BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

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IN THE MATTER OF THE APPLICATION	**)**
OF PUBLIC SERVICE COMPANY OF	**)**
COLORADO FOR APPROVAL OF ITS	**) PROCEEDING NO. 21A-____E**
2021 ELECTRIC RESOURCE PLAN AND	**)**
CLEAN ENERGY PLAN	**)**

DIRECT TESTIMONY AND ATTACHMENTS OF LAUREN W. QUILLIAN

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

March 31, 2021

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO**

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IN THE MATTER OF THE APPLICATION OF PUBLIC SERVICE COMPANY OF COLORADO FOR APPROVAL OF ITS 2021 ELECTRIC RESOURCE PLAN AND CLEAN ENERGY PLAN	**) PROCEEDING NO. 21A-____E**

DIRECT TESTIMONY AND ATTACHMENTS OF LAUREN W. QUILLIAN

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
ANSI	American National Standards Institute
AQCC	Air Quality Control Commission
CDPHE	Colorado Department of Health and Environment
CEMS	Continuous Emissions Monitoring System
CEP	Clean Energy Plan
Commission	Colorado Public Utilities Commission
Division	Air Pollution Control Division
E3	Energy and Environmental Economics
EEI	Edison Electric Institute
EPA	Environmental Protection Agency
ERP	Electric Resource Plan
GHD	GHD Services, Inc.
GHG	Greenhouse Gas
HB 19-1261	House Bill 19-1261
IREA	Intermountain Rural Electric Association
ISO	International Organization for Standardization
LDAR	Leak Detection and Repair
MST	Million Short Tons
MMT	Million Metric Tonnes
ONE Future	Our Nation’s Energy Future
Public Service or Company	Public Service Company of Colorado

Acronym/Defined Term	**Meaning**
RSG	Responsibly-Sourced Natural Gas
Roadmap	Greenhouse Gas Reduction Roadmap
SB 19-236	Senate Bill 19-236
TCR	The Climate Registry
WRI	World Resources Institute
Xcel Energy	Xcel Energy Inc.
XES	Xcel Energy Services Inc.

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

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IN THE MATTER OF THE APPLICATION OF PUBLIC SERVICE COMPANY OF COLORADO FOR APPROVAL OF ITS 2021 ELECTRIC RESOURCE PLAN AND CLEAN ENERGY PLAN	**)** **)** **)** **)** **)**	**PROCEEDING NO. 21A-____E**

DIRECT TESTIMONY AND ATTACHMENTS OF LAUREN W. QUILLIAN

I. INTRODUCTION, QUALIFICATIONS, AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Lauren W. Quillian. My business address is 1800 Larimer Street, Denver, Colorado 80202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?

A. I am employed by Xcel Energy Services, Inc ("XES"). My position is Energy and Environmental Policy Manager. XES is a wholly-owned subsidiary of Xcel Energy Inc. ("Xcel Energy") and provides an array of support services to Public Service Company of Colorado ("Public Service" or the "Company") and the other utility operating company subsidiaries of Xcel Energy on a coordinated basis.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Public Service Company of Colorado.

Q. PLEASE SUMMARIZE YOUR RESPONSIBLITIES AND QUALIFICATIONS

A. I am a Manager on Xcel Energy's Energy and Environmental Policy team. We are responsible for leading Xcel Energy's climate policy, environmental policy, and

environmental communications across eight states. I have worked in this role for nearly 6 years, with previous experience as a policy analyst in the same department and quantitative analyst in our Risk Department. I have also been deeply involved in climate policy in Colorado, including the implementation of the climate package passed in the 2019 legislative session. A description of my qualifications and experience is included after the conclusion of my Direct Testimony in my Statement of Qualifications.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my Direct Testimony is to describe the Company's emission reduction goals and carbon accounting methodologies and how they support and fulfill the State of Colorado's emission reduction goals and the requirements of a Clean Energy Plan ("CEP").

Q. ARE YOU SPONSORING ANY ATTACHMENTS AS PART OF YOUR DIRECT TESTIMONY?

A. Yes, I am sponsoring the following eight attachments, which are true and correct copies of the documents I represent them to be:

- Attachment LWQ-1 is the Clean Energy Plan Guidance and associated appendices;
- Attachment LWQ-2 is the Company's report titled Building a Carbon-free Future;
- Attachment LWQ-3 is the Climate Registry's Electric Power Sector Protocol;
- Attachment LWQ-4 are 2020 Updates to the Electric Power Sector Protocol;
- Attachment LWQ-5 is the Climate Registry's General Reporting Protocol;

- Attachment LWQ-6 is the Air Quality Control Commission's Clean Energy Plan Guidance Resolution;
- Attachment LWQ-7 is the Air Quality Control Commission's Comprehensive Safe Harbor Resolution; and
- Attachment LWQ-8 is the Company's report titled Transitioning Natural Gas for a Low-Carbon Future.

II. XCEL ENERGY'S CARBON VISION AND COLORADO'S GREENHOUSE GAS REDUCTION GOALS

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR DIRECT TESTIMONY?

A. The purpose of this section of my Direct Testimony is to describe Public Service's goal of delivering an 80 percent reduction in carbon dioxide emissions by 2030 and aspiration to deliver 100 percent carbon free electricity by 2050. Further, I describe the package of legislation that was passed in 2019 setting the State's long-term emission reduction goals and how the Company's efforts and proposals in this proceeding are aligned with this legislation. This background is critical to understanding the need for and details of the Clean Energy Plan Guidance, which is a document that outlines the Air Pollution Control Division's ("Division") plan for conducting the required verification of carbon emission reductions. The Clean Energy Plan Guidance and associated appendices are provided as Attachment LWQ-1 to my Direct Testimony.

Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S CARBON REDUCTION GOALS.

A. In December 2018, Xcel Energy made an industry-leading commitment to reduce carbon dioxide emissions from the electricity we provide to customers by 80 percent from 2005 levels and an aspiration to deliver carbon-free electricity by 2050. These goals were subsequently enacted into law under the requirements of Senate Bill 19-236 ("SB 19-236") passed by the Colorado legislature in 2019. Since the Company announced its carbon goal in 2018, other utilities have followed our example. There are now over two dozen Edison Electric Institute

("EEI") member companies with similar carbon free or net zero electricity commitments. More information about the Company's goal and its alignment with the climate science can be found in our report, Building a Carbon-free Future, provided as Attachment LWQ-2 to my Direct Testimony. This report was issued in February 2019 and is also referred to as Xcel Energy's Carbon Report.

The CEP submitted as part of this Electric Resource Plan ("ERP") fulfills the requirements of SB 19-236 and the Company's goal to achieve an 80 percent reduction in carbon emissions from 2005 levels by 2030. As discussed in my Direct Testimony, these reductions are calculated following robust carbon accounting methodologies that are aligned with both The Climate Registry ("TCR")[1] and the protocols established by the Colorado Department of Public Health and Environment's ("CDPHE") Air Pollution Control Division's Clean Energy Plan Guidance. We are currently well on our way to achieving our 80 percent by 2030 emission reduction target; indeed, as of the end of 2020, we estimate that Public Service has achieved a 46 percent reduction in carbon emissions since 2005.[2]

Beyond 2030, the Company knows that we will need some form of new, dispatchable, carbon-free generation to achieve our aspiration of 100 percent carbon-free electricity by 2050. As we consider initiatives that will bring new technologies to the market, success will require policy at the state and federal level to support innovation and deployment. My Direct Testimony in this proceeding

[1] TCR is a non-profit organization governed by U.S. States and Canadian provinces and territories. TCR empowers North American organizations to reduce greenhouse gas ("GHG") emissions by helping them measure, report, and verify their carbon footprints. I provide more information on TCR in Section III of my Direct Testimony.
[2] This data will be publicly available in our Corporate Responsibility Report to be published in May 2021.

focuses, however, on the 80 percent reduction by 2030 target, in line with the timeline of this ERP and our CEP.

Q. DID THE GENERAL ASSEMBLY PASS LEGISLATION WITH SIMILAR GOALS RELATING TO CARBON AND GREENHOUSE GAS EMISSIONS?

A. Yes. The General Assembly passed a package of climate legislation in 2019 that included statewide GHG emission reduction targets (House Bill 19-1261 or "HB 19-1261") and a pathway for utilities to submit CEPs that achieve 80 percent emission reductions by 2030 from 2005 levels (SB 19-236).

Q. PLEASE DISCUSS COLORADO HB 19-1261 AND ITS EMISSIONS REDUCTIONS REQUIREMENTS.

A. HB 19-1261 sets economywide GHG emission reduction targets for the State of Colorado of 26 percent by 2025, 50 percent by 2030, and 90 percent by 2050, over a 2005 baseline. The bill also supports the development of CEPs that "as filed, will achieve at least an eighty percent reduction in greenhouse gas emissions caused by the utility's Colorado retail electricity sales, as verified by the Division." For utilities that submit a CEP, "the [Air Quality Control] Commission shall not mandate…more [reductions] than is required under such a plan or impose any direct, non-administrative costs on the public utility…if the division has verified that the approved CEP will achieve at least a seventy five percent greenhouse gas reductions." This bill language specifies the clear role of the Division in verifying emission reductions from both the CEP as filed (80 percent reductions) and the approved CEP (at least 75 percent reductions). These requirements are based on

total GHG emissions, not just carbon dioxide, and refer to the retail portion of the utility's electricity delivery.

Q. PLEASE DISCUSS SB 19-236 AND ITS EMISSION REDUCTIONS REQUIREMENTS.

A. SB 19-236 sets clean energy targets for qualifying utilities to achieve 80 percent reductions in carbon dioxide emissions by 2030 from 2005 levels for all electricity sales, and seeks to achieve 100 percent clean energy resources by 2050 or earlier, as long as doing so is technically and economically feasible:

> (1) "By 2030, the qualifying retail utility shall reduce the carbon dioxide emissions associated with the electricity sales to the qualifying retail utility's electricity customers by eighty percent from 2005 levels.
>
> (2) For the years 2050 and thereafter, or sooner if practicable, the qualifying retail utility shall seek to achieve the goal of providing its customers with energy generated from one-hundred-percent clean energy resources so long as doing so is technically and economically feasible, in the public interest…"

In essence, SB 19-236 codified Public Service's goals into law. As discussed by Company witness Mr. Jack W. Ihle, these CEPs are submitted to the Colorado Public Utilities Commission ("Commission") through the ERP process, meeting certain criteria for resource acquisition, community and workforce transitions, and safety, reliability and affordability. SB 19-236 also establishes the requirement for the Division, in consultation with the Air Quality Control Commission ("AQCC"), to review and determine if any CEP will result in the required 80 percent emission reductions and is aligned with any other State GHG goals. The Commission will ultimately approve the plan if it is in the public interest pursuant to the normal ERP

process. Unlike HB 19-1261, this statute considers carbon dioxide exclusively and includes all the electricity and associated emissions delivered by the utility including both retail and wholesale sales.

Q. WHAT IS THE IMPORTANCE OF RETAIL VERSUS ALL ELECTRICITY SALES AND GREENHOUSE GASES VERSUS CARBON DIOXIDE?

A. While the language of SB 19-236 and HB 19-1261 appear to call for the same 80 percent reductions, these two bills require close examination as each includes a slightly different portion of the electricity customers and associated emissions. Public Service plans its system to meet the required load of all its customers regardless of whether that customer is a retail or wholesale customer. The combination of retail and wholesale load is often referred to as “native load.” Recognition of native load matches with the “all electricity” sales reduction requirement of SB 19-236. On the other hand, the *retail* sales are one slice of the larger system and the emissions associated with these sales must be estimated, rather than directly represented in the modeling. We estimate that in 2019, retail sales made up 94 percent of total emissions from our electric operations.

The inclusion of all GHGs in HB 19-1261 requires the consideration of carbon dioxide along with several of the other emissions, such as methane, sulfur hexafluoride, and nitrous oxide. For the electric sector, carbon dioxide emissions make up over 99 percent of the emissions associated with electricity production. The GHG total must be calculated using emissions factors for each of the GHGs as opposed to carbon dioxide which is measured by continuous emissions monitoring.

While these two factors seem like minor distinctions, setting the boundaries for the emission reductions requirements is important to ensuring the State receives comparable, robust accounting from each utility that files a CEP. In this way, the State can be sure that the electric sector is on the right pathway to emission reductions. Resolving these discrepancies in the two bills was one of the key drivers of the CEP Guidance stakeholder process, as described further in my Direct Testimony.

Q. WHAT IS THE GHG POLLUTION REDUCTION ROADMAP AND HOW IS IT RELATED TO THE STATE'S GOALS?

A. To help chart the path toward the GHG emissions reduction required under HB 19-1261, the Governor's Office directed several State agencies to perform an analysis of what actions are needed to achieve these ambitious goals. Under the direction of the Colorado Energy Office, many stakeholders and State agencies participated in the development of the Greenhouse Gas Pollution Reduction Roadmap ("Roadmap") including CDPHE, the Department of Transportation, the Department

of Natural Resources, and the Department of Agriculture, with analysis performed by Energy + Environmental Economics ("E3").[3]

The stated goal of the Roadmap is to "identif[y] a series of policy actions the state can take to reduce GHG pollution."[4] Based on the analysis of E3, the Roadmap lays out how far the State gets towards the goals with current actions and what additional pathways will be required to fully achieve the State's GHG goals. A final draft of the Roadmap, provided as Attachment AKJ-4 to Company witness Ms. Alice K. Jackson's Direct Testimony, was released in January 2021, laying out a comprehensive sector specific approach to attaining the State's goals. For the electric sector, the analysis assumes the entire sector will achieve 80 percent reductions in GHGs by 2030 and then reflects utility goals for 2050, including Public Service's goal of delivering 100 percent carbon free electricity. As discussed more below, the Roadmap demonstrates that the electric sector will deliver key emission reductions in its own right, but also help other sectors reduce emissions through beneficial electrification efforts.

[3] Founded in 1989, E3 is an energy consulting firm that helps utilities, regulators, policy makers, developers, and investors make the best strategic decisions possible as they implement new public policies, respond to technological advances, and address customers' shifting expectations.
[4] Attachment AKJ-4 at 76.

Q. HOW WILL THE COMPANY'S 2021 ERP & CEP ENABLE THE COMPANY TO COMPLY WITH STATE STATUTE?

A. The 2021 ERP & CEP submitted here achieves all the requirements of a CEP as defined in both HB 19-1261 and SB 19-236. The Company's preferred plan achieves 84.3 percent reductions in GHGs over 2005 levels on a retail sales basis and 84.5 percent reductions over 2005 levels for all electricity sales (based on the adjusted baseline). We have completed a verification workbook for this preferred plan along with several other modeling runs. I provide a summary table later in my testimony, and we will provide the data and supporting documentation for the reductions associated with these plans to the Division as part of the CEP Guidance. The data and supporting documentation are also provided in Volume 2 (Attachment AKJ-2).

III. CLEAN ENERGY POLICY AND ACCOUNTING ISSUES

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR DIRECT TESTIMONY?

This section of my Direct Testimony explains Public Service's commitment to robust and transparent carbon accounting to ensure that we are providing the most accurate view of all the emissions associated with delivering electricity to our customers. In particular, I describe the details of TCR protocols for carbon accounting, which Public Service uses both in this ERP and also for tracking progress towards our ambitious carbon reduction goals. TCR provides the underlying carbon accounting principles on which the CEP Guidance is established.

Q. PLEASE DESCRIBE THE COMPANY'S APPROACH TO CARBON ACCOUNTING.

A. The Company supports timely, transparent, public reporting of carbon dioxide and other GHG emissions. Our comprehensive reporting covers all aspects of our business and is based on TCR and its Electric Power Sector Protocol, provided as Attachment LWQ-3 along with recent updates from 2020 provided as Attachment LWQ-4, which aligns with the World Resources Institute ("WRI") and the International Organization for Standardization ("ISO") 14000 series standards. By using TCR, the Company goes above and beyond the requirements of Environmental Protection Agency ("EPA") reporting to get a full view of the carbon emissions from Company-owned electric generating plants and from electricity that we purchase from others to serve customers, including both our retail and wholesale customers.

A. The Climate Registry

Q. PLEASE PROVIDE A DESCRIPTION OF TCR.

A. TCR is a "non-profit organization governed by U.S. States and Canadian provinces and territories"[5] that provides protocols and guidance for a variety of organizations and companies to measure, report, and verify emissions. TCR establishes protocols for GHG reporting for a variety of sectors and organizations including a general reporting protocol, provided as Attachment LWQ-5, and the electric power sector protocol used by Public Service. Nearly 300 members use these protocols to report their emissions including utilities, governments, universities, and private companies across many different sectors. TCR also provides members with a list of qualified third-party verifiers that have been accredited by the American National Standards Institute ("ANSI") National Accreditation Board that can perform audits and verifications of member inventories.

Q. HOW LONG HAS PUBLIC SERVICE BEEN A MEMBER OF TCR AND WHAT IS ITS MEMBERSHIP STATUS?

A. The Company, through its parent Xcel Energy Inc., joined TCR as a founding member in 2007 to help establish a consistent and transparent standard for calculating, verifying, and reporting GHGs. Every year, an independent third-party verifies our GHG emissions, and we register and publicly disclose these emissions through TCR. In 2019, the organization recognized our reporting with its top (All Star) status for excellence.[6] The All Star rating is the highest honor in TCR's

[5] https://www.theclimateregistry.org/who-we-are/about-us/.

[6] 2019 Impact Report at p. 8, available at https://theclimateregistry.org/2019-Impact-Report.pdf.

recognition program, which considers metrics for reporting of GHG performance metrics, GHG reduction goal setting, and emissions verification. After joining, we verified our emissions back to 2005, such that we now have 15 consecutive years of third-party verified data in accordance with TCR—we are the only electric utility with this length of consecutively verified data.

Q. IS TCR RECOGNIZED AS A RELIABLE CARBON ACCOUNTING ORGANIZATION?

A. Yes. TCR was formed in 2007 and now has nearly 300 private and public sector organizations using its protocols. TCR is a "recognized leader dedicated to empowering organizations to reduce greenhouse gases by helping them measure, report, and verify their carbon footprints."[7] The TCR protocols themselves are derived from the standards and guidance of the WRI, ISO, and EPA Center for Corporate Climate Leadership. Importantly, TCR also builds on required EPA reporting protocols, which only require reporting of owned facilities with emissions exceeding certain thresholds. TCR allows companies to get a broader understanding of all the emissions associated with their business.

In the case of electric utility operations for Public Service, this process provides the full picture of emissions associated with delivering electricity to all our customers, including emissions associated with owned generation assets as well as purchased power, covering the electricity delivered to both retail and wholesale customers. We also report both carbon dioxide emissions, which make up

[7] https://www.theclimateregistry.org/who-we-are/about-us/.

approximately 98.5 percent of total electric emissions, and all GHGs, similar to the CEP Guidance methodology. The TCR protocol also relies heavily on unit specific emissions data. Roughly 94 percent of our emissions are based on Continuous Emissions Monitoring System ("CEMS") data, which is the most accurate emissions data available. For the remaining 6 percent, the protocol follows the same structure as the CEP Guidance, whereby the most accurate emissions factor is applied based on the source of the energy. For example, for purchased power agreements, the unit or counterparty rate is applied, whereas a regional rate is applied when we don't know the source of the generation, such as for short-term or spot purchases. This approach provides a high level of accuracy and understanding of our emissions sources and total emissions.

Q. CAN YOU DESCRIBE THE REPORTING AND THIRD-PARTY VERIFICATION PROCESS FOR TCR?

A. The emissions accounting process starts at the beginning of every year. By mid-February, we have initial data on the previous year's emissions that we provide at the Xcel Energy level through our audited financial reporting. Over the following months, we continue to collect and refine our data to establish a precise picture of the emissions of that prior year. By June 30 of each year, we submit the emissions and supporting data to TCR through their reporting tool for each operating company. At this point, this data goes into a non-public TCR database. Once submitted, TCR checks for completeness and then locks access to the reporting tool by mid-July to initiate the verification process.

Under TCR's General Verification Protocol, Xcel Energy may engage the same third-party verification body for no more than six consecutive years in order to maintain the objectivity of the verification body. Currently, Xcel Energy has engaged GHD Services, Inc. ("GHD") for verification of emission years 2019 through 2024. During third-party verification, emission data is released to the verifier, who then creates a verification plan for review of the data, requests more detailed information on Xcel Energy's records and processes and asks clarifying questions. Data cannot be changed during the verification process unless the verifier identifies errors and requests that TCR open the database to allow such errors to be corrected. Completion of the final verification report is targeted for the end of the year following the emissions reporting year. However, this release can be delayed if the verifier requests additional information and/or requires more time to resolve reporting concerns. Once the verification report is completed, the final report and verification statement are submitted to TCR for final review and acceptance. At this point, TCR will make public reports available, which is typically within 90 days of receipt of the final verification report. We also publish our data in our Corporate Responsibility Report and in other voluntary reports. [8]

B. CEP Guidance

Q. DOES THE CEP GUIDANCE FOLLOW THE PRINCIPLES YOU HAVE DESCRIBED IN THE PRIOR SUBSECTION?

A. Yes. The TCR methodology is the basis for the CEP Guidance, following the same methodology on important issues such as owned and purchased power, treatment

[8] Available at https://www.xcelenergy.com/company/corporate_responsibility_report.

of market purchases and sales, and emissions factors. The CEP Guidance provides a standardized method for the State to evaluate CEPs submitted by any Colorado utility and includes additional information to account for the specifics of Colorado policy such as retail requirements of HB 19-1261 and the comprehensive safe harbor, as described later in my testimony.

I next describe the CEP Guidance itself, explain the role of the Division in verifying our plans within the ERP process, and outline the comprehensive safe harbor approach. By way of background, I also describe the stakeholder process led by the Division to develop the CEP Guidance and Public Service's engagement in that process.

Q. HOW WAS THE CEP GUIDANCE DOCUMENT CREATED?

A. The CEP Guidance document was created by the Division with the input of a stakeholder group. The Division convened a stakeholder group made up of various impacted parties including utilities, environmental groups and local governments, that met consistently throughout 2020. The stakeholders supported the development of the spreadsheet tool, i.e., the verification workbook, to standardize data provision and worked through detailed carbon accounting issues to support the Division in writing the final Guidance document.

The Division reviewed the CEP Guidance with the AQCC in October of 2020. Based on additional information and further review, in January 2021, the AQCC passed a pair of resolutions in support of both the CEP Guidance itself and

the comprehensive safe harbor approach.[9] The resolutions from the AQCC are provided as Attachment LWQ-6 and Attachment LWQ-7, respectively.

Q. WHY WAS THE STAKEHOLDER PROCESS WITH THE DIVISION INITIATED?

A. The legislation discussed previously established the high-level responsibility of the Division to verify emission reductions and clean energy plans and participate in the CEP proceedings held by the Commission. However, the rules did not specify the exact process or requirements of the verification process. The goal of the Division, and subsequently the stakeholder group, was to develop a guidance document that would clarify the roles of the Division and establish the data requirements to evaluate CEPs. Given the discrepancies between the two bills governing CEP filings, this clear and consistent guidance provides utilities and all interested parties a common understanding of the requirements and the criteria by which a CEP will be evaluated. While Public Service is the only utility required to file a CEP, other utilities are allowed to file voluntarily as well, and all these plans must be evaluated on a consistent and comparable basis. By developing clear requirements and procedures in advance of any CEP filings, the CEP Guidance avoids potential delays in Commission proceedings, helps utilities prepare their own filings, and provides much needed transparency and clarity throughout the CEP process.

The stakeholder process allowed interested and affected parties to work through the unique requirements of both SB 19-236 and HB 19-1261 to create a cohesive approach to CEPs and allow everyone to work from a common

[9] Resolutions are attached as Attachments LWQ-6 and LWQ-7 and can also be found on the AQCC website, at https://drive.google.com/drive/folders/1db9uOpAi27spV7zSWK5EHKrkTziR9UuQ.

understanding of expectations. As a result of these efforts, the CEP Guidance can consider both carbon dioxide and all GHGs and also evaluate plans on both a retail sale and all electricity sales (retail and wholesale sales) basis.

Q. DID PUBLIC SERVICE TAKE PART IN THE STAKEHOLDER PROCESS?

A. Yes, Public Service actively participated in the stakeholder process. Given that Public Service is the only utility required to file a CEP and this filing is central to our corporate carbon goals, it was important to Public Service to ensure successful completion of the CEP Guidance. Public Service provided ideas, solutions, and feedback throughout, to ensure the resulting process follows transparent robust carbon accounting protocols, accurately reflects the nuances of the electric sector, maintains the integrity of the ERP process, meets the needs of our regulators and stakeholders for transparency, and provides regulatory certainty to the CEP evaluation process. We also understand that aggressive emission reductions in the electric sector is key to the State achieving its economywide GHG emission reduction goals, and the CEP Guidance is an important tool in supporting the State's efforts.

Q. WHAT WERE SOME OF THE KEY ISSUES ADDRESSED AND RESOLVED DURING THE STAKEHOLDER PROCESS?

A. As part of the larger need for regulatory certainty in how a CEP would be evaluated, some primary issues in the stakeholder process were establishing robust, transparent carbon accounting, assuring alignment between the various pieces of climate legislation passed in 2019 while continuing the successful ERP and system

resource planning process, and addressing equitable attribution for beneficial electrification.

First, following our long history of third party verified carbon emissions data, it was important that the CEP Guidance be based on robust and transparent carbon accounting in alignment with accepted protocols, such as TCR. This is important not only from the perspective of getting a robust view of each utility's carbon footprint, but also to ensure consistency and comparability across utilities.

Second, the process reinforced the importance of the CEP Guidance document bringing alignment between the two climate bills and continuing to support Colorado's robust ERP process and how the Commission and utilities like Public Service plan for the acquisition of new generation resources. The CEP Guidance process ensured a pathway to both verify emissions on a holistic basis and also provided for a comprehensive safe harbor for our entire system.

Finally, a major issue was and is the treatment of beneficial electrification, including both transportation and building electrification. The CEP Guidance establishes a simple tool to address the issue. Specifically, the Guidance establishes a mechanism "by which utilities may seek additional consideration of beneficial electrification from the AQCC through the Declaratory order"[10] in the event that a utility cannot reach the target in the approved ERP due to beneficial electrification. We continue to strongly urge the AQCC—together with the Commission, given the convergence of air quality and public utility law effectuated

[10] *See* Clean Energy Plan Guidance at p. 10, available at https://cdphe.colorado.gov/clean-energy-plan.

by the 2019 climate package—to continue to proactively develop appropriate and holistic policy regarding the treatment of GHG emissions that transfer onto a utility system as a result of electrification activities, be it transportation electrification or beneficial electrification undertaken in the built environment and beyond. More specifically, as emission limits are developed for other sectors of the economy under an economywide GHG emissions reduction regime under HB 19-1261, the AQCC, Division, and Commission, with input from affected stakeholders, must develop policy that expands this tool. We bring this issue to the attention of the Commission to encourage continued engagement on this topic.

Q. WHAT WAS THE CONCLUSION OF THE CEP GUIDANCE STAKEHOLDER PROCESS?

A. Under the leadership of the Division, the stakeholder process resulted in the CEP Guidance that was presented and ultimately approved by AQCC resolution (Attachments LWQ-6 and LWQ-7).[11] The CEP Guidance provides a standardized format for utilities to submit data and information so that the Division may verify the emissions reductions in a CEP, as required under SB 19-236 and HB 19-1261. The CEP Guidance includes a qualitative narrative of the purpose and details of the guidance along with three appendices:

- Appendix A – PUC Process Milestones: Establishes the Division's role and responsibilities in the ERP process with the Commission.
- Appendix B - Verification Workbook: Data submission sheet for each CEP portfolio in Phase I and Phase II of the ERP process.

[11] Resolutions are also provided on the AQCC website, at https://drive.google.com/drive/folders/1db9uOpAi27spV7zSWK5EHKrkTziR9UuQ.

- Appendix C – Adjusted Baseline and Comprehensive Safe Harbor Proposal: Describes the safe harbor approach that was ultimately adopted by AQCC resolution.

Establishing the clear role of the Division in the ERP process was critical in determining how the Division will verify the emission reductions of CEPs, creating clear delineation of roles and responsibilities between the Division and the Commission. Per the CEP Guidance, in Phase I of an ERP that a utility presents a CEP, the Division must verify the CEP portfolios within 30 days of filing and participate in the proceeding. In Phase II of the utility's ERP, the Division will provide a report and make a determination of the safe harbor eligibility 220 days after the commencement of the Phase II competitive solicitation. Appendix A of Attachment LWQ-1 provides an illustrative chart of the Phase I and Phase II processes.

Q. HOW DOES THE VERIFICATION WORKBOOK FIT INTO THE ERP PROCESS?

A. The verification workbook provides the basis and data for the Division to perform emission reductions verification in any given CEP plan. With line item data required for both generation and sales, these verification workbooks provide a high level of transparency while also providing utilities clarity and certainty as to plan evaluation. Further, the workbooks establish clear carbon accounting protocols for the State for this unique CEP policy structure, including transparent accounting for the baseline adjustment requirement in the comprehensive safe harbor baseline adjustment.

Q. WHAT ARE THE REQUIREMENTS OF THE CEP GUIDANCE DOCUMENT?

A. The primary requirement of the CEP Guidance is that utilities must submit the verification workbook (Appendix B to Attachment LWQ-1) to the Division with details of each plan. The Division will review the information and produce a verification report in both Phase I and Phase II of the ERP and then verify the final plan approved by the Commission at the end of the proceeding. With our direct case, we are providing a verification workbook for each of the generic portfolios developed by the Company in Volume 2 (Attachment AKJ-2). A summary table is also provided below in my Direct Testimony. In the Phase II process, we will provide a verification workbook for each of the portfolios developed after receiving actual bids.

The verification workbook includes details on the Company's 2005 baseline and forecasted emissions including generation data for owned units, contracted sources, and market transactions. Per the discussion of TCR above, the workbook establishes consistent treatment of these different sources in terms of emissions data or rates applied, with the majority of the emissions data being directly measured using CEMS at the generator. Emission factors are used only when necessary, applying the most accurate factor available. The workbook requires information on sales by type, GHG emissions, and transmission and distribution losses. Based on all the data included in both baseline and projections, the workbook calculates the final emissions reduction percentage on both a retail only and retail and wholesale combined basis. The workbook submission can validate both the requirements of SB 19-236 and HB 19-1261 to verify the requirements of

safe harbor under HB 19-1261 on a retail only basis and the comprehensive safe harbor on a wholesale and retail basis.

By incorporating both of these evaluations, the CEP Guidance allows evaluation of emission reductions achieved by each utility. By providing the retail only breakout, the verification workbook avoids double counting of emissions. As the ultimate provider of energy to end-use customers, there can only be one retail utility. The emissions associated with wholesale sales is important to capture in order to get a full picture of the emissions associated with any given utility's profile but can be more complicated in cases where multiple utilities may file a CEP. The CEP addresses this issue with the adjusted baseline approach described below.

Q. WHAT IS THE COMPREHENSIVE SAFE HARBOR APPLICATION?

A. The comprehensive safe harbor is a consensus solution developed by the stakeholder group that allows utilities to receive "safe harbor" from future regulations under HB 19-1261 for emissions associated with both retail and wholesale sales. While the HB 19-1261 provisions specify retail only emissions, electricity delivery is planned to meet *all* load on the system, including retail and wholesale customers, which is reflected in SB 19-236. Some parties were concerned that bifurcating the wholesale emissions would create a situation where just a small sliver of the system would be subject to regulation, despite the fact that sales are treated equally as part of total load in resource planning. Other parties were concerned with providing safe harbor for all sales because it could create double counting if multiple utilities file a CEP. The comprehensive safe harbor addresses these discrepancies by adding an additional pathway to provide a safe

harbor for emissions from retail and wholesale sales, while addressing double counting through an adjusted baseline approach.

Utilities filing a CEP may achieve comprehensive safe harbor for retail and wholesale emissions if:

(1) The CEP, as filed, achieves at least an eighty percent reduction in GHG emissions associated with retail sales by 2030.

(2) The approved CEP achieves at least seventy five percent reductions in retail sales from 2005 levels and at least seventy five percent reductions in all electricity sales based on an adjusted 2005 baseline.

The comprehensive safe harbor approach offers the ability to meet the requirements of the climate bills while also ensuring consistent and equal treatment of all emissions associated with electricity delivery.

Q. PLEASE DESCRIBE THE ADJUSTED BASELINE AS PART OF THE COMPREHENSIVE SAFE HARBOR.

A. The baseline calculation ensures that each utility follows robust carbon accounting protocols while also accounting for Colorado specific policy. This baseline adjustment is part and parcel of the comprehensive safe harbor described above.

Under this approach, the baseline starts with TCR accounting and includes all emissions associated with delivering service to native customers, regardless of whether or not that customer is a wholesale customer that may re-sell that electricity to another party in Colorado. To address the double counting concern, the CEP Guidance lays out a process whereby Public Service adjusts its baseline for three distinct cases. Specifically, the adjusted 2005 baseline excludes emissions associated with wholesale requirements customers that are: (1) out of

state; (2) no longer a wholesale requirements customer of Public Service as of 2019; or (3) planning to file their own CEP. This one-time adjustment will also be applied in 2030 to avoid double counting in both 2005 and future years.

Q. IF THIS IS A 2005 BASELINE ADJUSTMENT, WHAT ADJUSTMENTS WILL BE MADE IN 2030?

A. The double counting issue applies to both 2005 and 2030; therefore, the adjustments need to be made symmetrically in both years. In 2030, this means that we do not include any wholesale contracts that we know today will be no longer on the system in 2030, such as Intermountain Rural Electric Association ("IREA"). In this case, the contract will be terminated by 2026 and would not be included in our modeling, therefore, no emissions associated with serving IREA would be included in our 2030 emissions. This contract is discussed further in the Direct Testimony of Company witness Mr. Jack W. Ihle. Secondly, we will also exclude emissions associated with wholesale contracts that plan to file a CEP, specifically Holy Cross Energy. In this case, our modeling is inclusive of serving this load since they will be a wholesale customer in 2030. We therefore make a back-end adjustment to remove these emissions, using the same methodology as the 2005 baseline adjustment.

Q. DOES THE CEP GUIDANCE METHODOLOGY AND COMPREHENSIVE SAFE HARBOR APPROACH USE THE SAME METHODOLOGY AS THE CLIMATE REGISTRY?

A. Yes, they are the same. The CEP Guidance and comprehensive safe harbor approach are based in and follow the TCR's methodology. The baseline

adjustment starts with full TCR accounting and makes a Colorado-specific baseline adjustment to account for the CEP policy design. This approach allows regulators to evaluate each CEP independently but does not inherently change the carbon accounting methodology.

Q. PLEASE PROVIDE PUBLIC SERVICE'S ORIGINAL AND ADJUSTED BASELINE AND TARGETS FOLLOWING THE CEP METHODOLOGY.

A. Please see Table LWQ-D-1 below.

Table LWQ-D-1: Baseline Chart

CO2 Tons (Million Short Tons)	Original Baseline and Target - No Adjustments	Adjusted baseline and target
Baseline	33.9	27.3
80% Reduction	6.8	5.5
75% Reduction	-	6.9

Q. PLEASE PROVIDE PUBLIC SERVICE'S CURRENT CARBON DIOXIDE EMISSIONS.

A. Public Service emissions in 2020 were 18.7 MST.

Q. PLEASE PROVIDE PUBLIC SERVICE'S PROJECTED CARBON DIOXIDE EMISSIONS.

A. Our preferred plan will result in emissions reductions of 56 percent by 2025, or 12.1 Million Short Tons ("MST") annual emissions, and approximately 85 percent reductions by 2030, or 4.3MST annual emissions. We also provide below a summary of the emission reductions expected from each portfolio on both a retail

and all electricity (retail and wholesale) basis. Again, this data and supporting documentation will be provided to the Division for the verification process.

Table LWQ-D-2: Projected Reductions by Portfolio

Plan	Retail Only % Reduction	All Electricity % Reduction
SCC 1	68.6%	69.2%
SCC 2	87.9%	88.1%
SCC 3	84.5%	84.6%
SCC 4	86.4%	86.5%
SCC 5	87.5%	87.8%
SCC 6	80.5%	80.9%
SCC 7	84.3%	84.5%
SCC 8	84.4%	84.6%
SCC 1A	75.2%	75.7%
SCC 2A	89.1%	89.4%
SCC 3A	87.9%	87.9%
SCC 4A	87.9%	88.0%
SCC 5A	88.7%	89.0%
SCC 6A	81.3%	81.7%
SCC 7A	87.7%	87.8%
SCC 8A	87.8%	87.9%
$0/ton 1	62.1%	62.8%
$0/ton 2	81.1%	81.5%
$0/ton 3	80.8%	81.0%
$0/ton 4	80.7%	81.0%
$0/ton 5	80.6%	80.9%
$0/ton 6	80.6%	81.0%
$0/ton 7	80.8%	81.0%
$0/ton 8	80.8%	81.0%

C. Public Service's Contribution to Achieving Colorado's Greenhouse Gas Goals

Q. WHAT IS THE PURPOSE OF THIS SUBSECTION OF YOUR DIRECT TESTIMONY?

A. This section of my Direct Testimony describes the critical role of CEPs, and Public Service's CEP in particular, in achieving the State's GHG emissions targets.

Q. PLEASE PROVIDE AN OVERVIEW OF THE GHG EMISSIONS FROM THE ELECTRIC SECTOR.

A. According to the most recent draft GHG Inventory released in January 2021, the Colorado electric sector emitted 36.3 Million Metric Tonnes ("MMT") in 2015 or 28 percent of all the State's emissions. By 2020, the Roadmap estimates that the electric sector will decline to 24MMT, making up just 20 percent of the State's overall emissions. By 2030, that number is expected to decline to just 8MMT, or just 12 percent of the total State emissions. The State inventory will incorporate more accurate data through the implementation of AQCC Regulation 22, which is designed to gather data directly from emitting entities to improve the GHG inventory, pursuant to Senate Bill 19-096. The current inventory data provides an indicative look at the role of the electric sector in the State's emissions.

Q. WHAT IS THE ROLE OF THE ELECTRIC SECTOR IN REACHING THE STATE'S GHG REDUCTION GOALS?

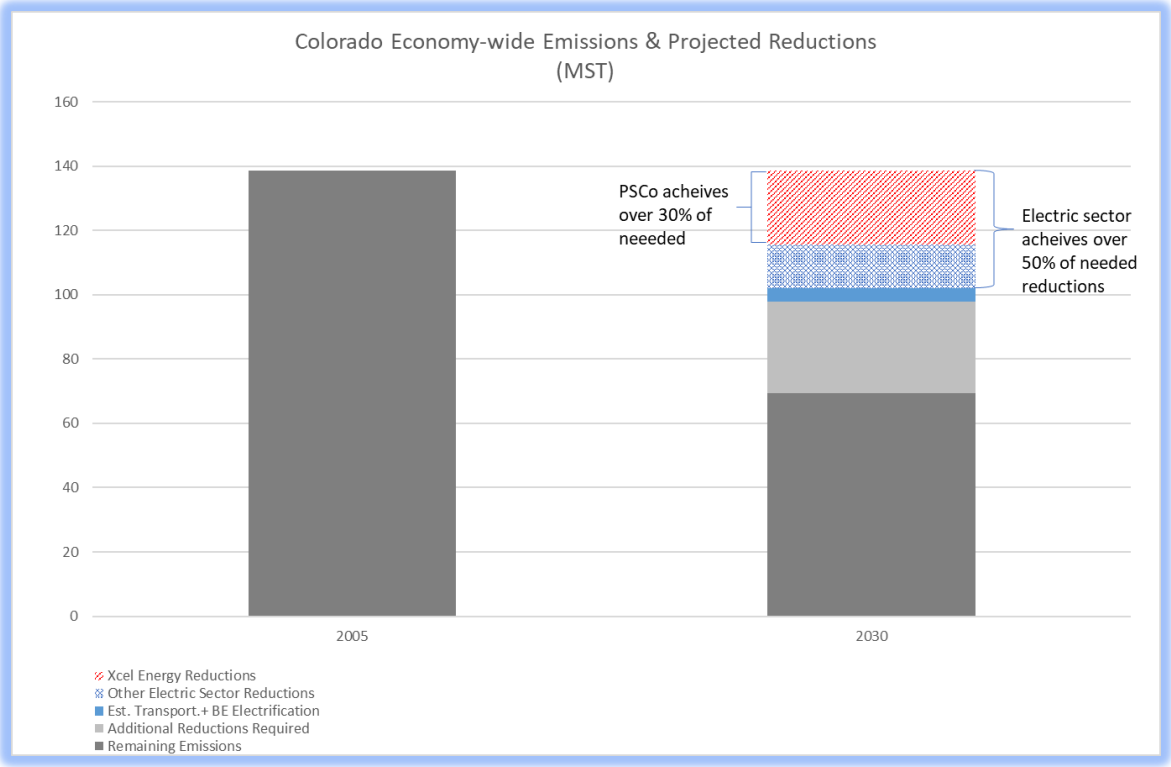
A. Colorado's electric sector will very likely be the largest contributor to achieving the State's GHG emissions reductions goals. At the sector level, according to the Roadmap estimates above, the electric sector will reduce emissions by 32MMT

from 2005 to 2030. To achieve the 2030 goal, the State needs to reduce emissions by a total of 68.9MMT economy-wide. Based on this simple analysis, the electric sector is projected to achieve 47 percent of the State's needed emission reductions by 2030. This estimate does not take into consideration additional reductions the electric sector will enable through beneficial electrification.

Figure LWQ-D-1 below further demonstrates the contribution of the electric sector to the State's emissions reductions. The electric sector contributions shown here are conservative, assuming that Public Service achieves 84 percent reductions and the other utilities achieve 80 percent reductions even though we expect that other utilities are also likely to exceed this statutory requirement of CEPs. Following this analysis, Public Service is projected to achieve over 30 percent of the total needed reductions, and the electric sector over 50 percent of the total reductions. Further, we have included a conservative estimate for potential contributions the electric sector will play by creating net emissions reductions in other sectors through beneficial electrification. This conservative evaluation includes an estimate of potential emissions reductions associated with achieving the Governor's electric vehicle goal to increase light duty electric vehicles to 940,000 by 2030 and a modest amount of building sector electrification, per the "State of Colorado Technical Appendix" to the Roadmap.[12] We know that achieving the aggressive electrification pathways assumed in the Roadmap would significantly increase this contribution.

[12] Colorado Agency GHG Reductions Spreadsheet, available at https://drive.google.com/file/d/18gez1w94BiNFN7oCR-o3xcoPFgWMrnMi/view.

Figure LWQ-D-1



D. Additional Considerations that Impact Carbon Accounting

Q. WHAT IS THE PURPOSE OF THIS SUBSECTION OF YOUR DIRECT TESTIMONY?

A. This section of my Direct Testimony reviews the treatment of emissions upstream of the power plant and our work with our suppliers to manage and reduce their methane emissions.

Q. HOW DOES THE COMPANY ACCOUNT FOR METHANE EMISSIONS UPSTREAM OF THE ELECTRIC GENERATION?

A. Following accepted GHG protocols, the CEP and TCR both account for the emissions combusted at the point source, not upstream emissions. These point source emissions are the direct responsibility of the owner of that facility, and in

the case of power generation, the methane emissions at the point source are *de minimis*. Emissions upstream of the power plant are the responsibility of the production, transmission, and distribution companies, and are tracked and reported by these entities.

Q. WHAT ACTIONS HAS PUBLIC SERVICE TAKEN TO MANAGE AND REDUCE METHANE EMISSIONS UPSTREAM OF ITS OWN ELECTRIC OPERATIONS?

A. While the upstream emissions are not included in the electric sector carbon accounting protocols, we understand that these emissions are important, and we have a role in influencing their reduction. We are working with our upstream producers on a variety of measures to increase transparency and decrease emissions. Here, I describe the activities related to our work with suppliers to address the methane emissions associated with the supply of natural gas to our natural gas plants. Additional details on these activities, along with a description of our comprehensive strategy to address GHG emissions for our gas business, suppliers, and customers can be found in in our recent report "Transitioning Natural Gas for a Low-Carbon Future," provided as Attachment LWQ-8.

We are continuing to explore "responsibly-sourced" natural gas ("RSG") or "certified" gas for our natural gas plant additions. This is described by Company witness Mr. Jack W. Ihle. Consistent with this approach, we are also working to encourage transparency and action from our natural gas producers and suppliers. We are a cofounder of MJ Bradley's Natural Gas Supply Collaborative and EEI's Natural Gas Sustainability Initiative. Both initiatives focus on creating consistent, sustainable disclosures among natural gas suppliers, which is an important step

toward addressing emissions in the production and transportation of natural gas. The Natural Gas Sustainability Initiative recently released a Methane Intensity Protocol, Version 1.0.[13] This protocol is a voluntary, industry-wide approach for companies to calculate methane emissions intensity by segment that creates a consistent, transparent, and comparable method for measuring and reporting methane emissions throughout the entire natural gas supply chain.

To increase transparency around the methane intensity of natural gas that we purchase, in 2020, we began requesting voluntary disclosure of methane emissions and management best practices. The Company intends to build on this going forward. We now ask our suppliers for both their methane intensity based on the Natural Gas Sustainability Initiative protocol and for information on their use of management best practices that minimize or prevent high emission events. The combination of reported methane intensity and implemented best practices will allow us to identify which suppliers are producing natural gas with low methane emissions. Examples of best practices include frequent leak detection and repair ("LDAR") visits, controlled venting of emissions, and replacing high-bleed equipment with low- or no-bleed alternatives. Collecting this information will help us to evaluate our purchasing practices in the future and reduce the methane intensity of the natural gas we provide.

In 2020, we also joined Our Nation's Energy ("ONE") Future, a consortium of more than 20 natural gas companies that seek to collectively limit methane

[13] Available at https://www.eei.org/issuesandpolicy/pages/ngsi.aspx.

emissions across the entire natural gas supply chain to one percent or less by 2025. Participation in ONE Future allows us to share technology solutions with other companies and influence the entire natural gas supply chain to reduce emissions. The emission rates for participants in ONE Future are at least 25 percent lower than the national average, according to independent modeling by the National Energy Technology Laboratory.[14] Further information is provided in our Transitioning Natural Gas report (Attachment LWQ-8) referenced above.

Q. ARE THESE STRATEGIES TO REDUCE METHANE FROM YOUR SUPPLIERS A PART OF YOUR CEP EMISSION REDUCTIONS?

A. No. These strategies and associated emissions reductions are not part of the CEP, but further exemplify the efforts that the Company is taking to reduce GHG emissions and lead the clean energy transition. These activities I have described are voluntary efforts and are not directly tied to the CEP.

Q. WILL THE REDUCTIONS ASSOCIATED WITH RSG BE COUNTED TOWARDS YOUR CEP REDUCTIONS?

A. No, we will not include emissions reductions associated with RSG in this CEP. These may be applied to future building or sector specific regulation, if applicable.

[14] https://www.netl.doe.gov/projects/files/NETL-ONE-Future-LCA-Report-01MAY18.pdf

IV. CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. In conclusion, we believe our CEP presented here is in line with the CEP Guidance and the requirements of the climate legislation from 2019. We support the CEP Guidance methodology, which is in line with our own TCR reporting and ties together a variety of issues into clear, transparent verification workbooks and process. We will work with the Division and Commission to ensure a successful verification process. Building on decades of success in the reduction of emissions, this CEP demonstrates the key role of the electric sector in achieving the State's greenhouse gas targets.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Statement of Qualifications

Lauren W. Quillian

Lauren Quillian is Manager of Energy and Environmental Policy for Xcel Energy. The Energy and Environmental Policy team is responsible for leading Xcel Energy's climate policy, environmental policy, and environmental communications across eight states. Ms. Quillian has worked in environmental or energy market policy for over 7 years and worked previously in the Risk Management Department conducting market pricing analytics. Ms Quillian has been directly involved in the development of Colorado climate policy, including the development of the Clean Energy Plan Guidance, and leads the company participation at the Air Quality Control Commission proceedings, including direct involvement in regulation 22. Ms. Quillian has also helped the company develop the corporate carbon reduction goals and the strategy to address emissions from the natural gas system, customers, and suppliers. She is a principal author of several significant corporate reports including Building a Carbon Free Future and Transitioning Natural Gas for a Low Carbon Future. Ms. Quillian has represented Xcel Energy in a variety of forums, including the Denver Sustainability Advisory Council.

Prior to working at Xcel Energy, Ms. Quillian worked with the American Lung Association to advance electric vehicle policy in Colorado in collaboration with the Department of Energy. Prior to working in the energy industry, Ms. Quillian worked for four years in international development and is fluent in Spanish.

Ms. Quillian has a Master of Public Administration from Columbia University, and a Bachelor of Arts Degree in Foreign Affairs and Spanish from the University of Virginia.