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APPLICATION OF SOUTHWESTERN	§	
PUBLIC SERVICE COMPANY TO	§	
AMEND ITS CERTIFICATE OF	§	PUBLIC UTILITY COMMISSION
CONVENIENCE AND NECESSITY TO	§	
CONVERT HARRINGTON	§	OF TEXAS
GENERATING STATION FROM	§	
COAL TO NATURAL GAS	§	

DOCKET NO. _____

DIRECT TESTIMONY

of

WILLIAM A GRANT

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

(Filename: GrantDirect.doc Total Pages 20)

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term Meaning

CCN Certificate of Convenience and Necessity

Commission Public Utility Commission of Texas

DSI Dry Sorbent Injection

EPA Environmental Protection Agency

FERC Federal Energy Regulatory Commission

Harrington Harrington Generating Station

MW Megawatt

NAAQS National Ambient Air Quality Standards

NMPRC New Mexico Public Regulation Commission

PPA Purchased Power Agreement

PPB Parts per Billion

RFI Request for Information

RTO Regional Transmission Organization

SDA Spray Dryer Absorber

SO₂ Sulfur Dioxide

SPS Southwestern Public Service Company, a New

Mexico corporation

TCEQ Texas Commission on Environmental Quality

Xcel Energy Inc.

XES Xcel Energy Services Inc.

OF WILLIAM A. GRANT

WITNESS IDENTIFICATION AND QUALIFICATIONS

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I.

2 Q. Please state your name and business address. 3 Α. My name is William A. Grant. My business address is 790 South Buchanan Street, 4 Amarillo, Texas 79101. 5 On whose behalf are you testifying in this proceeding? Q. 6 A. I am filing testimony on behalf of Southwestern Public Service Company, a New 7 Mexico corporation ("SPS") and wholly-owned electric utility subsidiary of Xcel 8 Energy Inc. ("Xcel Energy"). Xcel Energy is a utility holding company that owns 9 several electric and natural gas utility operating companies, a regulated natural gas pipeline, and three electric transmission companies.¹ 10 11 Q. By whom are you employed and in what position? 12 I am employed by SPS as Regional Vice President, Rates and Regulatory Affairs. A. Please briefly outline your responsibilities as Regional Vice President, Rates and 13 Q. 14 Regulatory Affairs. 15 A. I am responsible for determining the appropriate planning strategy for SPS. In this 16 role, I work with generation and transmission planning personnel and coordinate with

¹ Xcel Energy is the parent company of four utility operating companies: Northern States Power Company, a Minnesota corporation; Northern States Power Company, a Wisconsin corporation; Public Service Company of Colorado, a Colorado corporation; and SPS (collectively, "Operating Companies"). Xcel Energy's natural gas pipeline company is WestGas InterState, Inc. Through a subsidiary, Xcel Energy Transmission Holding Company, LLC, Xcel Energy also owns three transmission-only operating companies: Xcel Energy Southwest Transmission Company, LLC; Xcel Energy Transmission Development Company, LLC; and Xcel Energy West Transmission Company, LLC, all of which are regulated by the Federal Energy Regulatory Commission ("FERC").

- the Southwest Power Pool on regional policy and cost allocation issues affecting
 SPS. I am also responsible for:
 - overseeing the activities of the SPS regulatory department to ensure that SPS meets the regulatory requirements of the Texas Public Utility Commission ("Commission") and the New Mexico Public Regulation Commission ("NMPRC"), as well as FERC; and
 - overseeing the relationships with the state and federal commissions and managing the relationships and policy decisions with the Southwest Power Pool.

10 Q. Please describe your professional experience.

Α.

- I have over 30 years of experience in both power plant and system operations at Xcel Energy and its predecessors. I have had responsibility for operating several different types of electric generating units ranging from diesel generators, coal-fired steam electric stations, and gas-fired steam units and combustion turbines. I have five years' experience as a System Operator for the SPS transmission control center. For seven years, I was Director, Power Operations for Xcel Energy Services Inc. ("XES"), in which I was responsible for the economic dispatch and analytical support for all of the Xcel Energy Operating Companies, including SPS. For seven years, I was Manager, Transmission Control Center and Wind Integration for SPS. In 2012, I was named Director, Strategic Planning for SPS. In 2017, I was named Regional Vice President of Regulatory and Strategic Planning, and I was named Regional Vice President of Rates and Regulatory Affairs in 2020.
- Q. Please describe your experience with Regional Transmission Organizations ("RTO").
- A. Over my career, I have had extensive experience with RTOs and transmission coordination organizations, including serving on a number of committees with the

1		Southwest Power Pool and the Western Electricity Coordinating Council. Currently,
2		I serve on the Southwest Power Pool Markets and Operations Policy Committee and
3		the Strategic Planning Committee. I have also served on the Consolidated Balancing
4		Authority Steering Committee and the Operations Reliability Working Group, and I
5		have chaired the wind integration taskforce. Additionally, I am familiar with the
6		Midcontinent Independent System Operator Day 2 Market development and
7		implementation.
8	Q.	Have you testified before any regulatory authorities?
9	A.	Yes. I have submitted pre-filed testimony to the Commission on behalf of SPS in
10		several recent proceedings, including:
11 12		 Docket Nos. 49831, 47527, 45524, 43695, 42004 and 51802 (SPS base rate cases);
13 14		 Docket Nos. 46042 (SPS Certificate of Convenience and Necessity ("CCN") case);
15		• Docket Nos. 48973 and 46025 (SPS fuel reconciliation cases);
16		• Docket Nos. 48847 and 49616 (SPS fuel formula revision cases);
17 18 19		• Docket No. 46496 (SPS's request to recover amounts billed by the Southwest Power Pool in 2016, under Attachment Z2, for transmission projects placed in service between 2008 and 2016);
20		• Docket Nos. 46877 and 42042 (transmission cost recovery factor cases); and
21 22 23		 Docket No. 46936 (SPS's requests regarding two proposed SPS-owned wind energy facilities and a proposed wind energy purchased power agreement ("PPA").
24		I have also submitted pre-filed testimony to the NMPRC, the Colorado Public
25		Utilities Commission, the Kansas Corporation Commission, and FERC. My
26		testimony in those jurisdictions has covered, among other topics:

2	Southwest Power Pool s operations and planning, and now those activities affect SPS;
3	• Southwest Power Pool's fees and charges;
4 5	 Southwest Power Pool's regional cost allocation for transmission facilities; and
6 7	SPS generation dispatch and outages; and the proposed SPS-owned wind energy facilities and proposed wind energy PPA

1	II.	PURPOSE AND SUMMARY OF TESTIMONY AND RECOMMENDATIONS
2	Q.	What is the purpose of your testimony in this proceeding?
3	A.	The purpose of my testimony is to provide an overview of SPS's request to amend its
4		CCN to convert Harrington Station from coal to natural gas and to introduce other
5		Company witnesses that support SPS's request.
6		Specifically, my testimony:
7 8		 Provides an overview of SPS's request to convert Harrington from coal-fired generation to natural gas-fired generation;
9 10		• Demonstrates SPS's need for the Harrington Conversion;
11 12 13		• Discusses why continued operation of Harrington as a coal-fired facility is uneconomical;
14 15 16 17		• Confirms that Harrington continues to be a necessary resource for capacity and voltage support; and
18 19 20 21		• Summarizes the economic benefits associated with conversion, including but not limited to, the fact that conversion will allow Harrington's initially installed boilers to continue to operate.

generation is reasonable and necessary.
 Q. What is your recommendation in this proceeding?

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A. I recommend the Commission grant SPS's request to amend its CCN to convert

Harrington from coal-fired generation to natural gas-fired generation.

I also introduce other witnesses that support SPS's request. Together, SPS's

witnesses demonstrate that the conversion of Harrington to natural gas-fired

- Q. Please identify the other SPS witnesses in this case and briefly describe the areas
 covered in their respective testimonies.
- 3 A. SPS is presenting the following witnesses:

- Mr. Jeffrey L. West: describes the history of Harrington as a coal-fired generation facility, the options to bring Harrington into National Ambient Air Quality Standards ("NAAQS") compliance, the environmental assessments and actions of the Texas Commission on Environmental Quality ("TCEQ") that ultimately led to the TCEQ and SPS to enter into an Agreed Order to convert Harrington from coal to natural gas, and the environmental benefits of conversion;
 - Mr. Ben R. Elsey: provides a summary of economic and additional benefits of the Harrington Conversion, discusses SPS's resource planning process, SPS's forecasted capacity need, reserve margin, and need to maintain Harrington as a resource, and presents the economic analysis performed that informed SPS's decision to convert the Harrington units;
 - **Mr. John M. Goodenough:** presents SPS's load forecasts that were used to assess SPS's need for existing or new generation resources;
 - Mr. D. Dean Koujak: The Independent Evaluator from Guidehouse retained by SPS to review SPS's conversion plans with respect to both its Tolk and Harrington Generating Stations, addresses the scope, execution, and results of SPS's Request for Information ("RFI") related to generation alternatives for coal-fired units at Harrington and opines on the reasonableness of SPS's process related to identifying the proposed conversion of Harrington as a compliance solution; and
 - **Ms. Anastacia Santos:** provides the Environmental Assessment related to the conversion and associated new natural gas pipeline.
 - Mr. Mark Lytal: provides a description of Harrington's current operations, explains the capital improvements that will be necessary to convert Harrington, describes the proposed natural gas pipeline route to Harrington, presents the certificated estimated cost of the project, including allowance for funds used during construction, and explains the impact to SPS's system as a result of conversion.

III. OVERVIEW OF APPLICATION

2 Q. Please briefly describe Harrington Station.

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A. Harrington consists of three coal-powered steam turbine units, located in Potter

County, Texas with a total net capacity of 1,050 megawatt ("MW"). Harrington Unit

has a net capacity of 340 MW, Harrington Unit 2 has a net capacity of 355 MW,

and Harrington Unit 3 has a net capacity of 355 MW. All three of the plant's boilers

were designed to burn both coal and natural gas.

8 Q. What is SPS's request with respect to Harrington?

9 A. Consistent with its request in Docket No. 51802 to retire the coal assets at Harrington 10 effective December 31, 2024, SPS seeks permission to amend its existing CCN to 11 convert Harrington from coal generation to natural gas generation.²

12 Q. Why is SPS seeking to convert Harrington to natural gas generation?

SPS's request is the result of several years of study and analysis relating to the retirement of its coal assets in New Mexico and Texas and regulatory actions in both states. Specifically, SPS began informally evaluating the retirement of its coal assets in the 2015-2016 timeframe following discussions with various stakeholders in both states. This evaluation took place in light of NAAQS emission monitoring at Harrington that began in 2016 by the TCEQ. In 2019, SPS and the TCEQ entered into an Agreed Order to cease the use of coal-fired generation at Harrington by January 1, 2025 due to the results of the emissions quality monitoring at Harrington

² SPS holds CCN No. 30153.

from 2016 to 2019.³ In November of 2020, SPS issued an RFI related to replacing Harrington that was conducted in concert with SPS's analysis surrounding the replacement of its Tolk Generating Station. Through these efforts, SPS has identified an economical and reasonable solution to the voltage and capacity issues that otherwise would be caused by the loss of Harrington's generation capacity without immediate replacement. Specifically, conversion of Harrington to natural gas-fired generation, which will allow the facility to remain in operation as a necessary voltage and capacity resource and allow Harrington's boilers to continue to operate.

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Q. What changes are necessary to convert Harrington from using coal as a fuel source to natural gas?

As Mr. Lytal's testimony describes, additional natural gas burners and associated piping and control equipment are needed to convert each unit. The plant's common gas distribution header must also be increased in size to deliver a larger natural gas flow to the three units. Finally, a new 20-inch diameter natural gas supply line will be constructed from Harrington to the northwest and will tap into two different gas supplier transmission lines approximately twenty miles away.

³ The Agreed Order is included with Mr. West's testimony as an Exhibit.

IV. SPS'S NEED FOR THE HARRINGTON CONVERSION

Q.	What factors	led SPS to study	y alternative o	perations at	Harrington?
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As described in more detail by Mr. West, the Clean Air Act requires the Environmental Protection Agency ("EPA") to set NAAQS (40 CFR part 50) for pollutants considered harmful to public health and the environment. The EPA has set NAAQS for six principal pollutants, including sulfur dioxide ("SO₂"). The primary SO₂ standard sets a limit of 75 parts per billion ("ppb"), calculated using the 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years. Harrington Station emits approximately 99% of the SO₂ emissions in Potter County.

In December 2016, the TCEQ installed a SO₂ monitor in the vicinity of Harrington Station to collect ambient air quality data. The average reading over three years exceeds the primary standard limit of 75 ppb. Thus, SPS was required to develop an implementation plan to comply with the standard and show that Harrington will achieve compliance with the NAAQS by 2025. SPS presented its plan for complying with the emissions standard to the TCEQ, and an Agreed Order was finalized in October 2020.

Q. Please summarize the study and RFI leading SPS to the conclusion that conversion of Harrington to natural gas is reasonable and necessary.

Mr. Elsey describes the SPS study and RFI process in detail in his direct testimony. SPS first conducted an economic study in 2019 as the federal emission's monitoring period was concluding. SPS's initial 2019 analysis supported conversion of Harrington to natural gas. SPS then updated the Harrington Analysis in 2021 following the results of an RFI process.

The 2021 updated Harrington economic analysis was conducted
simultaneously with a Tolk replacement analysis. The Harrington RFI analysis
demonstrated that conversion of the Harrington units to operate on natural gas was a
prudent solution to address the federal emissions issues identified by the TCEQ,
while maintaining Harrington as a voltage and capacity resource.

Q. You reference the Agreed Order with the TCEQ above. What does the Agreed Order require of SPS?

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A. The Agreed Order requires SPS to cease coal operations at Harrington by December 31, 2024. Pursuant to the Agreed Order, and as supported by SPS's economic analysis, SPS plans to convert Harrington from coal to natural gas, thus the filing of this application.

Q. What economic analysis did SPS conduct regarding the conversion of Harrington?

As Mr. Elsey's testimony describes, first, SPS analyzed compliance solutions that included: (1) maintaining coal operations by installing environmental controls to comply with 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. Finally, 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.

1	Q.	Did SPS evaluate environmental controls that would maintain coal operations at		
2		Harrington?		
3	A.	Yes. SPS evaluated two different environmental control solutions: Dry Sorbent		
4		Injection ("DSI") and Spray Dryer Absorber ("SDA"). The cost of installing DSI is		
5		estimated to be \$85M - \$90M per unit and the cost of installing SDA is estimated to		
6		be \$170M - \$185M per unit. To comply with NAAQS, environmental controls are		
7		required on all units that maintain coal operations.		
8	Q.	What did SPS conclude regarding its ability to maintain coal operations at		
9		Harrington?		
10	A.	As the analysis attached to Mr. Elsey's testimony demonstrates, the installation of		
11		capital-intensive environmental controls on one or more units was among the least		
12		favorable alternatives. Without the installation of environmental controls, SPS has		
13		no feasible alternative other than to cease coal operations at Harrington.		
14	Q.	Does SPS consider Harrington a necessary reliability resource?		
15	A.	Yes. Harrington provides critical transmission voltage support to SPS's system.		
16		Absent conversion, to continue providing the transmission voltage support necessary		
17		for the system, SPS would need to enhance its voltage stability capabilities as well as		
18		add new firm and dispatchable replacement resources, such as gas combustion		
19		turbines, to support the large levels of intermittent resources currently on the SPS		

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system.

1 Q. Could SPS meet its planning reserve margin requirements in the absence of 2 Harrington?

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- Α. No. As Mr. Elsey's direct testimony demonstrates, Harrington remains a necessary capacity resource and SPS would need an immediate replacement for that capacity in the absence of Harrington. Following conversion, Harrington will maintain its contribution to SPS's planning reserve margin requirements and will be capable of performing as a baseload, intermediate resource, or a peaking resource. From a reliability perspective, given the amount of renewable generation in SPS's current portfolio, it is not currently reasonable to cease operations at Harrington without 10 future replacement resources that can be relied upon for capacity when renewable generation cannot meet the system's energy needs.
 - Q. Is retirement of Harrington without a future replacement resource reasonable or prudent?
 - No. Because of the necessary capacity, generation, and voltage support supplied by Harrington, retirement of the facility without a replacement resource would immediately leave SPS customers without reliable service. Conversion defers the need for new firm and dispatchable replacements, therefore, permitting the facility to serve as a bridge until new technologies and renewable resources can meet the generation and voltage support levels provided by Harrington. As I note below, due to the need to accelerate remaining depreciation and decommissioning, retirement of Harrington without a replacement resource would also increase costs to customers in the near term.

- Q. Please explain the reliability risk associated with ceasing operations at
 Harrington without concurrent replacement resources.
- 3 As Mr. Elsey's direct testimony explains, if SPS fails to maintain the current A. generation facilities at Harrington, SPS would fall short of its required Southwest 4 5 Power Pool 12% reserve requirement and would have to replace the resource. At 6 least some of the replacement resources for Harrington would need to be capable of 7 providing voltage stability to support the renewables on the system and it is not clear 8 that SPS would be able to secure those replacement resources, and at what cost, prior 9 to January 1, 2025. Put differently, in the event that SPS is forced to operate its 10 system after January 1, 2025 without Harrington or adequate replacement resources, 11 the system will be subject to reliability risk at any given moment depending on the 12 availability of renewable generation and voltage demanded. In the event that SPS 13 can find an available replacement resource under those circumstances, it will be 14 forced to pay the cost demanded by any available resource, whatever that cost may 15 be. Conversion of Harrington, on the other hand, allows the facility to remain in 16 operation until the 2036 to 2040 time frame, avoids the situation where SPS might be 17 forced to take a high cost replacement resource, and provides SPS with additional 18 opportunity to seek more optimal and economical replacement resources for Harrington. 19
 - Q. Can you provide an example of conditions under which Harrington continues to remain a necessary capacity resource?

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22 A. Yes. In addition to an instance where existing renewable resources in SPS's portfolio are unable to provide necessary capacity on any given day, SPS has

experienced localized weather and transmission import constraints from time to time that require a resource like Harrington, for reliability. For instance, in October of 2020, the SPS area as well as a large portion of Oklahoma experienced a widespread winter storm. This storm created a large number of damaged transmission facilities in the Oklahoma area which reduced the import capability into the SPS area down to zero. SPS was fully dependent on the generating facilities within the SPS transmission area. Due to the performance of SPS's generation fleet, the balance between the load and generation in the area was maintained. When evaluating resource planning decisions, extreme weather events and transmission import constraints are examples of critical factors that need to be considered outside of the economic analyses Mr. Elsey describes in his direct testimony.

Q. What support will Harrington provide following conversion?

Α.

A. As mentioned before, Harrington will be capable of continuing to provide energy and voltage support. Harrington will also be capable of providing energy and voltage support at times of heavy imports from the Southwest Power Pool when the intermittent resources are not generating.

Q. What did SPS conclude is the most prudent course following the cessation of coal operations?

Converting the Harrington units to operate on natural gas is the most prudent 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

1	as a reduction in carbon dioxide emissions, when compared to continued coa
2	operations.

- Q. Are there any potential negative consequences if the Commission does not grant
 SPS's request to convert Harrington?
- 5 A. Yes. Given the federal emissions standards that will prohibit SPS from operating 6 Harrington as a coal-fired generating asset after January 1, 2025, certain facilities at Harrington (including the plant's boilers) will need to be retired. Thus, in addition to 7 the reliability and reserve margin issues that I discuss above, a decision to retire 8 9 Harrington without a replacement resource could result in increased costs for 10 customers due to the need to accelerate collection on the remaining depreciation expense associated with those assets. In addition, any decommissioning costs 11 12 associated with Harrington would need to be incurred prior to currently planned.
- Q. Is SPS's request to amend its CCN to convert Harrington from coal to natural
 gas by December 31, 2024 reasonable?

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A.

Yes. Harrington has provided service to SPS's customers for over 40 years, and conversion of the plant's fuel source will allow SPS to continue to operate the units for the benefit of SPS's customers. As Mr. West and Mr. Elsey explain, the proposed conversion provides an economic solution to address the air quality issues in the region. The conversion is also cost-effective because the plant's boilers were designed to burn both coal and natural gas. Converting Harrington's fuel supply from coal to natural gas will provide environmental benefits and allow SPS to comply with the Agreed Order.

- 1 Q. Does this conclude your pre-filed direct testimony?
- 2 A. Yes.

AFFIDAVIT

STATE OF TEXAS)	
)	
COUNTY OF JASPER)	

WILLIAM A. GRANT, first being sworn on his oath, states:

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

William A. GIRANT

Subscribed and sworn to before me this _25_day of August, 2021 by WILLIAM A. GRANT.

BARBARA JACKSON
Notary Public, State of Texas
My Commission Expires
April 16, 2025
NOTARY ID 1082073-9

Notary Public, State of Texas

My Commission Expires: 4-16-35

CERTIFICATE OF SERVICE

I certify that August 27, 2021 this instrument was filed with the Public Utility Commission of Texas and a true and correct copy of it was served on the Staff of the Public Utility Commission of Texas, the Office of Public Utility Counsel, and all parties in SPS's current base rate proceeding, PUC Docket No. 51802, by hand delivery, Federal Express, certified mail, electronic mail, or facsimile transmission.

MXM