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 2024-2028 CLEAN HEAT PLAN.	**)** **)** **)** **)**	**PROCEEDING NO. 23A-0392EG**

DIRECT TESTIMONY OF A. RAY GARDNER

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

August 1, 2023

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DIRECT TESTIMONY OF A. RAY GARDNER

I. INTRODUCTION, QUALIFICATIONS, PURPOSE OF TESTIMONY, AND RECOMMENDATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is A. Ray Gardner. My business address is 1123 West 3rd Avenue, Denver, Colorado 80223.

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

A. I am employed by Xcel Energy Services, Inc. ("XES") as the Area Vice President of Gas Engineering. 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 IN THIS PROCEEDING?

A. I am testifying on behalf of Public Service.

Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AND QUALIFICATIONS.

A. As Area Vice President of Gas Engineering, my responsibilities include management and oversight of the Company's gas engineering and system design,

gas system reliability and asset management, gas integrity management programs, critical gas facilities and peak shaving plants, system automation and controls, and gas capital project execution across the gas high-pressure and distribution systems within its service territories. I have the same responsibilities for all of the other gas utility operating companies of Xcel Energy.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. Through my Direct Testimony, I describe and provide support for two components of the Company's requested Market Transformation Initiative ("MTI") proposal: advanced mobile leak detection ("AMLD"), and a small-scale targeted hydrogen blending demonstration project ("Hydrogen Blending Demonstration Project"). Company witness Mr. Ihle provides an overview of all of the proposed projects contained within the Company's MTI, which are included as part of the Clean Heat Plus portfolio presented by the Company but could be included as part of any portfolio ordered by the Commission. I provide detail specific to two of these MTI - the AMLD and Hydrogen Blending Demonstration Project. I also address the operational considerations associated with the incorporation of clean fuels into the Company's natural gas system, specifically hydrogen and renewable natural gas ("RNG"). In that regard, I support the recommendations of Company witnesses Mr. Jensen and Mr. Weinberg pertaining to hydrogen and RNG, respectively.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. In Section II of my Direct Testimony I discuss the aforementioned proposed MTI projects, involving: (1) a phased-in advanced mobile leak detection technology that we believe will prove superior to our current method of leak detection; and (2) a

small-scale targeted hydrogen blending demonstration project. In Section III of my Direct Testimony I discuss operational considerations associated with the incorporation of RNG and blended hydrogen into our system.

Q. WHAT RECOMMENDATIONS ARE YOU MAKING IN YOUR DIRECT TESTIMONY?

A. I recommend that the Commission approve the Company's proposal to proceed with the introduction of AMLD and the Hydrogen Blending Demonstration Project included in the Company's proposed Market Transformation Initiatives.

II. MARKET TRANSFORMATION INITIATIVES

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

A. In this section of my testimony I discuss two of the projects that are part of the proposed Market Transformation Initiatives described by Mr. Ihle in his Direct Testimony. First, I cover the Company's proposed phased rollout of a new AMLD technology that we believe will reduce fugitive methane emissions by allowing us to more timely detect system leaks. Second, I discuss the small-scale Hydrogen Blending Demonstration Project, which will allow us to study and better understand some of the challenges inherent in blending hydrogen into our fuel mix on a broader scale basis.

A. ADVANCED MOBILE LEAK DETECTION

Q. PLEASE DESCRIBE HOW THE ADVANCED MOBILE LEAK DETECTION TECHNOLOGY WOULD WORK?

A. The proposed AMLD initiative would allow us to begin to deploy and evaluate highly sensitive detection equipment mounted on a vehicle that is able to detect methane passing through its path. By contrast, our current leak detection capability requires us to typically walk the detection device over the specific asset in the system we are seeking to test, a much more time and labor-intensive effort. Utilizing our current leak detection methodology, the Company completes a survey of our entire system, comprised of approximately 22,800 miles of distribution main and 1,160,00 service locations (based on the 2022 PHMSA[1] Distribution Annual

[1] "PHMSA" means the Pipeline and Hazardous Materials Safety Administration.

Report for Public Service), once every three years. I would note that, beyond this current three-year leak survey process, there are certain areas of our system that we currently inspect for leaks on an annual basis. These include, for instance, dense business districts that can present a higher risk factor from a leak. However, the current full system survey is a three-year process, as I previously noted. Once fully deployed, the new AMLD method of leak detection is anticipated to allow us to cover more area with the same crews, potentially resulting in completion of our overall system leak survey annually. With AMLD we will be able to both detect and address system leaks more quickly, which in turn will reduce methane emissions from leaks.

Q. WILL THIS AMLD EQUIPMENT BE AS EFFECTIVE AT DETECTING LEAKS AS YOUR CURRENT LEAK DETECTION EQUIPMENT?

A. Yes; in fact, we believe it will be even more effective. The major advantage of the AMLD equipment is that, unlike our existing leak survey equipment which we must physically take to a section of pipeline in order to detect a leak (within an approximate 5-foot range limitation), the AMLD equipment need only pass through the methane emission from a leak to detect that leak, even at distances up to 200 feet away from the sensor. This means that, when mounted to a vehicle, the speed of the survey can be increased. Additionally, AMLD equipment is able to detect methane in the parts per billion range; while the handheld equipment currently in use only detects methane in the parts per million range. These factors provide the Company with several advantages over our current approach to leak detection.

Q. HOW IS THE COMPANY PROPOSING TO APPROACH THE ROLLOUT OF THIS AMLD INITIATIVE?

A. The Company is proposing a staged initiative so that we can study and confirm the effectiveness of the proposed AMLD equipment, which we are hopeful will ultimately allow for the current entire system leak survey period of three years to be reduced to one year. Phase I of this rollout would include a RFP solicitation for a technology vendor and the purchase and deployment of two AMLD units, estimated to occur in 2024. These initial two AMLD units would be utilized for leak detection in test areas including both annual and select three-year survey areas, estimated to begin in 2025. Phase II is what I would describe as an evaluation effort from this Phase I use of these two AMLD units, where we will use actual experience to calculate leak survey, investigation and repair costs using AMLD and otherwise evaluate effectiveness of AMLD. During this phase, we will also use emissions measurements gathered from initial AMLD units to determine reduced emissions due to increased frequency of leak detection, and determine the $/ton abatement cost relative to current practices and/or other Clean Heat resources.

We anticipate that future supplemental phases of this AMLD initiative (dependent on Phase I and Phase II results) may be brought forward in the next Clean Heat Plan or other appropriate regulatory pathway. Preliminarily, we contemplate that such phases would include a three-year minimum phase-in replacement of our current three-year leak-survey cycle with AMLD, including the purchase and use of an estimated 6 additional AMLD units. We anticipate a

significant reduction in GHG emissions on our mains and services once this AMLD effort is fully implemented across the LDC gas system.

Q. HOW MUCH WILL THIS AMLD PROGRAM COST?

A. The estimated cost for Phase I and Phase II of the AMLD program is an incremental $3,170,000 in capital spend and roughly an incremental $953,000 in annual operations and maintenance expense spend. A specific vendor has not been selected and a RFP process will be utilized to select a vendor. While these costs are incremental to the costs for our existing leak survey detection efforts, they are estimates subject to further refinement. Mr. Ihle discusses cost recovery for all the Company's proposed MTI projects, including AMLD, in his Direct Testimony. I recommend that the Commission approve the Company proceeding with Phase I and Phase II of AMLD as part of the Company's MTI, as I have described here, with cost recovery for these efforts as described by Mr. Ihle.

B. HYDROGEN BLENDING DEMONSTRATION PROJECT

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

A. In this section of my Direct Testimony, I present the Company's proposed Hydrogen Blending Demonstration Project. However, before I do so, I provide contextual background on what hydrogen blending is, and why it is necessary.

Q. WHAT IS HYDROGEN BLENDING?

A. Hydrogen blending involves the process of taking certain volumes of hydrogen (generally quantified on a volume percentage basis compared to that of natural gas) and blending it in combination with natural gas to produce a blended gas of lower carbon intensity that can be reliably and safely delivered to our customers.

Q. WHY IS IT NECESSARY TO BLEND HYDROGEN?

A. It is necessary to blend hydrogen with natural gas from a safety, operational, and customer experience perspective. Higher percentages of hydrogen will produce a gas blend that may not be compatible with customer appliances or the pipeline materials that are currently installed in our gas systems.

Q. PLEASE BRIEFLY ADDRESS CURRENT INDUSTRY HYDROGEN BLENDING ACTIVITIES.

A. S&P Global Commodity Insights, in its May 2023 edition, reported that in the United States, gas local distribution companies ("LDCs") have announced more than three dozen hydrogen blending projects. These include Hawaii Gas, CenterPoint Energy Inc. and New Jersey Resource Corp., all of which are currently blending hydrogen into their respective working gas systems. Additionally, Dominion Energy Inc., Northwest Gas Holding Co., Southwest Gas Holdings Inc., National Grid USA, PG&E Corp, NiSource Inc. and Peoples Natural Gas Co. LLC have all launched hydrogen blending projects.[2] These projects include not only blending of gas for delivery to customers, but also for use in generation such as in fuel cells and gas turbines.

Q. WHY IS THE COMPANY PROPOSING A HYDROGEN BLENDING DEMONSTRATION PROJECT?

A. The Company is interested in demonstrating the use of hydrogen as a fuel to reduce emissions from its gas LDC system to contribute to achieving the State's

[2] Gas utilities increasingly focus on pipeline blending in hydrogen pilot projects | S&P Global Market Intelligence (spglobal.com).

emission reductions goals. The Company's modeling, conducted with E3, indicates that hydrogen is a cost-effective Clean Heat resource. At appropriately blended levels, it can provide a source of low carbon hydrogen-blended gas, without modification to customer behavior or requiring customers to change appliances or otherwise incur personal expenses. Additionally, the Company is in the process of pursuing funding through a multi-state Department of Energy funding opportunity for hydrogen production. Given these ongoing initiatives and the broader support for exploring hydrogen in the State of Colorado, the Company is proposing to conduct an estimated small-scale 24-month project that would demonstrate the ability to safely deliver and inject hydrogen gas blended with natural gas into its gas system to achieve emission reductions. We believe this is a prudent first step to a potential future broader scale deployment of blended hydrogen.

The Hydrogen Blending Demonstration Project is intended to demonstrate that the Company can and will safely and reliably blend hydrogen into its existing gas infrastructure and deliver it to customers. There are four major categories of technical considerations that the Company is evaluating through the project: hydrogen supply and storage, hydrogen blending and control, pipeline operations, and customer end-use. The Company will be further evaluating, and updating for scalability considerations, all safety, technical, engineering, operational, and reliability considerations respective to these four categories based on the demonstration project.

Q. PLEASE PROVIDE MORE INFORMATION ON THE SPECIFICS OF THE PROPOSED PROJECT.

A. The Hydrogen Blending Demonstration Project will be a small-scale initiative utilizing a blending facility in unincorporated Adams County that will blend hydrogen into the existing natural gas supply for approximately 230 residential gas customers in that area. The project will blend hydrogen into the existing natural gas system at incremental percentages (beginning at 2%, anticipating to increase over time up to 10% hydrogen as we continuously monitor and verify operations, safety, and reliability) over a two-year period. We believe that increasing to a maximum 10% hydrogen blend is appropriate, given that this is the Company's first effort, on a small-scale basis, to engage in and study hydrogen blending.

As I discuss in Section III of my Direct Testimony, hydrogen blending will present a number of operational considerations for the Company. The overarching metric for the project's success is to safely complete the project, and thereby demonstrate that the Company will be able to consider introducing hydrogen blending more broadly in its system, applying lessons learned from the demonstration project.

Q. HOW WAS THIS AREA IN UNINCORPORATED ADAMS COUNTY CHOSEN FOR THE HYDROGEN BLENDING DEMONSTRATION PROJECT?

A. System selection for the demonstration was based on meeting the following criteria:

- Non-integrated gas system;
- 100-1,500 meters;

- Residential and/or small commercial; and
- Mains and services are primarily polyethylene pipe.

The project location in unincorporated Adams County, Colorado, was selected because it met the above-mentioned criteria, specifically consisting of approximately 230 residential customers that are served by a gas pipeline system of polyethylene pipe constructed after the 1980s. In addition, the surrounding area has available land to host the proposed facility.

Q. WHAT PRELIMINARY EFFORTS HAS THE COMPANY UNDERTAKEN IN PREPARATION FOR THIS HYDROGEN BLENDING PROJECT?

A. As I noted, the Company has identified the project area, and we have completed some preliminary engineering analysis, materials assessment, environmental analysis, and project preparation. We have also begun initial community outreach and education to customers served on this distribution system, which I describe in more detail below. In addition, we have begun work to procure the easement expansion necessary for installation of and access to the blending facility. Site preparation for the required blending facility and construction of the facilities required for blending have not begun.

We also recognize that safety is the paramount consideration for this Hydrogen Blending Demonstration Project, and so appropriate safety protocols for every facet of this project are under development. As I describe below in more detail, when we acquire and store hydrogen for this project, when we blend that hydrogen with our natural gas supply, and when we distribute that blended natural

gas/hydrogen to our customers in the project area, our highest imperative will be safety considerations.

Q. WHAT IS INCLUDED IN THE PROJECT SCOPE?

A. The project scope includes the installation of a blending facility where hydrogen will be trucked and stored on-site and then blended at 2%, 5% and ultimately 10% by volume into the existing natural gas distribution system, as we continuously monitor and verify operations, safety, and reliability. The project requires site preparation and expansion of the existing easement; and the facility will be adjacent to an existing regulator station, which is the supply point for this distribution system. To ensure customers continue to receive the safe and reliable service that they expect at their homes, the demonstration project will also propose to include the completion of voluntary field appliance studies which will test customer appliances to ensure they are working as expected. This is anticipated to be a two-year demonstration project. At the conclusion of the project, the assets will either remain in place or be deployed elsewhere on the Company's system for the purposes of blending hydrogen.

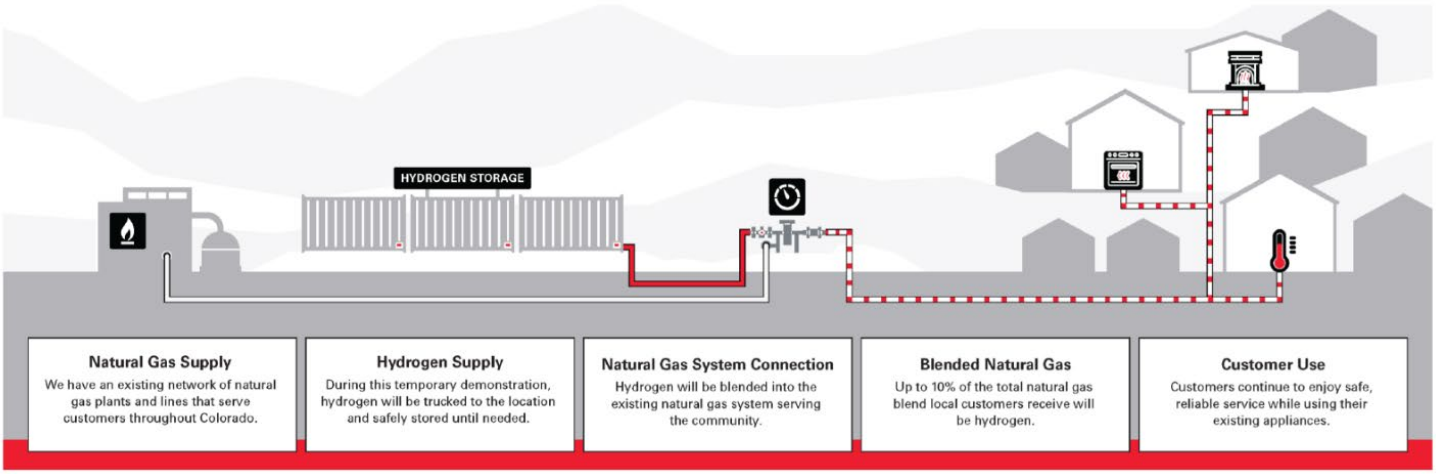
Q. WHERE WILL THE HYDROGEN FOR THIS DEMONSTRATION PROJECT COME FROM?

A. Green or blue hydrogen is the preferred hydrogen for the project. At this time, however, the Company is exploring the source and type of hydrogen to procure.

Q. WHAT EQUIPMENT WILL BE INSTALLED TO PERFORM HYDROGEN BLENDING OPERATIONS?

A. To perform the blending operations, the Company is planning to install a truck unloading facility, a compressor, compressed hydrogen on-site storage equipment, regulation and measurement equipment, a blending skid, a gas chromatograph and associated hydrogen monitoring equipment. This equipment will be utilized in combination with natural gas delivered from the upstream regulator station supplying this distribution system to produce a desired hydrogen-to-natural gas blended ratio by volume. The Company will utilize existing underground natural gas pipelines for the natural gas supply. Please see the illustrative figure below that provides a general visual example from gas supply to customer use.

Figure ARG-D-1: Diagram of Hydrogen Blended Gas System



Q. PLEASE DESCRIBE THE SAFETY MEASURES YOU WILL HAVE IN PLACE IN REFERENCE TO FIGURE ARG-D-1 ABOVE.

A. Let me first emphasize that as we build out this project, we will be compiling a comprehensive list of technical and safety considerations which we will use to develop and update engineering best practices and operations manuals for the potential future broader-scale deployment of blended hydrogen. Throughout the process, the Company will continue to meet the DOT 49 CFR Part 192 compliance requirements of maintaining its gas system infrastructure.

Turning first to hydrogen supply, hydrogen will be delivered by hydrogen tube trailer to the site. The site will have an unloading facility to take the gas from the hydrogen tube trailer to the on-site gaseous hydrogen storage tanks. The Company is planning to install chemical, audio, and thermal monitoring at the on-site hydrogen storage tanks to detect leaks. This section of the project will be the

only one operating at 100% hydrogen levels with all piping built to ASME B31-12 standards.

With respect to the hydrogen blending facility, the baseline security will include perimeter and access control. For perimeter control, we plan to install signage, bollards or jersey barriers, and 10 foot fencing. For access control, all valves will be secured and locked, and gate and buildings will require key access.

With respect to the hydrogen blending operations, the Company will have a remote terminal unit monitored 24/7 by the Company's Gas Control Room on the hydrogen blending skid to monitor conditions during the blending operations. We will also have automated emergency shutoff valves installed upstream and downstream of both the hydrogen storage tanks and the blending skid, to isolate the hydrogen blending facility from the existing gas distribution system.

With respect to customer end-use, in order to maintain the appropriate blending level of hydrogen and natural gas, the Company will utilize a gas chromatograph downstream of the blending skid to measure the heating value of the blended gas as well as the percentage of hydrogen in the blended gas. If either the heating value or percentage of hydrogen is outside of specifications, the emergency shutdown valves on the blending skid will close and place the downstream customers back on unblended natural gas.

Q. WHAT IS THE COMPANY TRYING TO LEARN WITH THIS HYDROGEN BLENDING DEMONSTRATION PROJECT?

A. First and foremost, our highest imperative is to conduct all aspects of this demonstration project safely, in a manner that will continue to provide safe and

reliable service to the customers in the project area we propose. In terms of the objectives for the project, we will observe, and gain information needed to evaluate and update our required procedures and standards in order to facilitate the potential future broader use of hydrogen blended natural gas in our system. The project will also allow us to identify any changes in materials and tools that broader scale hydrogen blending would require. This effort will also include voluntary field appliance studies which will test customer appliances at various blends of hydrogen to ensure that appliances are working as expected.

The overarching metric for success is to safely complete the project, and thereby demonstrate that the Company will be able to consider introducing hydrogen blending more broadly in its system, applying lessons learned from the demonstration project.

Q. IS THE COMPANY ENGAGING IN COMMUNITY OUTREACH TO MAKE RESIDENTS IN THE DEMONSTRATION PROJECT AREA AWARE OF THE INTRODUCTION OF HYDROGEN BLENDED GAS IN THEIR NEIGHBORHOOD AND TO OTHERWISE ADDRESS THEIR QUESTIONS?

A. Yes. The Company has initiated Community outreach for homeowners that are impacted by this distribution system to make them aware of this demonstration project. This community outreach focuses on providing education regarding hydrogen blending and natural gas piping systems to inform how this low carbon fuel technology will play a role in leading the clean energy transition.

Q. WHAT IS THE ESTIMATED COST OF THIS PROJECT?

A. The Hydrogen Blending Demonstration Project is budgeted at roughly $6.3M, for engineering and design work, right-of-way acquisition and permitting, materials, mechanical construction, and customer outreach and appliance study.[3] Mr. Ihle discusses cost recovery for all the Company's proposed MTI projects, including the Hydrogen Blending Demonstration Project, in his Direct Testimony. I recommend that the Commission approve the Company proceeding with the Hydrogen Blending Demonstration Project as part of the Company's MTI, as I have described here, with cost recovery for these efforts as described by Mr. Ihle.

[3] At this time, the Company has expended approximately $700,000 on the aforementioned preliminary activities.

III. OPERATIONAL ISSUES ASSOCIATED WITH CLEAN FUELS

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

A. In this section of my Direct Testimony I discuss the operational considerations associated with the incorporation of clean fuels into the Company's natural gas system, specifically hydrogen and RNG. As such I do not provide the specific details regarding these various clean fuel options; rather, my testimony addresses some operational issues associated with incorporating these new fuels into our existing distribution system. Company witness Mr. Weinberg provides an overview of the Company's proposed plans for recovered methane projects that are based on RNG (sometimes referred to as biomethane or biogas) in his Direct Testimony. Mr. Jensen provides an overview of the potential use and benefits of hydrogen in his Direct Testimony.

Q. WHAT OPERATIONAL AND TECHNICAL DIMENSIONS ARE GAS LOCAL DISTRIBUTION COMPANIES LOOKING TO ANALYZE WITH HYDROGEN BLENDING?

A. As I noted in the prior section of my testimony covering the Company's proposed Hydrogen Blending Demonstration Project, gas LDCs are looking to analyze the blending volumes, material compatibility, and the interchangeability of the hydrogen blended gas as compared to natural gas, specifically for gas fired equipment as well as commercial and industrial operations. Utilities are also looking to see if hydrogen blending is a cost-effective mechanism for reducing the carbon intensity of their delivered fuel if applied on a broader scale across their respective gas systems.

Q. FROM YOUR PERSPECTIVE WHAT LESSONS HAVE BEEN LEARNED THROUGH GAS INDUSTRY HYDROGEN BLENDING RESEARCH AND EFFORTS TO DATE?

A. It is possible to blend hydrogen with natural gas and create a low carbon fuel that can be reliably and safely delivered to customers. Hawaii Gas, for example, has been blending an average of around 12% hydrogen since the 1970's.[4] Hydrogen blending up to 20% has been accomplished on certain gas distribution systems in Europe.[5] The effects of hydrogen blending on transmission system pipelines is also not well understood at this time. The reality is, the industry is still learning; hydrogen blending will require continued participation and innovation to fully be able to integrate hydrogen blended fuel into future gas supply portfolios.

Q. HOW DOES THE COMPANY INTEND TO BUILD UPON THE EXISTING INDUSTRY KNOWLEDGE WITH RESPECT TO HYDROGEN BLENDING?

A. In addition to the knowledge we will gain from our Hydrogen Blending Demonstration Study, there is a significant amount of existing equipment and material on our gas systems that will need to be evaluated for hydrogen compatibility if we are to move forward with utilizing hydrogen blending at-scale without significant infrastructure improvement costs. As Mr. Jensen discusses in his Direct Testimony, the Company is participating in a number of industry initiatives to better understand the challenges of hydrogen blending. I won't repeat

[4] Hydrogen Blending into Natural Gas Pipeline Infrastructure: Review of the State of Technology (nrel.gov)
[5] UK pilot demos hydrogen in gas grid - reNews - Renewable Energy News, German gas operator says 20% hydrogen blending trial in 100 homes has been '100% trouble-free' after six months | Hydrogen news and intelligence (hydrogeninsight.com)

Mr. Jensen's discussion here, but I do want to amplify one aspect of the Hydrogen Blending CRADA – A Hyblend™ Project mentioned by Mr. Jensen. That project is conducting tests on the effect of hydrogen in different blend combinations and pressures on the same materials utilized in natural gas pipeline systems. These tests are run on various new gas carrying pipe material and sizes, i.e., steel and polyethylene pipes, and samples of in-serviced various pipe material and sizes that have been in use for many years. This range of testing materials can help provide additional data on the ability of new and vintage pipe to meet and continue to operate in the desired safe and reliable manner when hydrogen is introduced as a constituent of natural gas being delivered to customers.

Q. WHAT POTENTIAL OPERATIONAL ISSUES ARE ASSOCIATED WITH INCORPORATING RENEWABLE NATURAL GAS IN THE SYSTEM, AS DISCUSSED BY MR. WEINBERG?

A. Renewable natural gas does not present the same blending considerations as hydrogen, but the questions of how and where to bring renewable natural gas to our existing system present some of the same considerations as with hydrogen. The design of these renewable natural gas facilities consider challenges with gas quality from renewable natural gas sources like high levels of CO2 and trace amounts of the contaminates such as siloxane that can be detrimental to customer appliances. The interconnection points are designed to protect our customers from gas streams that do not meet the gas quality specifications required for our customers. This is accomplished using a continuous gas chromatograph to activate shut in valves if the gas quality falls outside of specifications. We also

require additional testing from the supplier to verify that contaminants that cannot be tested continuously are verified to not be present following any treatment by the supplier. If contaminants are found in these tests the site is shut in until new tests show the gas being delivered to the Company again meets the required delivery specifications.

Q. DO YOU HAVE ANY FINAL OBSERVATIONS ABOUT INTRODUCING CLEAN FUELS INTO THE COMPANY'S SYSTEM?

A. With any fuel, we have the responsibility to deliver safe and reliable service. This includes monitoring gas quality, as we do today with natural gas, and will continue to do with the introduction of hydrogen and other clean fuels.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Statement of Qualifications
A. Ray Gardner

I earned a Bachelor of Science degree in Mechanical Engineering from Colorado School of Mines in 2005 and am a licensed Professional Engineer in the state of Colorado. After graduation, I was hired by ATK Thiokol as a manufacturing engineer. In this role I was responsible for the igniter installation process on the Space Shuttle solid rocket boosters as well as the integrated product team lead for both igniter assembly and igniter installation.

In late 2006 I joined Structural Integrity Associates as an Engineer supporting natural gas pipeline operators in the implementation of 49CFR Part 192, Subpart O and specifically gas transmission pipeline assessments. I was progressively promoted through the organization to Consultant where I was a client and project manager with responsibilities including management of pipeline integrity projects and programs for a variety of natural gas transmission pipeline operators. In this role I managed the gas transmission integrity program for a large gas utility including integrity assessment plans as well as development and implementation of a long term in-line inspection retrofit program.

In 2013 I transitioned to DCP Midstream as a senior engineer with responsibilities for the development and advancement of the company hazardous liquid and gas transmission pipeline integrity programs. In this role I was responsible for the company risk assessment process and managed the development of a stress corrosion cracking threat assessment program as well as a direct assessment program. I served as a technical resource and participant in PHMSA, state, and internal audits. I was also responsible for jurisdictional analysis for gas processing plants, liquid storage facilities, compressor stations, and gas meter and regulator stations.

In 2015 I was hired by Xcel Energy as Director, Gas Integrity Management Programs. In this role I had oversight of Xcel Energy's Gas Transmission and Distribution Integrity Management Programs in each state in which Xcel Energy operates a gas system as well as Cathodic Protection in the state of Colorado. My responsibilities included management and oversight of the Company's transmission and distribution integrity programs in compliance with federal and state rules and regulations including activities such as risk modeling, pipeline integrity assessments, Maximum Allowable Operating Pressure remediation, and material verification.

In 2023, I was promoted to Area Vice President of Gas Engineering for Xcel Energy Services. In that role I have oversight of Xcel Energy's engineering and system design, integrity management, asset management, and capital project execution of the gas distribution and high-pressure systems in each state in which Xcel Energy operates a gas system.