BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S ANNUAL 2023 RENEWABLE ENERGY PORTFOLIO PROCUREMENT PLAN AND REQUESTED APPROVALS THEREIN; PROPOSED 2023 RENEWABLE PORTFOLIO STANDARD COST AND RECONCILIATION RIDERS; APPLICATION FOR AN RPS INCENTIVE; AND OTHER ASSOCIATED RELIEF,	)	**CASE NO. 22-00___-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

DIRECT TESTIMONY

of

SYDNIE M. LIEB

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

July 1, 2022

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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	U. S. Environmental Protection Agency
GHG	greenhouse gas
Interagency Working Group	Federal Interagency Working Group on Social Cost of Greenhouse Gases
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.

LIST OF ATTACHMENTS

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Case No. 22-00___-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, Minnesota 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 Services Inc. 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 worked for the California Air Resources Board to verify carbon emissions in the state's cap and trade program. After leaving the California Air Resources Board, I worked for two years at the U.S. Environmental Protection Agency ("EPA") in the Greenhouse Gas ("GHG") Reporting Program. For the past two and a half 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 carbon dioxide ("CO_2") emissions reductions attributable to SPS's proposal to retire renewable energy certificates ("REC") early in order to earn a financial incentive for meeting the 2025 40% renewable portfolio standard in Plan Years 2023 and 2024 as outlined in the Direct Testimony of SPS witness Mario A. Contreras—I refer to this proposal throughout my testimony as "SPS's proposal." As part of my testimony, I will:

- provide SPS's total CO_2 emissions, as required by Rule 17.9.572.22.D(1);
- calculate the reduction to SPS's CO_2 emissions attributable to SPS's proposal as required by Rule 17.9.572.22.D(2); and
- calculate the estimated value of the reduction in CO_2 emissions attributable to SPS's proposal as required by Rule 17.9.572.22.D(3).

I conclude that the societal value of reduced CO_2 emissions attributable to SPS's proposal is $ 44,696,119 for 2023 and $47,966,582 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 be a metric 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] as part of its proposal for a financial incentive for meeting the 2025 40% RPS requirement two years early. SPS believes its analysis is defensible, as it uses established and accepted U.S. government databases for its calculations

Q. Does renewable generation (and associated RECs) provide benefits in addition to any CO_2 emissions avoidance or reductions.

A. Yes. As I discuss below and Mr. Contreras discusses in his testimony, there are benefits associated with renewable generation in addition to and independent of CO_2 emissions avoidance or reductions.

[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 2021 total CO_2 emissions; 2) how SPS determined the level of emissions reductions attributable to retiring additional RECs in order to meet the 2025 40% RPS requirement two years early; and 3) how SPS determined the value of those emissions reductions. I discuss these items in the context of complying with Rule 17.9.572.22.D(1)–(3).

Q. What does SPS mean when referring to "emissions" without qualifying it as "CO_2 emissions"?

A. When referring to "emissions," I refer to the "CO_2 and other emissions" consistent with the language of Rule 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 CO_2. I will also present data specific to CO_2 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] The Rule requires the utility to provide a detailed cost-benefit analysis that includes, but is not necessarily limited to, consideration 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]

[3] 17.9.572.22.D.

[4] 17.9.572.22.D NMAC.

I address items (1) through (3) in my testimony. SPS witness Ben R. Elsey discusses the cost of the measures in his direct testimony. Mr. Contreras discusses in his testimony other benefits not captured by the factors listed in Rule 17.9.572.22.D(1)–(5) that should be considered in the cost-benefit analysis.

Q. Does the calculation you perform below fully capture the value of all benefits associated with the use of renewable generation?

A. No. As described below, my calculation is based on an accepted value that is associated with a reduction in greenhouse gas emissions. While reduction of greenhouse gases is one benefit associated with renewable generation, there are other benefits associated with renewable energy that extend beyond emission reductions. For example, my understanding is that New Mexico's Renewable Energy Act recognizes that increased use of renewable energy can result in increased energy self-sufficiency, the preservation of natural resources, and economic benefits.[5] The potential value associated with these benefits is not fully captured in the social cost of greenhouse gases value that I use below. Accordingly, the calculation I am providing is intended to estimate only the emission reduction related benefits associated with SPS's proposal.

[5] See NMSA 1978 § 62-16-2(A).

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 reduction 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 CO_2 emissions?

A. SPS's total CO_2 emissions during the year 2021 were 11,311,623 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, SPS goes above and beyond the requirements of EPA reporting to get a full view of the CO_2 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 40% renewable portfolio standard two 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 1.69 million short tons. The total emissions reductions, including methane and N_2O is 1.70 million short tons. I explain how I calculated this below.

Q. How did SPS determine the CO_2 emissions reductions attributable to SPS's proposal?

A. CO_2 emission reductions attributable to SPS's proposal are determined by multiplying the MWh of excess retired RECs and the regional CO_2 equivalent ("CO_2e") emissions intensity.

Q. How does SPS determine the regional CO_2 emissions intensity?

A. The 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. SPS estimates emission reductions by assuming that each MWh (as demonstrated by one retired REC) displaces one MWh with a CO_2 intensity equivalent to the CO_2 intensity of the grid regional average.

C. Determination of 17.9.572.22.D(3) NMAC

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 CO_2, 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 are anticipated later this year.

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

A. The SC-GHG is a monetized, discounted value of the stream of future global avoided economic damages 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 CO_2 emission for 2023 and 2024?

A. The interim costs in 2023 and 2024 are $54 and $55/metric ton of CO_2 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.[6] The SC-GHG is a well-accepted value used in both federal and state regulations. The

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

social cost of CO_2 is within a few dollars of the standardized price for CO_2 emissions that electric utilities are required to use when filing their Integrated Resource Plan.[7]

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

A. After determining the SC-GHG per metric ton for 2023 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.

Q. Why did you choose 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.

[7] Case No. 06-00448 UT, *Notice of Inquiry into Adoption of Staged Standardized Carbon Emissions Costs*, Order Approving Recommended Decision and Adopting Standardized Carbon Emission Costs for Integrated Resource Plans (June 19, 2007).

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 $92.2 million for the years 2023 through 2024. The estimated value of the reduction of total emissions, including methane and N_2O is $92.7 million for the years 2023 through 2024. Table SML-1 below shows the estimated value of the reduction in carbon dioxide emissions attributable to SPS's proposal for years 2023 through 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
2023	1,812,636	823,842	827,706	$44,487,445	$44,696,119
2024	1,909,900	868,048	872,120	$47,742,640	$47,966,582

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

A. Yes.

VERIFICATION

On this day, July 1, 2022, 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

Workpapers

Attachment SML-1 is provided in native format