BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S ANNUAL 2022 RENEWABLE ENERGY PORTFOLIO PROCUREMENT PLAN AND REQUESTED APPROVALS THEREIN; PROPOSED 2022 RENEWABLE PORTFOLIO STANDARD COST AND RECONCILIATION RIDERS; APPLICATION FOR AN RPS INCENTIVE; AND OTHER ASSOCIATED RELIEF,	)	**CASE NO. 21-00___-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

DIRECT TESTIMONY

of

SYDNIE M. LIEB

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

July 1, 2021

TABLE OF CONTENTS

GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
Commission	New Mexico Public Regulation Commission
EPA	Environmental Protection Agency
Interagency Working Group	Federal Interagency Working Group on Social Cost of Greenhouse Gases
GHG	greenhouse gas
MWh	megawatt-hour
N_2O	nitrous oxide
REC	Renewable Energy Certificate
RPS	Renewable Portfolio Standard
Rule 572	Renewable Energy Rule (17.9.572 NMAC)
SC-GHG	social cost of greenhouse gases
SPS	Southwestern Public Service Company, a New Mexico corporation
TCR	The Climate Registry
Xcel Energy	Xcel Energy Inc.

Case No. 21-00___-UT
Direct Testimony
of
Sydnie M. Lieb

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Sydnie M. Lieb. My business address is 401 Nicollet Mall, Minneapolis, MN 55401.

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 an Environmental and Energy Policy Manager.

Q. Please briefly outline your responsibilities as an Environmental and Energy Policy Manager.

A. My duties include managing Xcel Energy's climate policy, environmental policy, and environmental communications across our operating territories in eight states.

Q. Please summarize your educational background.

A. I hold a Bachelor's of Science in Mechanical Engineering from Washington University in St. Louis as well as a Master's of Science and Doctorate of Philosophy in Mechanical Engineering from the University of Southern

California. My doctoral thesis focused on particulate emissions from fuel combustion.

Q. Please describe your professional experience.

A. I have worked for the California Air Resources Board to verify carbon emissions in their cap and trade program. After leaving the Air Resources Board I worked for two years at the U.S. Envionmental Protection Agency ("EPA") in the Greenhouse Gas ("GHG") Reporting Program. For the past two years I have worked in my current role at Xcel Energy.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. What is the purpose of your testimony in this proceeding?

A. My testimony establishes the demonstrable value, required by Rule 17.9.572.22.D, of emissions reductions attributable to SPS's proposal to retire renewable energy certificates ("RECs") early in order to earn a financial incentive for meeting the 2025 forty percent renewable portfolio standard in Plan Years 2022, 2023, and 2024 as outlined in the Direct Testimony of Mario Contreras—I refer to this proposal throughout my testimony as "SPS's proposal." As part of my testimony, I will:

- Provide SPS's total carbon dioxide ("CO_2") emissions, as required by Rule 17.9.572.22.D(1);
- Calculate the reduction to SPS's carbon dioxide emissions attributable to SPS's proposal as required by Rule 17.9.572.22.D(2); and
- Calcuate the estimated value of the reduction in carbon dioxide emissions attributable to SPS's proposal as required by Rule 17.9.572.22.D(3).

I conclude that the societal value of reduced carbon emissions attributable to SPS's proposal is $39,870,044 for 2022, $42,981,421 for 2023, and $46,129,441 for 2024.

Q. Does SPS believe that a REC represents a unit of emissions reductions for carbon accounting purposes?

A. No. SPS considers a REC to demonstrate Renewable Portfolio Standard ("RPS") compliance and it does not demonstrate a unit of carbon reduction for carbon accounting purposes. In fact, SPS does not believe RECs should be used for a proxy analysis in order to demonstrate a unit of carbon reduction for carbon accounting purposes. Despite SPS's position on this matter, SPS is providing an analysis to calculate the emissions reductions per REC *for the sole purpose* of complying with Rule 572[1] in order to receive an incentive for meeting the 2025 forty percent RPS three years early. SPS believes its analysis is defensible as it uses established and accepted U.S. government databases for its calculations.

[1] Renewable Energy Rule (17.9.572 NMAC).

III. DETERMINATION OF EMISSIONS REDUCTIONS AND THEIR VALUE

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

A. In this section of my testimony I discuss 1) SPS's 2020 total carbon emissions; 2) how SPS determined the level of emissions reductions attributable to retiring additional RECs in order to meet the 2025 forty percent RPS three years early; and 3) how SPS determined the value of those emissions reductions. I discuss these items in the context of complying with 17.9.572.22.D(1–3).

Q. What does SPS mean when refering to "emissions" without qualifying it as "carbon dioxide emissions"?

A. When refering to "emissions," I refer to the "carbon dioxide and other emissions" consistent with the language of 17.9.527.22.D. Rule 572 defines "emissions" as "all emissions regulated by state or federal authorities, including but not limited to all criteria pollutants and hazardous air pollutants; methane; mercury; and carbon dioxide."[2] When discussing emissions generally, I include all major combustion GHG emissions, including nitrous oxide ("N_2O") and methane in addition to carbon dioxide. I will also present data specific to carbon emissions.

[2] Rule 17.9.572.7.E.

Q. Please describe the requirements a utility must demonstrate under Rule 17.9.572.22 in order to receive a financial incentive.

A. Rule 17.9.572.22.D states that "[a] utility requesting a financial or other incentive under this rule must establish that the benefits of achieving the goals set out in Subsection B of this section above are not exceeded by the costs it incurred to achieve them."[3] In order to establish this, the Rule requires the utility to provide a detailed analysis of the following:

> (1) the utility's total carbon dioxide emissions;
> (2) the reduction in the utility's carbon dioxide emissions attributable to the measures described in subsection B of this section;
> (3) the estimated value of the reduction in carbon dioxide emissions described in Paragraph (2) of this subsection based on an analysis of relevant carbon dioxide markets;
> (4) the cost of the measures implemented by the utility that resulted in the lower carbon dioxide emissions identified in Paragraph (2) of this subsection and the dates when each measure was implemented; and
> (5) any other costs necessary to implement each of the measures identified in Subsection B of this section.[4]

I address items (1) through (3). SPS interprets the subsections (1) through (3) to be the New Mexico Public Regulation Commission's ("Commission")

[3] 17.9.572.22.D.

[4] 17.9.572.22.D NMAC.

methodology for determining the value of "the benefits of achieving the goals set out in Subsection B. . ." in order to compare that value to the cost of the measures. SPS witness Ben R. Elsey discusses the cost of the measures in his direct testimony.

Q. Can you please state the formula SPS used to determine the value of "the reduction in carbon dioxide emissions"?

A. The cost of "the redution in carbon dioxide emissions" is the cost of the emissions avoided by implementing SPS's proposal. The cost of avoided emissions is calculated according to the formula below. This formula assumes one REC represents one megawatt-hour ("MWh") of generated renewable energy, consistent with the Renewable Energy Act and Commission Rule.

*Cost of Emission Reductions = (Excess RECs Retired)**

(Regional Intensity CO_2e lb/MWh)(Social Cost of Carbon)*

I discuss the compenents of this formula below.

A. Demonstration of 17.9.572.D (1) NMAC

Q. What is SPS's total carbon dioxide emissions?

A. SPS's total carbon dioxide emissions during the year 2020 were 11,120,807 tons. SPS uses The Climate Registry ("TCR") Electric Power Sector Protocol to

calculate and report CO_2 emissions. The TCR protocol aligns with the World Resources Institute and the International Organization for Standardization 14000 series standards. By using TCR, the company goes above and beyond the requirements of EPA reporting to get a full view of the carbon emissions from the SPS-owned electric generation plants and from the electricity that SPS purchases from others to serve its customers, including both retail and wholesale customers.

B. Demonstration of 17.9.572.D (2) NMAC

Q. What is the reduction in SPS's emissions attributable to retiring RECs in order to meet the 2025 forty percent renewable portfolio standard three years early?

A. Based on the number of RECs needed to fulfill SPS's proposal, as discussed in the testimony of Mr. Elsey, the total reductions in SPS's CO_2 emissions attributable to SPS's proposal is 2.61 million short tons. The total emissions reductions, including methane and N_2O is 2.63 million short tons. I explain how I calculated this below.

Q. How did SPS determine the carbon emissions reductions attributable to SPS's proposal?

A. Carbon emission reductions attributable to SPS's proposal are determined by multiplying the MWh of excess retired RECs and the regional carbon dioxide equivalent ("CO_2e") emissions intensity.

Q. How does SPS determine the regional carbon dioxide emissions intensity?

A. The U.S. EPA Clean Air Markets Division publishes an estimate of regional grid emissions intensities. The most recent version of this data can be found at:

https://www.epa.gov/sites/production/files/2021-02/documents/egrid2019_summary_tables.pdf.

SPS uses Southwest Power Pool South region for these calculations. The company estimates emission reductions by assuming that each MWh (as demonstrated by one retired REC) displaces one MWh with a carbon intensity equivalent to the carbon intensity of the grid regional average.

C. Determination 17.9.572.22.D(3)

Q. What framework did SPS use to evaluate the cost of emissions reduction?

A. SPS evaluated the cost of emission reduction based on the interim estimates of the social cost of greenhouse gases ("SC-GHG"), which include the social cost of carbon dioxide, methane and N_2O. The SC-GHG is provided by the Federal

Interagency Working Group on Social Cost of Greenhouse Gases ("Interagency Working Group"). The values for the SC-GHG provided by the Interagency Working Group have not yet been finalized into a rule. However, the interim values for the SC-GHG provided by the Interagency Working Group are the best available values. Updated final estimates from this group will not be available until January 2022.

Q. What does the term "social cost of greenhouse gas" mean?

A. The social cost of greenhouse gases is a monetized, discounted value of the stream of future global avoided economic damanages from a one-ton change in greenhouse gas emissions in a particular year.. This value is determined by the Interagency Working Group. In principle, it includes the value of all climate change impacts, including (but not limited to) changes in net agricultural productivity, human health effects, property damage from increased flood risk natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services.

Q. What is the SC-GHG dollar amount per metric ton of carbon emission for 2022, 2023, and 2024?

A. The interim costs in 2022, 2023, and 2024 are $52, $53, and $54/metric ton of carbon dioxide emissions, respectively.

Q. Why has SPS chosen to use the SC-GHG to place a value on emissions?

A. The SC-GHG estimates the cost of GHG emissions using a robust and scientifically founded assessment of all climate change impacts, including changes in net agricultural productivity, human health effects, property damage from increased flood risk natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services. [5] The SC-GHG is a well accepted value used in both federal and state regulations. The social cost of carbon is within a few dollars of the standardized price for carbon emissions that electric utilities are required to use when filing their Integrated Resource Plan.[6]

Q. What is the next step in determining the value of emissions reductions?

A. After determining the SC-GHG per metric ton for 2022 through 2024, the next step is to apply a 3% discount rate to calculate the cost of emissions to assign to additional emission reductions. These final values are demonstrated in Table SML-1, below.

[5] The Interagency Working Group's interim working paper can be found at the following link: Link to interim working paper https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf.

[6] Case No. 06-00448 UT (Order Approving Recommended Decision and Adopting Standardized Carbon Emission Costs for Integrated Resource Plans).

Q. Why did you chose to use the 3% discount rate?

A. The Interagency Working Group provides different values for the SC-GHG using three different discount rates, 2.5%, 3%, and 5%. SPS uses the 3% discount rate because it is consistent with the Office of Management and Budget's consumption rate of interest. The 2.5% and 5% discount rates represent high and low sensitivities.

Q. What is the estimated value of the reduction in carbon dioxide emissions attributable to SPS's proposal?

A. The estimated value of the reduction in carbon dioxide emissions attributable to SPS's proposal is $128.3 million for the years 2022 through 2024. The estimated value of the reduction of total emissions, including methane and N_2O is $128.9 million for the years 2022 through 2024. Table SML-1 below shows the estimated value of the reduction in carbon dioxideemissions attributable to SPS's proposal for years 2022, 2023 and 2024.

TABLE SML-1

Year	Financial Load Forecast – Excess RECs Retired (MWh)	Carbon Dioxide Emission Reductions (Short Ton CO_2)	Total Emission Reductions (Short Ton CO_2e)	Cost CO_2	Cost CO_2e
2022	1,647,424	825,358	829,229	$39,683,902	$39,870,044
2023	1,743,097	873,290	877,386	$42,780,753	$42,981,421
2024	1,836,750	920,210	924,526	$45,914,076	$46,129,441

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

A. Yes.

VERIFICATION

On this day, July 1, 2021, I, Sydnie M. Lieb, swear and affirm under penalty of perjury under the law of the State of New Mexico, that my testimony contained in Direct Testimony of Sydnie M. Lieb is true and correct.

/s/ Sydnie M. Lieb
SYDNIE M. LIEB