand requirements, EnCompass requires sufficient resources to meet SPS's minimum planning reserve margin requirement. If SPS does not have enough resources to meet the projected demand and planning reserve margin requirements, EnCompass will add additional resources. It is worth noting that the planning reserve margin is *not* a target, and EnCompass may select additional resources in excess of the planning reserve margin requirement to create the cost-effective portfolio of resources.

When calculating the most cost-effective portfolio of resources, EnCompass also considers the resources needed to meet SPS's energy requirements in all hours. For example, adding only solar generation may satisfy SPS's summer planning reserve margin requirement, but may result in SPS being energy deficient when solar resources are not generating (most obviously in the nighttime hours). EnCompass ensures the most cost-effective portfolio provides sufficient diversity of resources to meet SPS's expected energy needs at all times.

Q. Does SPS incorporate other system reliability concerns in its decision making?

A. Yes. There are other factors that SPS must consider in its decision making. These factors can be incorporated in the EnCompass model or are evaluated externally. For example, based on guidance from subject matter experts, to ensure transmission stability, SPS has previously incorporated the cost of installing synchronous condensers into the EnCompass model. In addition, production cost models such as EnCompass benefit from perfect foresight, meaning the model knows how much energy will be available and needed in each hour. In reality, system operators do not have this luxury and often respond to unforeseen circumstances (e.g., weather related events, transmission outages, etc.). The capability of a resource portfolio to respond to unforeseen circumstances is an example of an external consideration to EnCompass model.

IV. SPS'S GENERATING CAPACITY

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

A. Is this section, I will discuss SPS's total system generating capacity position in relation to SPS's demand and energy planning forecasts and the Southwest Power Pool's planning reserve margin requirements.

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

A. Yes. Oil and gas development in the Permian Basin continues to grow; however, in SPS's experience, projected load growth does not always materialize, at least not always on the timeline forecasted by customers, due to volatility in the industry and/or other macro- and micro-economic factors. The oil and gas industry's fluctuating plans for capital expansion, and the potential for electrification in oil operations, directly impact SPS's resource planning. Further, a host of other industries, such as aerospace and aviation, other fuels production, data centers, manufacturing, and distribution centers, continue to be attracted to SPS's service territory due to high electric reliability, attractive energy prices, and economic development foundations such as available land, qualified workforces, and transportation capabilities.

A conservative approach (to generation resource planning) would be to design a system capable of serving only 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) if actual load growth did not match forecasted load growth exactly. Such an approach is not unreasonable for the purposes of financial planning. However, from a resource planning perspective, there is a need to recognize that new generation takes time to add or acquire, particularly for a utility that is experiencing other material load growth. Accordingly, a prudent approach to load forecasting for capacity planning purposes is to design a generation resource plan capable of covering the most likely load growth *plus* some level of additional load growth to account for potential load growth that may not be definitive yet—SPS refers to its load forecast using this methodology as its "planning forecast." For a regulated utility with an obligation to serve, this practice is in the public interest. The nature of a 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.

Q. How much capacity need did the increased minimum planning reserve margin create on SPS's system?

A. The increase in the minimum planning reserve margin requirement from 12% to 15% requires SPS to have 123 megawatts ("MW") of additional accredited capacity in 2023, increasing to 136 MW by 2027.

Q. Does the presence of a minimum planning reserve margin requirement mean that SPS has headroom in its capacity position to manage increased load growth on its system?

A. No. The purpose of a minimum planning reserve margin is for operational contingencies, not to create room to absorb long-term load growth. So, the fact that SPS's capacity position includes Southwest Power Pool's 15% minimum planning reserve margin does not itself mean SPS has excess capacity to support significant additional load. Said another way, SPS should always carry enough capacity to cover a minimum planning reserve margin to cover contingencies. Any additional capacity needed to account for load growth must be above that floor.

Q. Does SPS currently have enough resources to meet the Southwest Power Pool's minimum 15% planning reserve margin using the planning forecast?

A. Yes, however, a combination of load growth, the increase in the minimum planning reserve margin, and changing resource adequacy requirements has impacted SPS's capacity position since the company filed its 2021 Integrated Resource Plan ("IRP"). Extending the retirement dates of Nichols Units 1 and 2 to 2028 and 2027, respectively, covers the increased Southwest Power Pool's minimum planning reserve margin, which was increased from 12% to 15% effective in 2023, as discussed previously. SPS, along with several other members, had advocated that the increased minimum planning reserve margin be implemented in 2025 with a 1% increase each year in 2023, 2024, and 2025. The Southwest Power Pool did not adopt this recommendation and required that all load responsible entities increase their capacity levels to cover this increased minimum planning reserve margin before the summer of 2023. Due to the short timeframe for compliance, extending the Nichols units is the most reasonable solution. As SPS witness David Low describes in his direct testimony, extending the service lives of these units at no material increase in O&M cost is a low-cost option to continue to provide firm and dispatchable generation and meet the new Southwest Power Pool requirements.

Q. How has SPS's capacity position been impacted by increased load growth, the increase to the minimum planning reserve margin requirement, and changing resource adequacy requirements?

A. As shown below in Table BRE-2, all else being equal, the increase in the minimum planning reserve margin requirement has increased SPS's capacity need by

123 MW to 136 MW over the next five years. Compared to the 2021 IRP planning (high) forecast, SPS's Summer 2022 planning forecast includes an additional 238 MW of load growth by 2027 (including the required planning reserves). In addition, effective 2023, the Southwest Power Pool will change its methodology for accrediting capacity for renewable generation, this change is projected to lower SPS's accreditation for renewable resources by up to 235 MW. I discuss this change and other resource adequacy changes later in this section of my testimony. As a result of these changes, SPS's capacity need has accelerated from 2028 in the 2021 IRP to 2026 using the Summer 2022 planning forecast.

Table BRE-2: New Mexico Capacity Position (MW) – Summer 2022 Planning Forecast

	2023	2024	2025	2026	2027
2021 IRP Position	915	477	398	178	53
PRM Increase	(123)	(127)	(131)	(132)	(136)
Additional Load Growth	16	(36)	(117)	(176)	(238)
Renewable Accreditation	(157)	(157)	(155)	(158)	(235)
Nichols Extension	107	213	213	213	213
Other Changes	(40)	(34)	(31)	(31)	(24)
Capacity Position	718	336	176	(106)	(367)

Q. Has SPS already seen the type of load growth it is projecting in its planning forecast?

A. Yes. During this past summer, SPS's generation peak was 4,255 MW. This is 122 MW higher than the 4,133 MW SPS forecasted in its planning (high) forecast for Summer 2022 in its 2021 IRP and 286 MW higher than its conservative financial (base) forecast.

Q. Could SPS continue to see pressure on its capacity need?

A. Yes. Recently, SPS has received several inquiries from high energy usage customers that, if connected, will likely require additional generating resources and further accelerate SPS's capacity need. Although energy service agreements have not been finalized with these customers, for planning purposes SPS recently updated its Summer 2022 Planning Forecast to incorporate a portion of these new load inquiries. As shown below in Table BRE-3, SPS's capacity need could be as early as 2024, if this additional load materializes.

Table BRE-3: New Mexico Capacity Position (MW) – Updated Summer 2022 Planning Forecast

	2023	2024	2025	2026	2027
Capacity Position	718	(32)	(330)	(612)	(873)

Considering the time required to acquire new resources, SPS is proactively evaluating this potential new load. As discussed in the Supplemental Filing filed by SPS in Case No. 21-00169-UT (SPS's 2021 IRP) on November 17, 2022, SPS intends to issue an all-source Request for Proposal ("RFP") in the near future to acquire new generating resources to fulfill its capacity need through 2027.

SPS will also continue to review the potential for existing or new load to participate in load management programs. Currently, customers participating in load management programs directly offset load in SPS's capacity position and can reduce SPS's capacity need, if customer participation levels are reached. To ensure SPS can reliably serve new customer load, SPS does not, by default, assume that new customers will participate in load management programs, particularly before customer participation in programs is confirmed.

Q. Can the service lives of Plant X Generating Station ("Plant X") Unit 1, Plant X Unit 2, and Cunningham Generating Station ("Cunningham") Unit 1 be extended to help meet SPS's capacity need?

A. No. Unlike Nichols Unit 1 and 2, and as Mr. Low describes in his direct testimony, it is no longer economic to operate those units because of their age, high heat rates, and operational condition. Because of these issues, Plant X Unit 1, Plant X Unit 2, and Cunningham Unit 1 should be retired as currently planned.

Q. Do resource acquisition considerations and decision sometimes differ when evaluating capacity needs versus energy benefits?

A. Yes. It may be prudent and appropriate to add or retain resources because they benefit SPS's system and provide energy value to customers, but may not necessarily be acquired for capacity reasons. For example, many of SPS's older natural gas units benefit customers by providing necessary transmission stability on SPS's system. In addition, these older units provide energy savings when natural gas prices are low (e.g., during 2019 and 2020), conversely SPS's coal units provide energy savings when natural gas prices are high (e.g., currently).

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.

Q. Is the Southwest Power Pool implementing or proposing other changes that impact SPS's capacity position?

A. Yes. First, beginning next summer, the Southwest Power Pool will change the way it calculates the accredited capacity assigned to renewable resources and battery energy storage and begin using the effective load carrying capability ("ELCC") methodology. As part of this change, the accredited capacity for renewable resources and battery energy storage resources will decline as the number of renewable resources and battery energy storage resources increases. The forecasted impact of this change is shown above in Table BRE-2. SPS is following these developments closely as they can be expected to impact the capacity value of future renewable resources. Implementation of the ELCC also impacts the accredited capacity of SPS's existing resources, for example, in the 2021 IRP, SPS estimated the future accredited capacity of the Sagamore wind facility and Hale wind facility to be 20% of their nameplate capacity, or 200 MW. This is higher than the 143 MW calculated in the Southwest Power Pool's 2021 ELCC study.

Second, in response to Winter Storm Uri, the Southwest Power Pool formed the Improved Resource Adequacy Task Force ("IRATF"). The IRATF has implemented several initiatives that will impact SPS's capacity position. For example, the Southwest Power Pool will transition to performance-based accreditation for thermal resources in 2023. An increased emphasis on winter load obligations is another focus of the Southwest Power Pool and IRATF. SPS has been and is still a summer-peaking utility; however, many load serving entities in the Southwest Power Pool's footprint have significant winter peaks (e.g., entities in the Dakotas). Therefore, an increased emphasis on winter load obligations by the Southwest Power Pool is an important development for SPS to follow.

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, reasonably priced, and reliable service to its customers?

A. Yes. SPS's generation portfolio: (1) continues to provide safe and reliable service; (2) helps keep customer costs low, even as natural gas prices have increased sharply; and (3) allows SPS to address contingencies such as load-growth and more stringent resource adequacy requirements.

V. ECONOMIC ANALYSIS REGARDING TOLK

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

A. In SPS's last base rate case, Case No. 20-00238-UT, SPS obtained authorization to shorten the service lives of the Tolk units to End-of-Year ("EOY") 2032 for generation operations. In this section of my testimony, I will:

(1) discuss the impact of the recent sharp increase in natural gas prices and the Inflation Reduction Act on SPS's economic analysis; and

(2) present an updated economic analysis that supports modifying the Tolk Optimization Plan by increasing the annual generation output of the Tolk units and further shortening the service lives of the Tolk units to EOY 2028.

Q. First, can you provide an overview of the Inflation Reduction Act?

A. Yes. President Biden signed the Inflation Reduction Act into law on August 16, 2022. The Inflation Reduction Act includes several renewable energy tax provisions including, but not limited to, an extension of federal tax credits, the introduction of a production tax credit for solar, nuclear, and clean hydrogen, investment tax credits for standalone storage with an option to opt out of normalization requirements, and the transferability of tax credits.[7] The Inflation Reduction Act also includes new opportunities to enhance the level of credit if

[7] SPS witness Naomi Koch discusses tax credit transferability in more detail in her direct testimony.

certain domestic content requirements are met and/or if the project is located in an "energy community," such as near a former coal plant. Each of these will lower the cost of new renewable generation and, in turn, the cost of replacing the Tolk units.

Q. Please briefly describe Tolk.

A. Tolk consists of two coal-powered steam turbine units located in Lamb County, Texas, each with a nominal net capacity of approximately 540 MW, for a total capacity of approximately 1,080 MW. 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. Can you briefly summarize SPS's previous economic analyses?

A. In response to the water availability issues at Tolk, SPS has previously evaluated whether the Tolk Units should continue to be dispatched economically year-round, without constraint, or whether operation of the units should be reduced to conserve water and preserve the service lives of the Tolk Units. Until recently, SPS's analyses have shown reducing operations to conserve water and preserve the capacity of the Tolk units through EOY 2032 was the most economical solution to the water availability issues at Tolk ("Tolk Optimization Plan").

Q. Has SPS implemented its Tolk Optimization Plan?

A. Yes. SPS implemented its Tolk Optimization Plan beginning in April 2018. The Tolk Optimization Plan includes two distinct phases: the first phase included reducing the output of the Tolk Units during the off-peak months (October-May) and economically operating the Tolk units during the summer peak months (June-September); the second phase of the Tolk Optimization Plan, which was implemented in early 2021, included the installation of synchronous condensers at the units to mitigate voltage stability concerns, allowing both units to be off-line in off-peak (October-May) months and economically dispatched during the Summer peak months (June-September).

Q. Are the Tolk Units always operated as synchronous condensers throughout off-peak months?

A. No. When it is most beneficial to customers, the Tolk Units have also been operated as generators in the off-peak months. For example, Tolk was converted to a generating facility during Winter Storm Uri. More recently, the Tolk Units have been operated as generators in off-peak months to offset a sharp increase in natural gas prices. In providing a more flexible approach, SPS has been able to lower the fuel costs the company, and ultimately customers, would have otherwise incurred if the Tolk Units were not available.

Q. Has SPS continued to analyze Tolk water availability and operational planning?

A. Yes. SPS performed an extensive re-analysis in 2020-2021 that ultimately concluded with a filing SPS made as part of its 2021 IRP filed with the Commission in July 2021 ("SPS 2020-21 Tolk Analysis").

Q. Since filing the SPS 2020-21 Tolk Analysis, have there been any changes that could fundamentally change the Tolk Optimization Plan?

A. Yes. Two important events have fundamentally changed the Tolk Analysis and Optimization Plan. As described above, there has been a sharp increase in natural gas prices, and the recent passage and signing of the Inflation Reduction Act which, amongst other changes, extends federal tax incentives for renewable generating resources and battery energy storage.

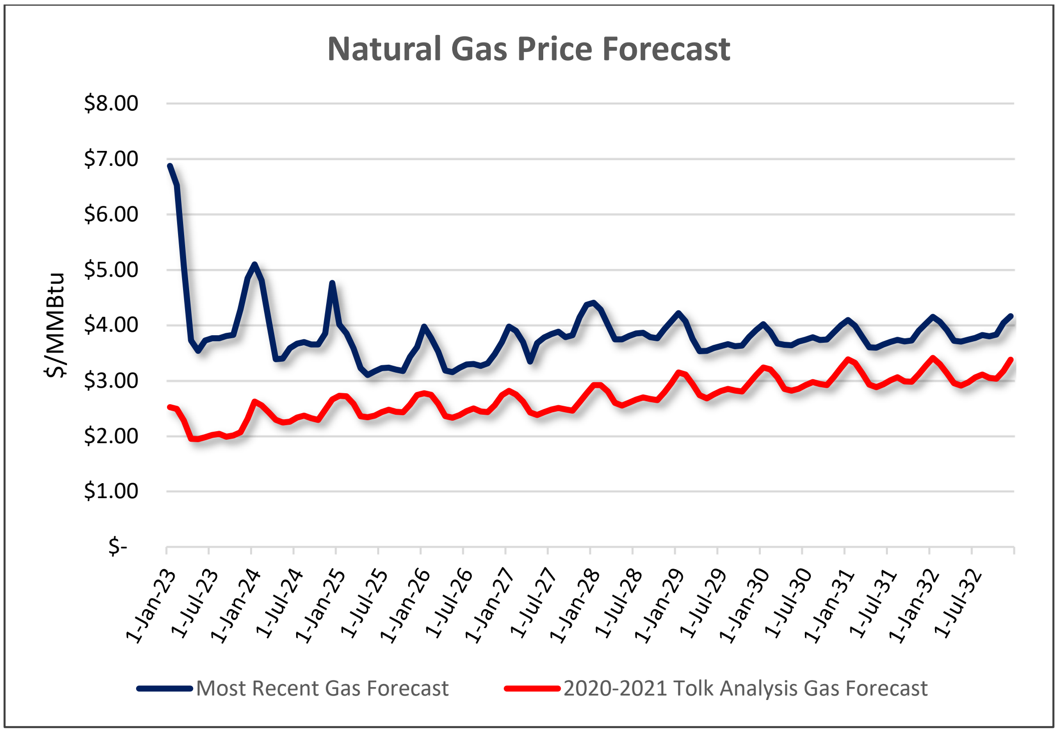
Q. How does a sharp increase in natural gas prices impact the Tolk Analysis and Optimization Plan?

A. Historically, the production cost to operate coal units, such as Tolk, is lower than the cost of alternative natural gas-fired units. However, until the recent sharp increase in prices, natural gas prices had historically been low for many years. Gas prices and coal prices were relatively comparable on a cost basis, and as a result, SPS's previous analyses showed it was more economic to conserve water and preserve the capacity value of the Tolk Units through 2032 than it was to maximize Tolk's short-term energy value. However, as gas prices increase, the pendulum can swing in favor of maximizing the short-term energy value of the Tolk units (at the expense of longer-term capacity).

Q. Can you quantify the increase in natural gas prices?

A. Yes. Figure BRE-1 (next page) shows the increase in natural gas prices between SPS's most recent natural gas price forecast and the price forecast used in SPS's 2020-21 Tolk Analysis. As shown in Figure BRE-1, natural gas prices have risen, with the largest increase projected in the next few years. Changing the Tolk Optimization Plan to allow for increased generation will offset the need for more costly natural gas generating units during this time, providing fuel savings to SPS's customers.

Figure BRE-1: Natural Gas Price Forecast Comparison



Q. How does the Inflation Reduction Act impact the Tolk Analysis?

A. Amongst other changes, the Inflation Reduction Act extends federal tax credits for solar, wind, and battery energy storage, reducing the cost of replacement resources for the next decade or so. In other words, the cost to replace the capacity of the Tolk Units has decreased with the enactment of the Inflation Reduction Act.

Q. Has SPS conducted an updated analysis that includes the major changes you describe above?

A. Yes. In preparing this case, SPS conducted a 2022 updated economic analysis that includes an updated natural gas forecast and the impact of the Inflation Reduction Act. In addition, SPS updated other key modeling inputs and assumptions.

Q. Can you describe the scenarios SPS evaluated in its 2022 updated economic analysis?

A. SPS evaluated two different scenarios using the same generation limit of 24,000 GWh over the remaining life of the Units:

- Scenario 1 included a 4,000 GWh annual generation limit from 2023 to 2028; and
- Scenario 2 included a 2,400 GWh annual generation limit from 2023 to 2032.

Q. Can you describe the basis for the 2,400 GWh annual generation limit and 2032 retirement date incorporated in Scenario 2?

A. The scenario aligns with SPS's current Tolk Optimization Plan, including increased generation flexibility rather than rigidly operating the units as synchronous condensers in the off-peak months. The 2,400 GWh annual generation limit and 2032 retirement date aligns with the projected average annual generation SPS provided in its last New Mexico base rate case, Case No. 20-00238-UT. In other words, the 2,400 GWh annual generation limit is equal to the projected Summer seasonal generation but is available year-round.

Q. Can you describe the basis for the 4,000 GWh annual generation limit and 2028 retirement date incorporated in Scenario 1?

A. The 2028 retirement date reflects SPS's anticipated earliest feasible retirement date of the Tolk Units. Put differently, due to the time required to acquire new generating resources, SPS believes it would be extremely challenging to retire approximately 1,100 MW of firm and dispatchable generation before the end of 2028. SPS then re-allocated the total remaining generation at Tolk from Scenario 2 between 2023 and 2028.

Q. Has SPS updated its Tolk Analysis?

A. Yes. SPS updated the Tolk Analysis using the Summer 2022 planning forecast described in Section IV of my testimony. As shown below in Table BRE-4, changing the Tolk Optimization Plan to increase the annual generation of the Tolk Units to 4,000 GWh per year through 2028 is projected to save $119M on a present value of revenue requirement ("PVRR") basis between 2023 – 2042 using the

Summer 2022 planning forecast, including projected savings of $66M on a PVRR basis between 2023 – 2028 alone.

Table BRE-4: PVRR Results – Planning Forecast

Scenario	NPV ($M) 2023-2028	NPV ($M) 2023-2042
2032 Retirement (2,400 GWh)	$5,119	$12,507
2028 Retirement (4,000 GWh)	$5,053	$12,389
Delta ($M)	($66)	($119)

Q. Has SPS updated its Tolk Analysis using its financial load forecast?

A. Yes. Although it is prudent to rely upon the planning forecast for resource planning decisions, SPS's also updated the Tolk analysis using the financial forecast to stress test the economic viability of changing the Tolk Optimization Plan in the absence of projected load growth. As shown below in Table BRE-5, changing the Tolk Optimization Plan to increase the annual generation of the Tolk Units to 4,000 GWh per year through 2028 is projected to save $109M on a PVRR basis between 2023 – 2042 using the financial forecast. The revised Tolk Optimization Plan is projected to save $54M on a PVRR basis between 2023 – 2028. In short, the results of the financial load forecast demonstrate that SPS's recommendation to change the Tolk Optimization Plan and shorten the service lives of the Tolk units is prudent even in the absence of the expected load growth.

Table BRE-5: PVRR Results – Financial Forecast

Scenario	NPV ($M) 2023-2028	NPV ($M) 2023-2042
2032 Retirement (2,400 GWh)	$4,532	$10,648
2028 Retirement (4,000 GWh)	$4,478	$10,540
Delta ($M)	($54)	($109)

Q. Did SPS conduct any additional sensitivity analysis?

A. Yes. SPS relies on cost information from the National Renewable Energy Laboratory ("NREL") when modeling the cost of future wind, solar and battery energy storage resources. SPS then adjusted the NREL data to incorporate the effects of the Inflation Reduction Act. Although the updated cost of solar and battery energy storage resources generally aligned with SPS's costs expectations, the updated cost of future wind resources was lower than SPS's cost expectation. Again, to stress-test the Tolk analysis, SPS doubled the cost of future wind resources (excluding transmission network upgrades) to ensure the results were not fundamentally changed if the cost of wind generation was higher than modeled.

Q. Do the results of the Tolk Analysis fundamentally change under the high wind cost sensitivity?

A. No. As shown below in Table BRE-6, under the Summer 2022 planning forecast, the results of the high wind cost sensitivity were fundamentally the same as the base wind cost case. Compared to the base wind cost case, savings under the high wind cost sensitivity decreased slightly from $119M to $98M, on a PVRR basis between 2023 – 2042 and from $66M to $63M, on a PVRR basis between 2023 – 2028.

Table BRE-6: PVRR Results – Planning Forecast (High Wind Cost Sensitivity)

Scenario	NPV ($M) 2023-2028	NPV ($M) 2023-2042
2032 Retirement (2,400 GWh)	$5,357	$13,737
2028 Retirement (4,000 GWh)	$5,293	$13,639
Delta ($M)	($63)	($98)

Q. Do the results of the Tolk Analysis fundamentally change using the financial forecast change under the high wind cost sensitivity?

A. No. As shown below in Table BRE-7 (next page), under the financial forecast, the results of the high wind cost sensitivity were fundamentally the same as the base wind cost case. Compared to the base wind cost case, savings under the high wind cost sensitivity decreased slightly from $109M to $101M, on a PVRR basis between 2023 – 2042. The estimated PVRR savings between the base and high wind cost cases did not change between 2023 – 2028.

Table BRE-7: PVRR Results – Financial Forecast (High Wind Cost Sensitivity)

Scenario	**NPV ($M) 2023-2028**	**NPV ($M) 2023-2042**
2032 Retirement (2,400 GWh)	$4,791	$11,736
2028 Retirement (4,000 GWh)	$4,736	$11,635
Delta ($M)	($54)	($101)

Q. Can you summarize the results of the updated Tolk Analysis?

A. Yes. The results of the updated Tolk Analysis support changing the Tolk Optimization Plan to increase the annual generation of the Tolk Units to 4,000 GWh per year. The increased generation will offset alternative higher priced natural gas generation and provide SPS's customers with fuel cost savings. Operating the units more frequently will necessitate the earlier retirement of the Tolk Units. Although SPS has not yet identified the exact resources that will replace Tolk, the Inflation Reduction Act provides a path forward for the significant addition of low-cost renewable energy. SPS will identify the most cost-effective portfolio of resources to replace Tolk in its next Integrated Resource Plan.

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. 312; (2) AUTHORITY TO ABANDON THE PLANT X UNIT 1, PLANT X UNIT 2, AND CUNNINGHAM UNIT 1 GENERATING STATIONS AND AMEND THE ABANDONMENT DATE OF THE TOLK GENERATING STATION; AND (3) OTHER ASSOCIATED RELIEF,	)	**CASE NO. 22-00286-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

VERIFICATION

On this day, November 18, 2022, I, Ben R. Elsey, swear and affirm under penalty of perjury under the law of the State of New Mexico, that my testimony contained in Direct Testimony of Ben R. Elsey is true and correct.

/s/ Ben R. Elsey
BEN R. ELSEY

Southwestern Public Service Company

PVRR Summary - Planning Forecast

WACC	7.17%

PVRR Production Cost	Delta ($M)	NPV ($M) 2023-2028	Delta ($M)	NPV ($M) 2023-2032	Delta ($M)	NPV ($M) 2023-2042	2023	2024	2025
2032 Retirement (2,400 GWh)	$0	$ 5,119	$0	$ 7,680	$0	$ 12,507	$ 989,067	$ 1,010,569	$ 1,129,218
2028 Retirement (4,000 GWh)	($66)	$ 5,053	($44)	$ 7,636	($119)	$ 12,389	$ 968,199	$ 996,275	$ 1,112,532

Southwestern Public Service Company

PVRR Summary - Planning Forecast

PVRR Production Cost	2026	2027	2028	2029	2030	2031	2032	2033	2034
2032 Retirement (2,400 GWh)	$ 1,004,691	$ 976,676	$ 914,992	$ 932,676	$ 1,079,552	$ 1,123,734	$ 1,182,846	$ 1,195,402	$ 1,233,791
2028 Retirement (4,000 GWh)	$ 988,388	$ 970,423	$ 916,481	$ 950,100	$ 1,100,207	$ 1,141,030	$ 1,159,948	$ 1,177,908	$ 1,217,579

Southwestern Public Service Company

PVRR Summary - Planning Forecast

PVRR Production Cost	2035	2036	2037	2038	2039	2040	2041	2042
2032 Retirement (2,400 GWh)	$ 1,240,158	$ 1,250,908	$ 1,274,198	$ 1,281,295	$ 1,346,788	$ 1,361,977	$ 1,434,359	$ 1,458,324
2028 Retirement (4,000 GWh)	$ 1,211,513	$ 1,223,997	$ 1,238,445	$ 1,268,048	$ 1,321,618	$ 1,353,237	$ 1,426,209	$ 1,444,814

Southwestern Public Service Company

PVRR Summary - Financial Forecast

WACC	7.17%

PVRR Production Cost	Delta ($M)	NPV ($M) 2023-2028	Delta ($M)	NPV ($M) 2023-2032	Delta ($M)	NPV ($M) 2023-2042	2023	2024	2025	2026
2032 Retirement (2,400 GWh)	$0	$ 4,532	$0	$ 6,719	$0	$ 10,648	$ 918,158	$ 924,553	$ 1,017,155	$ 872,630
2028 Retirement (4,000 GWh)	($54)	$ 4,478	($48)	$ 6,671	($109)	$ 10,540	$ 898,330	$ 912,221	$ 1,001,899	$ 858,053

Southwestern Public Service Company

PVRR Summary - Financial Forecast

PVRR Production Cost	2027	2028	2029	2030	2031	2032	2033	2034	2035
2032 Retirement (2,400 GWh)	$ 828,550	$ 747,708	$ 786,301	$ 919,831	$ 971,763	$ 1,012,573	$ 997,522	$ 1,032,523	$ 1,016,694
2028 Retirement (4,000 GWh)	$ 812,150	$ 768,537	$ 802,829	$ 934,422	$ 978,504	$ 979,049	$ 994,133	$ 1,012,203	$ 997,326

Southwestern Public Service Company

PVRR Summary - Financial Forecast

PVRR Production Cost	2036	2037	2038	2039	2040	2041	2042
2032 Retirement (2,400 GWh)	$ 1,006,009	$ 1,042,525	$ 1,063,526	$ 1,073,912	$ 1,086,029	$ 1,142,660	$ 1,140,937
2028 Retirement (4,000 GWh)	$ 993,059	$ 1,021,968	$ 1,043,879	$ 1,054,954	$ 1,067,636	$ 1,125,016	$ 1,127,841

Southwestern Public Service Company

PVRR Summary - Planning Forecast - High wind cost sensitivity

WACC	7.17%

PVRR Production Cost	Delta ($M)	NPV ($M) 2023-2028	Delta ($M)	NPV ($M) 2023-2032	Delta ($M)	NPV ($M) 2023-2042	2023	2024	2025
2032 Retirement (2,400 GWh)	$0	$ 5,357	$0	$ 8,274	$0	$ 13,737	$ 989,101	$ 1,010,738	$ 1,129,462
2028 Retirement (4,000 GWh)	($63)	$ 5,293	($34)	$ 8,240	($98)	$ 13,639	$ 968,137	$ 996,240	$ 1,112,696

Southwestern Public Service Company

PVRR Summary - Planning Forecast - High wind cost sensitivity

PVRR Production Cost	2026	2027	2028	2029	2030	2031	2032	2033	2034
2032 Retirement (2,400 GWh)	$ 1,049,474	$ 1,093,411	$ 1,073,786	$ 1,096,929	$ 1,220,695	$ 1,276,538	$ 1,319,939	$ 1,336,668	$ 1,379,809
2028 Retirement (4,000 GWh)	$ 1,033,156	$ 1,073,990	$ 1,093,254	$ 1,128,388	$ 1,243,606	$ 1,282,509	$ 1,302,802	$ 1,331,154	$ 1,367,641

Southwestern Public Service Company

PVRR Summary - Planning Forecast - High wind cost sensitivity

PVRR Production Cost	2035	2036	2037	2038	2039	2040	2041	2042
2032 Retirement (2,400 GWh)	$ 1,391,010	$ 1,409,220	$ 1,453,897	$ 1,483,025	$ 1,503,529	$ 1,549,219	$ 1,643,249	$ 1,672,170
2028 Retirement (4,000 GWh)	$ 1,377,343	$ 1,392,577	$ 1,425,972	$ 1,456,532	$ 1,498,959	$ 1,545,907	$ 1,614,248	$ 1,628,733

Southwestern Public Service Company

PVRR Summary - Financial Forecast - High wind cost sensitivity

WACC	7.17%

PVRR Production Cost	Delta ($M)	NPV ($M) 2023-2028	Delta ($M)	NPV ($M) 2023-2032	Delta ($M)	NPV ($M) 2023-2042	2023	2024	2025	2026
2032 Retirement (2,400 GWh)	$0	$ 4,791	$0	$ 7,287	$0	$ 11,736	$ 918,154	$ 924,539	$ 1,017,063	$ 917,518
2028 Retirement (4,000 GWh)	($54)	$ 4,736	($46)	$ 7,241	($101)	$ 11,635	$ 898,351	$ 912,160	$ 1,001,865	$ 902,866

Southwestern Public Service Company

PVRR Summary - Financial Forecast - High wind cost sensitivity

PVRR Production Cost	2027	2028	2029	2030	2031	2032	2033	2034	2035
2032 Retirement (2,400 GWh)	$ 942,548	$ 939,482	$ 943,381	$ 1,047,904	$ 1,094,385	$ 1,117,764	$ 1,112,390	$ 1,150,985	$ 1,148,462
2028 Retirement (4,000 GWh)	$ 935,904	$ 949,431	$ 959,385	$ 1,063,952	$ 1,097,402	$ 1,092,287	$ 1,095,566	$ 1,138,143	$ 1,133,956

Southwestern Public Service Company

PVRR Summary - Financial Forecast - High wind cost sensitivity

PVRR Production Cost	2036	2037	2038	2039	2040	2041	2042
2032 Retirement (2,400 GWh)	$ 1,164,501	$ 1,183,767	$ 1,187,477	$ 1,221,759	$ 1,237,149	$ 1,297,152	$ 1,321,182
2028 Retirement (4,000 GWh)	$ 1,136,385	$ 1,169,315	$ 1,193,151	$ 1,207,472	$ 1,223,669	$ 1,284,959	$ 1,294,119