BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

IN THE MATTER OF ATMOS ENERGY CORPORATION'S APPLICATION FOR APPROVAL OF ITS 2024-2028 CLEAN HEAT PLAN.	PROCEEDING NO. 23A-0632G

REBUTTAL TESTIMONY

OF

MATTHEW H. NELSON

SUBMITTED ON BEHALF OF
ATMOS ENERGY CORPORATION

JUNE 27, 2024

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Matthew H. Nelson. My business address is 1717 Bluebell, Boulder, Colorado 80302.

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

A. I am employed by Apex Analytics, LLC ("Apex") as Principal of Regulatory Strategy.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of Atmos Energy Corporation ("Atmos Energy" or the "Company").

Q. DID YOU PREVIOUSLY FILE TESTIMONY IN THIS PROCEEDING?

A. Yes, I submitted direct testimony and supplemental direct testimony regarding Atmos Energy's Clean Heat Plan ("CHP") application and related policy issues.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to address issues regarding thermal energy networks, the policy reasons for including the Company's proposed pilots as part of the Company's CHP, cost recovery of Recovered Methane ("RM"), and issues regarding CHP cost recovery through volumetric rates.

II. THERMAL ENERGY NETWORKS

Q. DO ANY OF THE INTERVENORS RECOMMEND THAT ATMOS ENERGY PURSUE ELECTRIFICATION AS PART OF THIS CHP?

A. Yes. Staff witness Mr. Haglund recommends that Atmos Energy spend approximately $2.58 million over four years (approximately $650,000 per year) on electrification, which he states could include promoting electrification or developing thermal energy networks.

Company witness Ms. Kathleen Ocanas provides testimony on Atmos Energy's position regarding including in the Company's CHP portfolios clean heat resources that are consistent with Atmos Energy's only core business – the provision of natural gas service to end-use customers. Thus, the Company has proposed only resources that lower emissions and result in the provision of safe, reliable, and affordable service in a just and reasonable manner without burdening customers with any costs unrelated to the provision of natural gas service. For Atmos Energy, neither electrification nor thermal energy networks fall within those parameters.

Q. IN ADDITION TO THE POINTS MADE BY MS. OCANAS, ARE THERE OTHER CONCERNS AND CHALLENGES ASSOCIATED WITH IMPLEMENTING THERMAL ENERGY NETWORKS FOR THE COMPANY?

A. There are significant challenges associated with implementing thermal energy networks. For example, thermal energy systems are notably expensive and Staff's proposed budget of $2.58 million over four years would not be sufficient based on the known costs associated with actual thermal energy network projects.[1]

Further, Atmos Energy isn't a thermal energy heating company and has not constructed a system like this before. There are many unknowns and it's likely that any effort to develop a new thermal energy network system would be challenging. Atmos Energy would have customer acquisition costs associated with convincing customers to pursue this relatively unknown heating source, along with unknowns around permitting, engineering, and many other elements of development. All of these factors should be expected to create upward pressures on cost. The cost of designing and installing new

[1] Answer Testimony of Staff Witness Haglund (Hearing Exhibit 200) at 22-23.

thermal energy systems is high, posing challenges for scaling and initial investment recovery. As discussed in the Apex Supplemental CHP Analysis Report,[2] in the recent pilots proposed in New York, the estimated construction costs for geothermal network projects ranged from $10 million to over $100 million,[3] depending on the project scope and size.

Additional challenges and cost risks include:

- The requirement for customers to install specific equipment for system connectivity complicates adoption, especially in scenarios involving renters and landlords. Further, unless there is a significant budget to support income qualified customers, the need to purchase new equipment could potentially exclude certain low- to moderate-income customer demographics.
- The effectiveness of thermal energy systems can vary by location, with less rural areas potentially offering more favorable conditions for geothermal extraction and distribution. In less dense environments, there will be an increase in the miles of pipe to customer ratio, thus leading to higher costs.
- Recruiting customers to adopt a new technology like geothermal energy can be challenging, particularly given the upfront costs associated with installing the necessary equipment. While the savings from geothermal energy could potentially offset some costs over the long run, the initial investment required from customers

[2] Hearing Exhibit 111, Attachment JLC-1 at 4.
[3] While initial budgets ranged between $10-$25 million, some in the field projects have seen escalation into the $50 to $100 million territory. National Grid Utility Thermal Energy Network and Jobs Act Monthly Progress and Expenditure Report, Case 22-M-0429, March 15, 2024, available at https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={40C8438E-0000-C113-B251-51ADA58175E2}.

may deter adoption, especially for those with limited financial resources. Utilities considering undertaking these investments will need to develop strategies to educate customers about geothermal energy and where to find financing options or incentives to encourage participation. None of these processes are in place.

- Finally, in addition to the high upfront construction costs, thermal energy networks also have ongoing operating and maintenance costs that are less known or proven than other fuels. As seen in the NYSEG pilot mentioned in the Apex Supplemental CHP Analysis Report, these can include pumping costs, maintenance labor costs, and miscellaneous system repairs, which can amount to hundreds of thousands of dollars annually.[4]

Q. DO YOU AGREE THAT THERMAL ENERGY SYSTEMS OFFER A POTENTIAL NEW VALUE STREAM TO GAS UTILITIES IN COLORADO?

A. The strategic development of thermal energy systems offers a potential path toward diversification and sustainability in utilities' service offerings. However, the execution of a new business strategy includes new risks and requires careful planning, significant investment, and collaborative efforts with stakeholders across the service territory to overcome the inherent challenges and delivery of thermal energy solutions.

Given the high costs and risks associated with thermal energy networks, as evidenced by other utility pilot projects in New York and Massachusetts, those pursuing thermal energy networks should approach these investments cautiously and strategically. Given the concern around exceeding the CHP budget cap expressed by UCA and Staff (which Atmos Energy agrees with), thermal energy networks will not be the most cost-

[4] Hearing Exhibit 111, Attachment JLC-1 at 5.

effective way to achieve the emissions goals. And if such projects were pursued, close collaboration with regulators to establish supportive rate-making mechanisms and prudency review processes will be critical to the success of any such initiatives.

A comparison of Staff's recommended budget of $2.58 million over four years with the initial budgets for other smaller scale thermal energy network projects identified in the Apex Supplemental CHP Analysis Report, which ranged between $10-$25 million, highlights the misalignment in budget expectations.[5] Given these examples, the Staff's recommended budget of $2.58 million for thermal energy networks (under the umbrella of beneficial electrification) significantly underestimates the cost of such networks when compared to the costs of similar projects (and doesn't account for customer recruitment or ongoing O&M).

Even if Atmos Energy were in the business of providing thermal energy networks, the Company could not be expected to deliver a full-scale thermal network within Staff's recommended budget over four years. Additionally, if thermal networks are to be pursued, there also many remaining issues that must be answered such as whether this service is a regulated utility service for which Atmos Energy has a certificate of public convenience and necessity, how the costs for those projects should be recovered in a manner consistent with established ratemaking principles, and the numerous operational issues discussed above.

[5] Hearing Exhibit 111, Attachment JLC-1 at 4-5.

III. PILOT PROGRAMS

Q. HOW DID THE INTERVENORS RESPOND TO THE PROPOSED PILOT PROGRAMS INCLUDED IN THE COMPANY'S PREFERRED CHP PORTFOLIO?

A. Dr. England and Mr. Turner both criticized the Company's design for Manufactured Home Early Retirement and Natural Gas Heat Pumps ("GHP") pilot programs. However, Dr. England recommended that the pilots be rejected while Mr. Turner recommends that the pilots be approved with modifications.

Dr. England's main points of criticism include the high cost per ton of CO2 abated, the low market penetration, and the high administration costs. Specifically, for the GHP Pilot, he highlights that the cost per ton of CO2 avoided is $1,011.99, compared to $551.88 for the Preferred Portfolio without the GHP Pilot. For the Manufactured Home Early Retirement Pilot, the cost per ton of CO2 avoided is $836.82, compared to $550.76 for the Preferred Portfolio without this pilot. Additionally, the GHP Pilot impacts only 0.0213% of residential customers and 0.16% of new furnace replacements over three years, while the Manufactured Home Early Retirement Pilot benefits only 0.27% of manufactured homes and 0.0213% of residential customers. Furthermore, he points out that the estimated administration costs for the GHP Pilot are 33% of the total costs, and for the Manufactured Home Early Retirement Pilot, they are 25% of the total costs. Ultimately, Dr. England recommends that both pilot programs be rejected.

Mr. Turner's criticisms focus on the equity proposals and pilot design. He emphasizes the importance of taking meaningful steps to identify the needs of income-qualified customers. Mr. Turner questions the specific allocation and impact of the budget

for income-qualified customers within each portfolio. He also highlights the potential benefits and challenges of the Manufactured Home Early Retirement Pilot, particularly its cost-effectiveness and market penetration. Mr. Turner acknowledges the effort to allocate resources for income-qualified customers but expresses concerns about whether the proposed measures will adequately address their needs. Mr. Turner recommends that the pilot projects be approved with certain modifications detailed in his answer testimony.

Q. DOES ATMOS ENERGY AGREE WITH DR. ENGLAND'S CRITICISMS REGARDING THE PILOTS AND ULTIMATE RECOMMENDATION?

A. No. Fundamentally, pilot programs are designed to test new approaches, gather data, and learn from the implementation process. The primary goal is to evaluate the feasibility, effectiveness, and scalability of new technologies and programs, rather than achieving immediate widespread impact. While there is a presumption that some of the aspects of the pilot may not make sense at scale, the Company designed these pilots as pathways for compliance. While the initial cost per ton of CO2 abated may seem high compared to other aspects of the preferred portfolio, pilots are essential for understanding the real-world application and long-term benefits of these technologies, and they are expected to reveal pathways that could improve the application of the technology. Early-stage investments often have higher costs that decrease as the program scales and efficiencies are realized. It would be unreasonable to compare proposed piloted technology to a mature technology.

Further, GHG emissions reductions through heat pumps are not the sole purpose of these pilots. While the GHP Pilot impacts a small percentage of the customer base, the pilot is crucial for understanding customer feedback, installation requirements, and measuring awareness and availability of GHPs.

The Manufactured Home Early Retirement Pilot targets a vulnerable and underserved population living in outdated and inefficient homes. By replacing these homes with energy-efficient models, we not only reduce CO2 emissions but also improve the living conditions and reduce energy bills for income-qualified households. This underserved group provides valuable insights into the challenges and opportunities of deploying GHPs to hard-to-reach individuals that may not have access to traditional energy efficiency measures. While delivering these savings is anticipated to be more expensive during this pilot, the development of specific programs to serve hard to reach income-qualified customers is consistent with the policy goals of the statute and is appropriate in a small-scale pilot.

Q. IS STAFF'S RECOMMENDATION GENERALLY CONSISTENT WITH YOUR POSITION?

A. Yes. While Staff witness Mr. Turner raises issues with the details of how the pilots would work, he recognizes that innovation is essential to long-term sustainability. Mr. Turner recognized Atmos Energy's collaborative efforts with Habitat for Humanity and encouraged the approach of developing pilots to directly impact income-qualified customers. He recommends some modifications to address the challenges he identifies with respect to market penetration and understanding and meeting the needs of income-qualified customers, which Ms. Ocanas testifies that Atmos Energy supports incorporating. In addition to testimony provided by Ms. Ocanas regarding the pilots, I also note that GHPs have the potential to give savings to income-qualified customers or small business customers, in particular those who may rent or lease space, and may not be able to make a fuel switching decision.

IV. RECOVERED METHANE

Q. WHAT IS YOUR POSITION REGARDING THE COST RECOVERY FOR RM AS DISCUSSED BY STAFF WITNESS MR. HAGLUND?

A. Staff's proposed method of cost recovery is an acceptable method for recovery of the purchase of RM as a commodity as long as the full cost is recovered. The Company is amenable to recovering part of the costs through the Gas Cost Adjustment ("GCA") while the incremental costs for RM are recovered through the CHP Rider as discussed by Ms. Ocanas.

Q. HOW WOULD THE SEPARATION OF COSTS BETWEEN THE GCA AND OTHER COST RECOVERY MECHANISM BE ADDRESSED?

A. The Company does not expect to obtain bids that separate the costs of RM into distinct components for the commodity and environmental attributes. Therefore, it is reasonable to use the existing GCA rate for a given period as the portion of the purchased RM to be recovered through the GCA, with the remaining cost to be recovered through the CHP Rider.

V. CHP COST RECOVERY

Q. STAFF RECOMMENDS THAT ALL CHP COSTS BE RECOVERED VOLUMETRICALLY RATHER THAN THROUGH A COMBINATION OF FIXED AND VOLUMETRIC CHARGES. HOW DO YOU RESPOND?

A. I disagree. In my direct testimony, I described how gas utility cost recovery should be aligned with Colorado's policy goals that are focused on reducing gas utility throughput and associated emissions. Specifically, I described how utility cost recovery should move *away* from using volumetric rates to recover fixed costs, whether through decoupling

and/or moving toward recovering additional fixed costs associated with gas utility service through fixed rates. Staff's recommendation that CHP costs be recovered exclusively through volumetric rates completely ignores the cost recovery impacts associated with Colorado's decarbonization policies (including Staff's own recommendations in this proceeding) and the need to maintain the utility's financial stability. Moreover, Staff's recommendation will undermine bill affordability for customers by introducing unnecessary volatility through volumetric recovery.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, this concludes my rebuttal testimony.

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AFFIDAVIT

I, Matthew H. Nelson, declare under the penalty of perjury under the law of Colorado that the above testimony was prepared by me or under my supervision, control, and direction; that the testimony is true and correct to the best of my information, knowledge and belief; and that I would give the same testimony orally if asked under oath.

s/ Matthew H. Nelson
Matthew H. Nelson
Apex Analytics LLC
Principal, Regulatory Policy

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