BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE JOINT APPLICATION FOR APPROVAL TO ACQUIRE NEW MEXICO GAS COMPANY, INC. BY SATURN UTILITIES HOLDCO, LLC.	**Case No. 24-00266-UT**

Direct Testimony of

ANGELA J. VITULLI

On Behalf of

Coalition for Clean Affordable Energy

April 18, 2025

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DIRECT TESTIMONY OF ANGELA J. VITULLI

I. INTRODUCTION AND OVERVIEW

Q. Ms. Vitulli, please state your name and briefly describe your qualifications.

A. My name is Angela Vitulli, and I am a Principal at Industrial Economics, Incorporated ("IEc"), a consulting firm located at 2067 Massachusetts Avenue, Cambridge, MA 02140. I am appearing in this proceeding on behalf of the Coalition for Clean Affordable Energy.

I have over fifteen years of experience in energy efficiency and clean energy program design and evaluation. In addition to evaluating traditional demand side management ("DSM") portfolios, I specialize in designing and evaluating technology demonstration and pilot programs, and market transformation programs. I have served as a principal investigator and contract manager for relevant contracts for the Department of Energy ("DOE"), and the New York State Energy Research and Development Authority ("NYSERDA"), the California Energy Commission, and the California Air Resources Board. I am currently working on market evaluations of multiple heat pump programs for NYSERDA.

I recently testified as an expert witness on behalf of Pennsylvania Office of the Small Business Advocate in cases including PPL Electric Phase IV EEC Amendment; UGI Utilities, Inc. (Gas Division) Energy Efficiency and Conservation Plan for FY 2025-2030; Philadelphia Gas Works Demand-Side Management Plan Phase IV; and the Columbia Gas Works Green Path Rider case. I have previously served as a DSM program design expert witness for the Public Intervenor of the Province of New Brunswick. I have also served as an expert program evaluation advisor to Eversource in Massachusetts, helping the utility with structuring evaluation projects for both electric and gas DSM programs, and reviewing results and deliverables. Finally, I provide greenhouse gas (GHG) accounting and mitigation strategy services to several private sector and non-governmental (NGO) clients. This work entails analyzing GHG impacts of organizations, and the cost-effectiveness and feasibility of energy efficiency, fuel switching, and renewable energy options.

I obtained a B.A. degree from Tulane University in Political Science in 1996, *Phi Beta Kappa*, and an M.A. degree from Tufts University in Urban and Environmental Policy in 1999, with a concentration in economics. My resume is contained in the Exhibit IEc-1.

Q. Have you previously testified before the New Mexico Public Regulation Commission?

A. No, I have not.

Q. Have you testified before other regulatory agencies?

A. Yes, I have testified before the Pennsylvania Public Utilities Commission and the New Brunswick Energy and Utilities Board, in the matters noted above.

Q. Will you be sponsoring any exhibits?

A. Yes, I will be sponsoring the following exhibits:

- Exhibit AV-1: Resume of Angela J. Vitulli
- Exhibit AV-2: New Mexico Greenhouse Gas Inventory and Forecast, December 2024
- Exhibit AV-3: JA Response to Interrogatory CCAE 1-1

- Exhibit AV-4: New Mexico Building Decarbonization RoadMap, Version 1.0, 2025.
- Exhibit AV-5: "Oil and gas companies, investors, and policymakers all have important roles to play to solve the problem of transferred emissions" *Sustainable Finance*
- Exhibit AV-6: JA Response to Interrogatory CCAE 1-9
- Exhibit AV-7: JA Response to CCAE Interrogatory 1-8 and JA Response to CCAE Interrogatory 1-6
- Exhibit AV-8: Emera 2023 Climate Transition Plan Update
- Exhibit AV-9: JA Response to Interrogatory CCAE 1-7
- Exhibit AV-10: JA Response to Interrogatory CCAE 2-8
- Exhibit AV-11: JA Response to Interrogatory CCAE 2-9
- Exhibit AV-12: JA Response to Interrogatory CCAE 2-10
- Exhibit AV-13: JA Response to Interrogatory CCAE 1-13
- Exhibit AV-14: "Md regulators say Columbia Gas rate settlement balances competing interests," *S&P Global*
- Exhibit AV-15: JA Response to Interrogatory CCAE 1-19
- Exhibit AV-16: "Utilities Are Buying Pricier 'Responsible Gas.' But for What Climate Benefit?" *DeSmog*
- Exhibit AV-17: GHG Analysis Model

Q. What is the purpose of this testimony?

A. I was retained by CCAE to quantitatively analyze the GHG impacts of the proposed transaction and contextualize these impacts within the framework of New Mexico's climate goals and public interest standard, as well as qualitatively assess other aspects of the proposed transaction with environmental relevance.

Q: Should the PRC consider emissions of greenhouse gases in deciding whether approval of the proposed acquisition in the public interest of the State of New Mexico?

A: Yes, it should. Emissions of greenhouse gases exacerbate global climate change, which will have tremendous adverse consequences in New Mexico, in the United States, and world-wide. Over the coming decades, greenhouse gas-induced climate change will result in sea-level rise, global warming, mass migration of human populations, increase in infectious diseases, environmental degradation, and severe economic disruption. Continued emissions of greenhouse gases are detrimental to the public interest. The costs associated with greenhouse gas emissions weigh heavily against approval of the proposed NMGC acquisition.

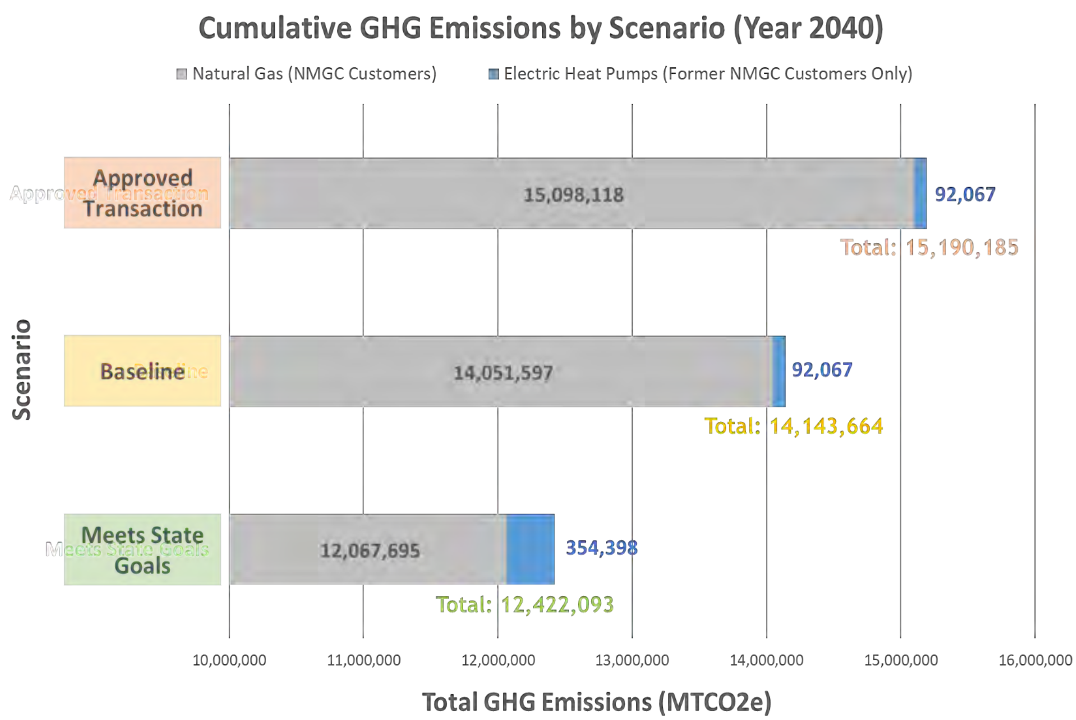
Q. Summarize your conclusions.

A. To prevent the worst consequences of climate change, we need to reduce emissions of greenhouse gases (GHG). New Mexico has adopted a climate target to reduce economy-wide GHG emissions by least 45% by 2030 compared to 2005 levels. This is a reasonable target, based roughly on the targets established in the Paris Climate Accords. Reduction of GHG emissions is needed to protect the State's water supplies, air quality, and the health of its citizens. The New Mexico Environment Departments' GHG Emissions Inventory and Forecast (released December 2024) indicates that, to reach the State's goals, 15% of heating system sales must be electric heat pumps by 2027, reaching 100% by 2030.[1] The State has focused on decarbonizing space heating for residential and commercial buildings because it is one of the most cost-effective approaches to GHG mitigation.

If the transaction is approved, the Joint Applicants forecast that NMGC will acquire 22,000 new customers between 2026 and 2030 at a rate of approximately 4,300 per year,

[1] Exhibit AG-2, New Mexico Greenhouse Gas Inventory and Forecast, December 2024, p. 19.

97% of the new customers being residential.[2] If the transaction is approved, we assume NMGC will continue to expand its residential customer base annually by the prior five-year average (4,262 new residential customers per year) through 2040. If this occurs, it will result in residential GHG emissions of approximately 15,000,000 metric tonnes from 2025 to 2040. This is 1.7 million more than a baseline scenario (which matches current state), and 2.8 million more than a scenario where 100% of heat system sales in New Mexico are electric heat pumps by 2030 (meets State goals scenario). See graphic below.



See Exhibit AV-17, GHG Analysis Model

To put a cumulative difference of 2.8 million metric tonnes of GHGs into perspective, the entire GHG inventory for the State of New Mexico is estimated at 68.2 million metric tonnes of carbon dioxide equivalent (CO_2e) emissions for 2025, of which the residential

[2] Exhibit AV-3, JA Response to CCAE Interrogatory 1, 1-1a.

sector accounts for 2.3 million metric tonnes of the total inventory.[3] Thus, in comparing the "approved transaction" to the "meets state goals" scenario, I estimate that more than a year's worth of additional GHG emissions would be emitted by NMGC residential heating customers by 2040.

I also expect that GHG emissions from data centers in New Mexio will grow if the PRC approves this acquisition. In public statements, BCP's leadership consistently cites their interest in serving the data center market as a key reason for entering the natural gas utility market. Building any new data centers in New Mexico that are powered by gas, directly or indirectly (through gas-fired electricity generation), does not align with the Executive Order's directive to reduce GHG emissions 45% by 2030. In fact, growth in GHG emissions due to data centers is not contemplated at all within the State's GHG forecast.[4] As such, any additional GHG emissions from data centers will need to be offset by a decrease in GHG emissions from some other sector for the State to meet its goals. Moreover, given the incredibly high energy demand from individual data centers, building just one data center has significant impacts, as shown in the table below.

Table 6. Cumulative GHG Impacts Forecast from a Single Data Center (2025 – 2040)

Data Center Type	**Cumulative GHGs (MTCO2E)**
Data Center Type: City-based (grid-tied sites): 5 MW	117,890
Data Center Type: Site-based (grid-tied sites): 100 MW	2,357,808
Data Center Type: Site-based (closed loop NG): 100 MW	5,382,236

[3] Exhibit AV-2, New Mexico Greenhouse Gas Inventory and Forecast, December 2024.

[4] *Id.*

As noted above, the entire GHG inventory for the State of New Mexico is estimated at 68.2 million metric tonnes of CO_2 equivalent annually, and the residential sector accounts for 2.3 million tonnes of the inventory.[5] Therefore, the cumulative impact of one large grid-tied data center, over 15 years, are roughly equivalent to the emissions of all of the homes in New Mexico for one year. For a closed-loop gas-powered data center, the cumulative impacts are double the annual emissions of all the homes in New Mexico.

In short, approving this proposed acquisition is likely to lead to increased growth in residential gas customers in New Mexico, as well as increased data center development that is reliant on natural gas. Both outcomes undermine the State's climate goals, contrary to the public interest standard.

Other aspects of the Joint Applicants' petition are also problematic from a climate and environmental perspective. These include:

- Failure to make specific energy efficiency programming commitments.
- Stated interest in integrating so-called "renewable natural gas" (RNG) without a specific proposal. RNG is difficult and expensive to integrate properly or effectively.
- Stated interest in purchasing certified low emissions natural gas, which is a notorious greenwash.

Q. How is your testimony organized?

[5] *Id.*

A. My testimony is organized in eight parts:

1. New Mexico GHG Goals
2. Joint Applicants' Plans for Growing NMGC's Customer Base
3. Trend of Private Equity Firms Buying Gas Utilities
4. Residential Space Heating GHG Impacts Analysis
5. Data Center GHG Impacts Analysis
6. Energy Efficiency Programming
7. Renewable Natural Gas (RNG)
8. Low Emissions Certified Gas

PART 1. NEW MEXICO GHG GOALS

Q. What are the State of New Mexico's climate and greenhouse gas (GHG) goals as stated in Executive Order 2019-003?

A. Governor Lujan Grisham's *Executive Order on Addressing Climate Change and Energy Waste Prevention (E.O. 2019-003)* establishes eight climate-related policy directives for the State of New Mexico, including GHG reduction targets. The Executive Order's very first directive provides that the State's objective is to achieve a statewide reduction in GHG emissions of at least 45% by 2030 as compared to 2005 levels.[6] This target is

[6] New Mexico Exec. Order 2019-003: Executive Order on Addressing Climate Change and Energy Waste Prevention, January 2019. https://www.governor.state.nm.us/wp-content/uploads/2019/01/EO_2019-003.pdf

consistent with the Paris Climate Accords. The target is reasonable, and the reductions are in the public interest.

Q. To what extent does natural gas used for space heating in homes and commercial buildings contribute to the State's GHG emissions?

A. As of 2021, New Mexico's residential buildings account for 2.8% of statewide annual emissions (2.36 MMTCO_2e), while commercial buildings account for 2.2% (1.79 MMTCO_2e).[7,8] Within the building sector, natural gas is the most common fuel source for space heating (61.8% of buildings are heated with natural gas) and space heating is responsible for 35.3% and 62.1% of commercial and residential emissions, respectively. See Exhibit 3, New Mexico Building Decarbonization Roadmap.[9]

Q. What changes are required for heating homes and commercial businesses to achieve the State's GHG reduction goals?

A. The New Mexico GHG Emissions Inventory and Forecast (released December 2024) indicates that, to reach the State's goals, 15% of heating system sales must be electric heat pumps by 2027, reaching 100% by 2030.[10] The State has focused on space heating for residential and commercial buildings intently because it is one of the most cost-effective approaches to GHG mitigation.

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[7] Exhibit AV-2, New Mexico Greenhouse Gas Inventory and Forecast, December 2024, p. 6.

[8] Oil and gas production has an outsized influence on New Mexico's GHG profile, accounting for nearly half of all emissions. Removing oil and gas emissions, the residential and commercial building sector is responsible for about 8.5% of the State's total GHG emissions.

[9] Exhibit AV-4, New Mexico Building Decarbonization Roadmap, February 2025, p. 8.

[10] Exhibit AV-2, New Mexico Greenhouse Gas Inventory and Forecast, December 2024, p. 19.

PART 2. JOINT APPLICANTS' PLANS FOR GROWING NMGC'S CUSTOMER BASE

Q. What are the Joint Applicants' stated plans for growing NMGC's Customer Base, including residential, commercial, and industrial customers?

A. The Joint Applicants forecast that NMGC will acquire 22,000 new customers between 2026 and 2030 at a rate of approximately 4,300 per year.[11] They anticipate that most of these new customers (21,309) will be Residential (Rate 10). The remainder will be distributed as follows: 678 Small Volume (Rate 54), four Medium Volume (Rate 56), and nine Irrigation (Rate 30). The Joint Applicants predict that NMGC will spend $85.5 million between 2026 and 2029 (approximately $21 million per year) on distribution system expansion under the "Distribution Blankets – New" spending category.[12]

Q. How do these plans compare to NMGC's historical customer acquisition rates?

A. NMGC's 2024 Integrated Resource Plan reports average annual customer growth of 4,126 customers per year between 2017 and 2022.[13] Given this, the Joint Applicants' plans to acquire approximately 4,300 customers per year are on par with NMGC's historical rates.

Q. How do these plans align with New Mexico's GHG reduction goals?

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[11] Exhibit AV-3, JA Response to Interrogatory CCAE 1-1a.

[12] *Id.*

[13] New Mexico Gas Company (2024), Integrated Resource Plan, pg. 13, https://www.nmgco.com/userfiles/files/NMGC's%202024%20Integrated%20Resource%20Plan%20for%20the%20Planning%20Period%20of%202024-2033%20in%20Compliance%20with%2017.7.4.9%20NMAC.pdf

A. The Joint Applicants' customer acquisition plans do not align with the Executive Order's directive to reduce GHG emissions by 45% by 2030. As explained above, the NM GHG Emissions Inventory and Forecast suggests that, to meet the State's goals, 100% of heating system sales for commercial and residential buildings must be electric heat pumps by 2030. Adding 4,300 new NMGC customers per year until 2030 is in direct opposition to this goal, as each new natural gas-fueled heating system precludes the installation of an electric heat pump, and the expected lifespan of HVAC (heating, ventilation and air conditioning) equipment is at least 20 years.[14]

PART 3. TREND OF PRIVATE EQUITY BUYING GAS UTILITIES

Q. Provide an overview of the national trend of gas utility acquisition by private equity firms. Why is this happening?

A. Publicly traded utilities are under substantial pressure to decarbonize their portfolios, and many have set voluntary targets for decarbonization. At the same time, the business model for gas utilities is highly uncertain as electrification and adoption of carbon-free energy sources scale up; gas utilities are increasingly viewed by investors as riskier assets. This situation has created an opening for the private equity sector. As described by *The Economist*:

[14] New Mexico Technical Resource Manual for the Calculation of Energy Efficiency Savings (2023), Section 4.10 High Efficiency Gas Furnace (Condensing), pg. 355, https://www.prc.nm.gov/wp-content/uploads/2024/09/New-Mexico-TRM-2023-Final-03-27-2023.pdf

> As public markets attempt to shed assets, private equity asset managers have repeatedly acquired these fossil fuel assets and operated them out of the public eye and often beyond the oversight of financial and environmental regulators.[15]

The situation facing NMGC is common; it is a gas utility currently in the portfolio of a publicly traded energy company (Emera) that is increasingly focused on electricity and renewables. Emera wants to sell NMGC, and a private equity company is willing to buy it. Private equity markets are far less regulated than publicly traded markets; private companies do not have to file standardized disclosures with the Securities Exchange Commission that characterize financial risks. In 2021 and 2022 private equity firms bought approximately $60 billion of oil, gas and coal assets globally, through 500 transactions—one-third more than they invested in renewables. This divestiture of fossil fuel assets by public companies and uptake by non-public companies is commonly referred to as the "transferred emissions problem."[16]

Q. How do environmental commitments generally differ between utilities owned by private equity firms and utilities owned by public companies?

A. Most private equity deals in the oil and gas industry move companies from owners that made environmental commitments to owners that did not. In the figure below, I show a graphic from an Environmental Defense Fund ("EDF") analysis of oil and gas private

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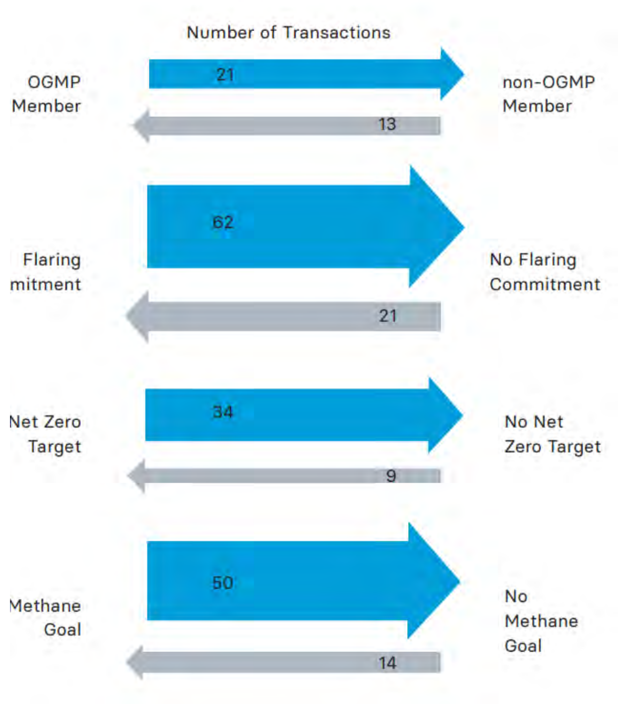
[15] "Who buys the dirty energy assets public companies no longer want?" *The Economist*, February 12, 2022, available at; https://www.economist.com/finance-and-economics/who-buys-the-dirty-energy-assets-public-companies-no-longer-want/21807594

[16] Andrew Baxter and Gabriel Makel "Oil and gas companies, investor, and policymakers all have important roles to play to solve the problem of transferred emissions," *Sustainable Finance*, November 30, 2021. https://business.edf.org/insights/why-we-need-leadership-to-close-the-transferred-emissions-loophole/, Attached as Exhibit AV-5.

equity deals from 2021. By four key environmental commitment metrics—membership in the Oil and Gas Methane Partnership, which is a science-based framework for improvement in methane emissions measurement and reduction; flaring commitments; net zero targets; and methane reduction goals—the overall deal flow is from companies with environmental commitments to companies without them. This trend is unchanged between 2017 and 2021.[17]

Figure 1. Changes in Environmental Commitments from Asset Transfers in 2021



[17] Gabriel Malke ae al, EDF, *Transferred Emissions: How Risks in Oil and Gas M&A Can Hamper the Energy Transition*, https://business.edf.org/wp-content/blogs.dir/90/files/Transferred-Emissions-How-Oil-Gas-MA-Hamper-Energy-Transition.pdf

Q. What differences should be expected comparing prior Emera reporting on NMGC climate impacts versus reporting under BCP ownership?

A. There are likely to be significant differences between current reporting of NMGC's greenhouse gas emissions under Emera ownership and reporting under BCP ownership.–

To their credit, Joint Applicants have indicated that they will continue to participate in US EPA's Natural Gas STAR program and Methane Challenge Program.[18] For disclosures, Joint Applicants indicate that they will commit to maintain membership in the American Gas Association (AGA) Advanced Mobile Leak Detection program for the next five years, and to report legally required Subpart W filings submitted to EPA.[19] But these are minimal commitments that will be of limited value. EPA dashboards of Subpart W filings do not present total GHGs for a utility or the parent company of a utility. Subpart W data dashboards present emissions information disaggregated at the equipment level, or aggregated at a jurisdictional level, but does not present information at the utility or company level.[20]

It is unlikely that the Joint Applicants will continue to report NMGC GHG emissions to the Carbon Disclosure Project (CDP), which Emera does.[21] BCP has not reported on that platform previously. CDP is a global non-profit environmental reporting platform widely

[18] Exhibit AV-6, JA Response to CCAE Interrogatory 1-9. *See* 40 C.F.R. Part 98, Subpart W.

[19] Exhibit AV-7, JA Response to CCAE Interrogatory 1-8 and JA Response to CCAE Interrogatory 1-6.

[20] US EPA GHGRP Oil and Gas Dashboard: Subpart W Summary, available at: https://edap.epa.gov/public/extensions/OilGasDashboard/index.html

[21] Emera Inc. 2024 CDP Corporate Questionnaire (2024), pg. 130, https://www.emera.com/docs/librariesprovider3/2023-sr-publications/2024_emera_cdp_climate_change_submission.pdf?sfvrsn=fd1156c3_1.

used by institutional investors and other stakeholders to access corporate climate information in a standardized, comparable format. It is also unlikely that the Joint Applicants will issue any kind of environmental, social and governance (ESG) or sustainability report. In contrast, in its ESG report, Emera has also disclosed NMGC GHG emissions and has discussed the utility's energy efficiency investments and strategy.[22] BCP has not previously developed an ESG or sustainability report.

Emera also published a Climate Transition Plan and a net zero GHG goal, and an update to its plan for 2023; the plan is focused on phasing out natural gas and integrating more renewables into the company's energy mix.[23] Joint Applicants/BCP has not published a climate transition plan or made any commitments to reduce GHG emissions. From its public reporting, Emera is clear in its intension to offload carbon intensive fuels, including natural gas, and to integrate renewables into its energy portfolio. In contrast, BCP is buying natural gas utilities, including Delta Utilities and CenterPoint, in addition to NMGC, with the explicit purposes of growing the natural gas business. This does not bode well for meeting New Mexico's GHG goals and begs the question: which entity is better positioned to diversify the gas company for its ultimate financial health, and more importantly, for the health of its customer base?

PART 4. RESIDENTIAL SPACE HEATING GHG IMPACTS ANALYSIS

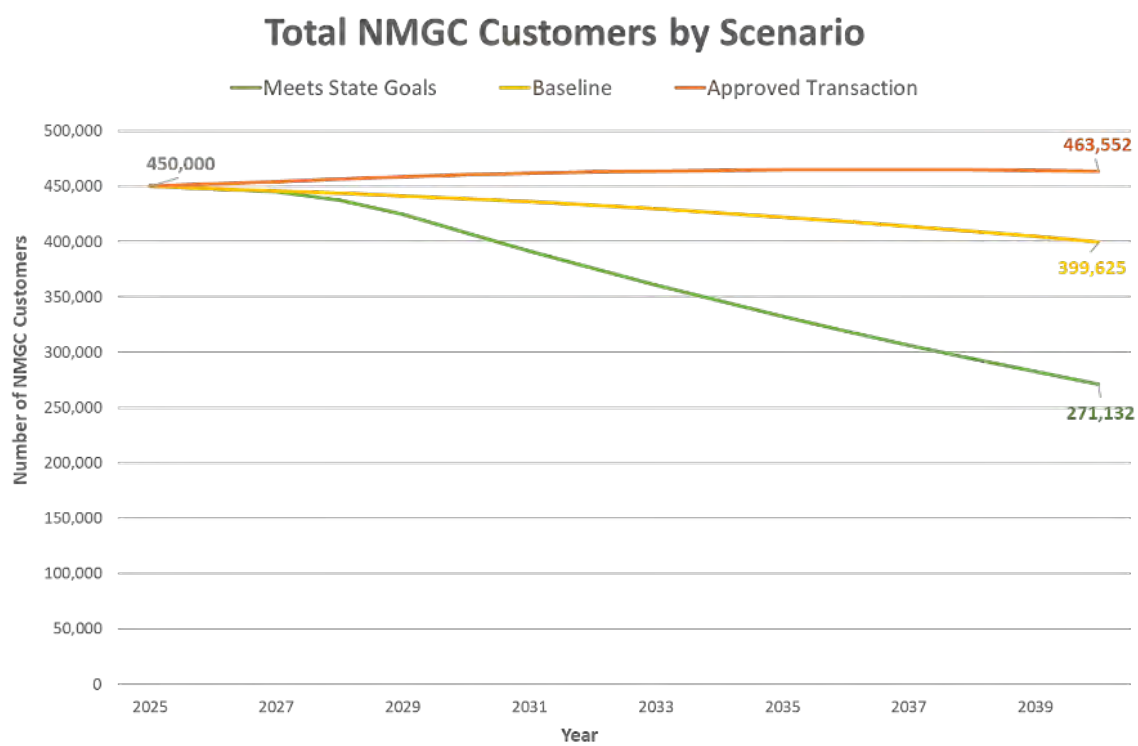
[22] Emera 2023 Sustainability Report (2023), pg. 62, https://www.emera.com/docs/librariesprovider3/2023-sr-publications/2023_emera_sustainability_report.pdf?sfvrsn=ed597c65_1

[23] Exhibit AV-8, Emera 2023 Climate Transition Plan Update (2023).

Q. Describe the analysis that conducted on the likely GHG emissions impacts of NMGC residential customer acquisition. What scenarios were used? What are the key differences between the "Baseline," "Approved Transaction," and "Meets State GHG Goals" scenarios?

A. I analyzed the likely GHG emissions impacts from space heating from 2025 through 2040 under three different NMGC residential customer acquisition scenarios: Baseline, Approved Transaction, and Meets State Goals (Figure 2).

Figure 2. Total NMGC Residential Customers by Scenario



See Exhibit AV-17, GHG Analysis Model

Across all three scenarios, I assume NMGC begins with 450,000 residential customers in 2025.[24] Then, I created scenario-specific customer acquisition forecasts for 2026 through 2040 as follows:

Baseline Scenario

In the Baseline scenario, NMGC's total residential customers decline somewhat through 2040 as electric heat pump sales increase. The baseline scenario aligns with the New Mexico GHG Emissions Inventory and Forecast's "Current Policy" emissions trajectory, which captures the effect of currently passed and anticipated emissions reductions measures based on the directives of existing state policies.[25] In the residential space heating sector, the "Current Policy" trajectory assumes 14% of new heating equipment sales are electric heat pumps by 2030 and 31% by 2040. I use New Mexico-specific data from the National Renewable Energy Laboratory's ResStock database to estimate that 10% of the State's space heating sales in 2025 are electric heat pumps and interpolates an annual sales share for the intervening years.[26] I assume zero growth in NMGC's customer base and an average furnace lifespan of 25 years, meaning a four percent annual furnace replacement rate.[27,28] For each year, I multiply the number of furnace replacements by

[24] NMGC 2023 Rate Case Final Order, Docket No. 23-00255-UT, Stipulation Exhibit #4, pg. 165.

[25] Exhibit AV-2, New Mexico Greenhouse Gas Emissions Inventory and Forecast (2024), p. 18.

[26] National Renewable Energy Laboratory (NREL), ResStock Dataset 2024.2, https://resstock.nrel.gov/datasets

[27] New Mexico Technical Resource Manual for the Calculation of Energy Efficiency Savings (2023), Section 4.10 High Efficiency Gas Furnace (Condensing), pg. 355, https://www.prc.nm.gov/wp-content/uploads/2024/09/New-Mexico-TRM-2023-Final-03-27-2023.pdf

[28] The New Mexico Technical Resource Manual's deemed measure life for a high-efficiency, gas-fired condensing furnace for residential space heating is 20 years. Thus, the assumption of a 25-year lifespan

that year's electric heat pump sales share to estimate the number of NMGC customers switching to an electric heat pump. Then, I generated an annual number of current (natural gas) and former (electric heat pump) NMGC residential customers (see Table 1).

Table 1. Baseline: Current and Former NMGC Residential Customers

Baseline			
Year	**Electric Heat Pump Share of Space Heating Sales**	**Total Current NMGC Customers**	**Total Former NMGC Customers** (Now on Electric Heat Pumps)
2025	**10%**	450,000	-
2026	11%	448,056	1,944
2027	12%	445,977	4,023
2028	12%	443,765	6,235
2029	13%	441,422	8,578
2030	**14%**	438,950	11,050
2031	16%	436,193	13,807
2032	17%	433,157	16,843
2033	19%	429,848	20,152
2034	21%	426,272	23,728
2035	23%	422,435	27,565
2036	24%	418,346	31,654
2037	26%	414,012	35,988
2038	28%	409,441	40,559
2039	29%	404,643	45,357
2040	**31%**	399,625	50,375

Approved Transaction Scenario

In the Approved Transaction scenario, NMGC's residential customer growth outpaces electric heat pump deployment, resulting in net customer growth through 2040. The model incorporates the residential customer acquisition schedule provided by the Joint

will generate a more conservative estimate of the heating system replacement rate and electric heat pump uptake.

Applicants for 2026-2030.[29] After 2030, I assume NMGC will continue to expand its customer base annually by the prior five-year average (4,262 new residential customers per year) through 2040. Some customers switch to electric heat pumps when they replace their heating system, but at a lower adoption rate than in the Baseline scenario (Table 2).

Table 2. Approved Transaction: Current and Former NMGC Residential Customers

Approved Transaction			
Year	**Annual New NMGC Customers**	**Total Current NMGC Customers**	**Total Former NMGC Customers** (Now on Electric Heat Pumps)
2025	-	450,000	-
2026	4,193	452,249	1,944
2027	4,228	454,398	4,023
2028	4,261	456,447	6,235
2029	4,296	458,400	8,578
2030	4,331	460,259	11,050
2031	4,262	461,764	13,807
2032	4,262	462,990	16,843
2033	4,262	463,942	20,152
2034	4,262	464,628	23,728
2035	4,262	465,053	27,565
2036	4,262	465,226	31,654
2037	4,262	465,154	35,988
2038	4,262	464,845	40,559
2039	4,262	464,308	45,357
2040	4,262	463,552	50,375

Meets State Goals Scenario

In the Meets State Goals scenario, total NMGC customers decline sharply as electric heat pump sales increase. The Meets State Goals scenario aligns with the New Mexico GHG

[29] Exhibit AV-3, p. 4.

Emissions Inventory and Forecast's "Mitigation" emissions trajectory, which represents the scale of decarbonization necessary to achieve the State's 2030 economy-wide GHG target.[30] In the residential space heating sector, the "Mitigation" trajectory assumes 15% of new heating equipment sales are electric heat pumps in 2027 and 100% by 2040. I again estimate that 10% of space heating sales are electric heat pumps in 2025 and interpolate an annual sales share for the intervening years.[31] I also assume zero growth in NMGC's customer base and the same furnace replacement rate as in the other two scenarios. I calculate former NMGC customers (i.e., electric heat pump adopters) in the same manner as the Baseline scenario, but annual NMGC customer loss is larger in the Meets State Goals scenario because the heat pump sales share is higher (Table 3).[32]

Table 3. Meets State Goals: Current and Former NMGC Residential Customers

Meets State GHG Goals			
Year	**Electric Heat Pump Share of Space Heating Sales**	**Total Current NMGC Customers**	**Total Former NMGC Customers** (Now on Electric Heat Pumps)
2025	**10%**	450,000	-
2026	13%	447,750	2,250
2027	**15%**	445,064	4,937
2028	43%	437,349	12,651
2029	72%	424,812	25,188
2030	**100%**	407,819	42,181
2031	100%	391,506	58,494
2032	100%	375,846	74,154
2033	100%	360,812	89,188
2034	100%	346,380	103,620

[30] Exhibit AV-2, New Mexico Greenhouse Gas Emissions Inventory and Forecast (2024), p. 18.

[31] National Renewable Energy Laboratory (NREL), ResStock Dataset 2024.2, https://resstock.nrel.gov/datasets

[32] Former NMGC customers may continue to utilize gas for water heating. End uses outside of space heating are outside the scope of this analysis.

2035	100%	332,525	117,475
2036	100%	319,224	130,776
2037	100%	306,455	143,545
2038	100%	294,197	155,803
2039	100%	282,429	167,571
2040	100%	271,132	178,868

Q. Describe the two customer groups that are the focus of the analysis.

A. The analysis focuses on likely GHG emissions from residential space heating for the following two groups:

(1) *Current* NMGC residential customers: These customers currently use NMGC-supplied natural gas to heat their homes. This group includes existing NMGC residential customers as of 2025, along with the new customers NMGC acquires between 2026 and 2040 in the Approved Transaction scenario.

(2) *Former* NMGC residential customers: These customers previously used NMGC-supplied natural gas to heat their homes but switched to an electric heat pump when their gas furnace reached end-of-life at 25 years. This group includes former customers that switched to electric heat pumps during the timeframe of our analysis only (2026-2040).

Q. Why did you focus only on residential customers for this analysis?

A. I focused on residential customers for this analysis because the Joint Applicants indicate negligible anticipated growth in the NMGC customer base for the commercial and industrial sectors.[33]

Q. Describe the key inputs and assumptions used for the GHG emissions analysis.

[33] Exhibit AV-3, p. 4.

A. I use two categories of inputs for the GHG emissions analysis: (1) natural gas and electricity emissions factors, and (2) state-specific annual household energy consumption.

Emissions Factors

- *Natural gas*: I use a natural gas emissions combustion factor of 116.65 lbs. CO_2e per MMBtu from the U.S. Energy Information Administration (EIA).[34] I assume this emissions intensity remains constant through 2040; gas furnaces are already extremely efficient and only 4% of the heating system stock turns over annually.
- *Electricity*: I use an electricity emissions factor that declines annually to reflect a “greening of the grid” as more renewable energy is integrated into the State’s energy mix through 2040. I derived its electricity emissions schedule by backing out New Mexico-specific anticipated grid emissions intensities from the New Mexico GHG Emissions Inventory and Forecast’s “Current Policy” trajectory (provided for 2021, 2030, and 2050) and interpolating for the intervening years.[35] In the “Current Policy” trajectory, New Mexico electricity production emits 0.396 metric tonnes of CO_2e/MWh in 2021, 0.231 metric tonnes of CO_2e/MWh in 2030, and reaches zero emissions by 2050.

Household Energy Consumption

I estimate average annual household energy consumption in New Mexico come from the EIA’s 2020 state-by-state end-use consumption database. New Mexican households connected to natural gas consume, on average, 39 MMBtu of natural gas for space

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[34] Source (Natural Gas): U.S. EIA (2024), https://www.eia.gov/environment/emissions/co2_vol_mass.php

[35] Exhibit AV-2, Tables 8 and 10.

heating per year, and approximately 6 MMBtu of electricity per year.[36] I assume average household energy consumption remains constant through 2040.[37]

Fugitive Emissions

The GHG analysis does not include fugitive methane emissions. Given that transmission and distribution are responsible for a combined 25% of the natural gas industry's total fugitive emissions (40 and 15 million metric tonnes of CO_2e per year, respectively), the space heating-only GHG analysis is extremely conservative in estimating the climate impacts of residential gas use.[38]

Q. Describe how you calculated GHG emissions from residential space heating for the three NMGC customer acquisition scenarios.

A. To calculate GHG emissions from residential space heating for each of the three analytical scenarios, I did the following:

(1) Generated estimates of *annual GHG emissions per household* by heating fuel type:

- For natural gas, I multiplied the natural gas emissions factor (116.65 lbs. CO_2e/MMBtu) by the EIA's New Mexico-specific residential gas consumption estimate (38.7 MMBtu per household per year) to obtain an average annual GHG

[36] U.S. EIA (2020), CE4.6.NG.ST Annual household site natural gas end-use consumption in the United States by state—averages, 2020, https://www.eia.gov/consumption/residential/data/2020/state/pdf/ce4.6.ng.st.pdf

[37] I assume constant average annual energy consumption for simplicity. Accounting for hypothetical future improvements in residential energy efficiency is beyond the scope of this analysis.

[38] U.S. EPA (2022), "Estimates of Methane Emissions by Segment in the United States," https://www.epa.gov/natural-gas-star-program/estimates-methane-emissions-segment-united-states

emissions estimate of 4,514 lbs. CO_2e per household per year (equivalent to 2.05 metric tonnes of CO_2e).[39]

- For electricity, I developed an annual per-household GHG emissions schedule for 2025-2040 by multiplying the EIA's New Mexico-specific estimate of residential electricity consumption for space heating (1.67 MWh or 6 MMBtu per household per year) by the yearly emissions factor for electricity generation.[40]

(2) Calculated *total annual GHG emissions* by heating fuel type for each scenario by multiplying the per-household annual emissions estimates (described above) by the total number of NMGC customers in each year (number varies across analytical scenarios).

Q. What are the GHG emissions impacts from residential space heating under the different scenarios, and what are the implications for meeting New Mexico's greenhouse gas emissions reduction targets?

A. I report the results of the GHG model by scenario below. See Figure 2 for a summary graphic and Exhibit IEc-1 for the complete model and detailed results by year.

<u>Baseline</u>

In the Baseline scenario (where NMGC residential customers decline somewhat through 2040 as heat pump sales increase in alignment with current State policies), total cumulative GHG emissions from residential space heating from 2025 through 2040 are

[39] Additional details on how I selected emissions factors and per-household energy consumption estimates are included in the previous section of this testimony.

[40] Emissions factors do not include electricity grid losses, which are typically around 8% of electricity generated. My analysis is focused on GHG emissions from the use stage of both natural gas and electricity, and does not include upstream or downstream impacts.

14,143,664 metric tonnes of CO_2e (92,067 metric tonnes of CO_2e from electricity and 14,051,597 metric tonnes of CO_2e from natural gas). Annually, average emissions are 883,979 metric tonnes of CO_2e per year (5,754 metric tonnes of CO_2e per year from electricity and 878,225 metric tonnes of CO_2e per year from natural gas).

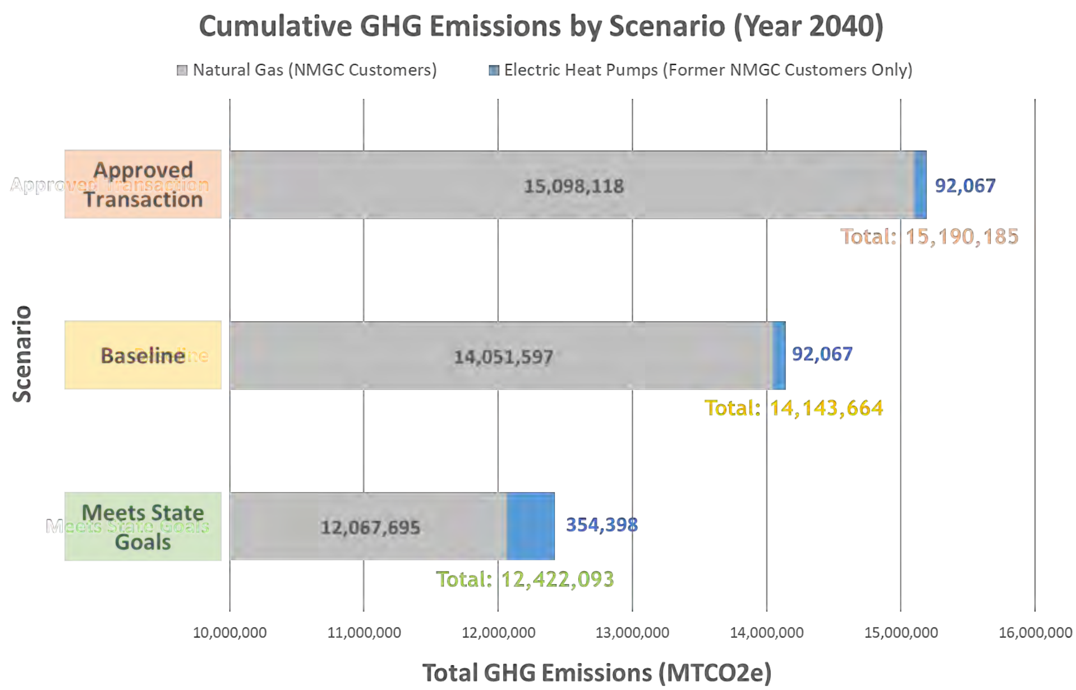
Approved Transaction

In the Approved Transaction scenario (where NMGC residential customer growth outpaces electric heat pump deployment), total cumulative GHG emissions from residential space heating from 2025 through 2040 are **15,190,185 metric tonnes of CO_2e** (92,067 metric tonnes of CO_2e from electricity and 15,098,118 metric tonnes of CO_2e from natural gas). Annually, average emissions are 949,387 metric tonnes of CO_2e per year (5,754 metric tonnes of CO_2e per year from electricity and 943,632 metric tonnes of CO_2e per year from natural gas).

Meets State Goals

In the Meets State Goals Scenario (where NMGC residential customers decline sharply as electric heat pump sales increase to meet New Mexico's GHG target), total cumulative GHG emissions from residential space heating from 2025 through 2040 are **12,422,093 metric tonnes of CO_2e** (354,398 metric tonnes of CO_2e from electricity and 12,067,695 metric tonnes of CO_2e from natural gas). Annually, average emissions are 776,381 metric tonnes of CO_2e per year (22,150 metric tonnes of CO_2e per year from electricity and 754,231 metric tonnes of CO_2e per year from natural gas).

Figure 3. Cumulative GHG Emissions by Scenario (Year 2040)



Comparing each scenario, cumulative emissions under the Baseline scenario (current policy trajectory, no NMGC customer growth) exceeds Meets State Goals emissions by 1,721,571 metric tonnes of CO_2e (Table 4). Cumulative emissions under the Approved Transaction scenario exceed Baseline emissions by 1,046,51 metric tonnes of CO_2e and exceed Meets State Goals emissions by 2,768,092 metric tonnes of CO_2e. To put a cumulative difference of 2.8 million metric tonnes of GHGs into perspective, the entire GHG inventory for the State of New Mexico is estimated at 68.2 million metric tonnes of CO_2e for 2025, of which the residential sector accounts for 2.3 million metric tonnes of the total inventory.[41] Thus, in comparing the Approved Transaction scenario to the Meets State Goals scenario, I estimate that **<u>more than a year's worth of additional GHG</u>**

[41] Exhibit AV-2, New Mexico Greenhouse Gas Inventory and Forecast (2024).

emissions would be emitted by **current and former NMGC residential heating customers only** (the model does not consider other residential end uses, other rate classes, or fugitive emissions) by 2040.

Table 4. Difference in Cumulative Emissions by Scenario ($MTCO_2e$)

Difference in Cumulative Emissions by Scenario 2025-2040 ($MTCO_2e$ – Gas and Electric Heat Combined)	
Approved Transaction vs **Baseline**	1,046,521
Approved Transaction vs **Meets State Goals**	2,768,092
Baseline vs **Meets State Goals**	1,721,571

As detailed in prior sections of this testimony, I designed the model as conservatively as possible. Actual emissions under an approved transaction are likely to be larger than model estimates. Given this, even if BCP were to operate NMGC in exact accordance with the Joint Applicants' stated plans (no transmission expansion, minimal distribution expansion limited mainly to residential customers), approving the Joint Applicants' proposal would set back New Mexico's progress towards meeting its climate goals. Meeting the State's climate goals holds the promise of environmental and health benefits for New Mexico's citizens, including protecting the State's water supplies, improving its air quality, and reducing its emissions of greenhouse gases.[42] Undermining the State's climate goals is contrary to the public interest of New Mexico.

[42] New Mexico Exec. Order 2019-003: Executive Order on Addressing Climate Change and Energy Waste Prevention, January 2019. https://www.governor.state.nm.us/wp-content/uploads/2019/01/EO_2019-003.pdf

PART 5. DATA CENTER GHG IMPACTS ANALYSIS

Q. Are data centers that rely on natural gas, either through on-site generation or through fueling electricity generating units, more likely to be sited in New Mexico if the PRC approves this transaction?

A. Yes. BCP's leadership consistently cites their interest in serving the data center market as a key reason for entering the natural gas utility market. In a recent interview with the *Baton Rouge Business Report*, BCP CEO Jeff Jenkins plainly stated that BCP also sees a "generational investment opportunity" in powering the nation's growing number of data centers.[43] BCP has made several public statements to this effect, including at least four LinkedIn posts from January through April of 2025 which focus on the theme of meeting the energy needs of data centers and artificial intelligence (AI). For example, in another example from January, Mr. Jenkins said the following on the Northstar Private Equity Fast Pitch podcast, which BCP reposted on their LinkedIn account:

> We've been one of the leaders in supplying services to regulated utilities for the last 35 years, and the intersection of AI and the demand for power and digital infrastructure is going to be a major theme for us. We are in the middle of providing services for many utilities around the country that are in a position now to expand their footprint.[44]

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[43] Dillon Lowe, "Power Play: A look inside the growing infrastructure portfolio of Bernhard Capital Partners," *Baton Rouge Business Report*, January 3, 2025. Available at: https://www.businessreport.com/business/a-look-inside-the-growing-infrastructure-portfolio-of-bernhard-capital-partners

[44] Bernhard Capital Partners, LinkedIn re-post from Northstar Private Equity Fast Pitch https://www.linkedin.com/feed/update/urn:li:activity:7265473719790104580?updateEntityUrn=urn%3Ali

In another LinkedIn post from February 2025, BCP posted a video about their new investments in "infrastructure services and regulated utilities" with the following introduction highlighting the connection to data centers, which is also discussed in the video.

> Hear from leaders across our investment team about accomplishments over the past year and our outlook on 2025, with a focus on opportunities at the intersection of the growing demand for data and power.[45]

Q. Describe the analysis that you conducted into the likely GHG impacts of data center expansion in New Mexico.

A. My colleague Stefani Penn researched trade press to understand data centers recently sited in New Mexico and proposed for development in the State. However, it is not possible to develop a forecast of data centers to be built in New Mexico with confidence given the rapidly evolving demand for them. As such, based on research of existing and planned data centers in New Mexico, I estimated GHG impacts from three different types of data centers:

- City-based (on electricity grid) – smaller site/building based in a developed area; 5 MW of energy capacity

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[45] Bernhard Capital Partners, LinkedIn post from February 2025, available at: https://www.linkedin.com/posts/bernhard-capital-partners-llc_the-past-year-at-bernhard-capital-partners-activity-7291177226388062209-VNvT?utm_source=share&utm_medium=member_desktop&rcm=ACoAAAACBLMBRRY0-TCDQOrxXL0QghjMsJn43Hc

- Site-based (on electricity grid) – larger facility based in less developed area; 100 MW of energy capacity
- Site-based (closed loop natural gas) -- larger facility based in less developed area; 100 MW of energy capacity

These are the same data center types featured in Ms. Penn's testimony. I estimate the annual GHG emissions for each type of facility, as well as GHGs forecast for our 15-year study period (2025 – 2040).

Q. Describe the logic employed by the analysis and the data sources.

A. I have assumed the data center characteristics noted above. For the two data centers powered by electricity, I estimated annual electricity consumption for the data centers based on a utility-assumed load factor of 90%, acknowledging that data centers tend to use between 80% and 85% of capacity in a given year. I used EIA data to find that 34% of the electricity on New Mexico's grid is generated by natural gas, which I applied to the electricity consumption estimates of the grid-tied sites in 2025.[46] Then, I applied carbon dioxide (CO_2) and methane (CH_4) emissions factors provided by US EPA for natural gas combustion to the consumption estimates,[47] and converted results into carbon dioxide equivalents (MTCO2E). This results in the following annual estimate, for a data center built in 2025:

[46] EIA, New Mexico State Profile and Energy Emissions, June 20, 2024: https://www.eia.gov/state/analysis.php?sid=NM&utm_source

[47] Eastern Research Group, "Emission Factor Documentation for AP-42 Section 1.4 Natural Gas Combustion," U.S. Environmental Protection Agency Office of Air Quality Planning and Standards, 1998. https://www.epa.gov/sites/default/files/2020-09/documents/background_document_ap-42_section_1.4_natural_gas_combustion.pdf

Table 5. Annual GHG Impacts Forecast from a Single Data Center

Data Center Type	**Annual GHGs (MTCO2E)**
Data Center Type: City-based (grid-tied sites): 5 MW	11,319
Data Center Type: Site-based (grid-tied sites): 100 MW	226.375
Data Center Type: Site-based (closed loop NG): 100 MW	336,390

For the closed-loop gas-powered site, cumulative impacts are simply annual impacts multiplied by 15 years. For the grid-tied sites, to assess impacts over the 15-year period, I used the grid's GHG intensity forecast included in the State GHG Inventory. This is the same forecast that I applied to the residential GHG impacts analysis above, and estimates that by 2040, 65% of New Mexico grid power is provided by renewable sources.[48] The following cumulative GHG estimates result, for a data center built in 2025:

Table 6. Cumulative GHG Impacts Forecast from a Single Data Center (2025 – 2040)

Data Center Type	**Cumulative GHGs (MTCO2E)**
Data Center Type: City-based (grid-tied sites): 5 MW	117,890
Data Center Type: Site-based (grid-tied sites): 100 MW	2,357,808
Data Center Type: Site-based (closed loop NG): 100 MW	5,382,236

Q. What are the implications for meeting New Mexico's GHG goals under the Executive Order?

[48] Exhibit AV-2, New Mexico GHG Emissions Inventory and Forecast (2024).

A. Building any new data centers in New Mexico that are powered by gas, directly or indirectly (through gas-fired electricity generation), does not align with the Executive Order's 2019-003's directive to reduce GHG emissions 45% by 2030. In fact, growth in GHG emissions due to data centers is not contemplated at all within the State's GHG forecast.[49] As such, any additional GHG emissions from data centers will need to be offset by a decrease in GHG emissions from some other sector for the State to meet its goals. Moreover, given the incredibly high energy demand from individual data centers, building just one data center has significant impacts. To put these numbers into perspective, in 2025, the entire GHG inventory for the State of New Mexico is estimated at 68.2 million metric tonnes of CO_2e annually, and the residential sector accounts for 2.3 million metric tonnes of the inventory.[50] Therefore, the cumulative impact of one large grid-tied data center, over 15 years, are roughly equivalent to the emissions of all of the homes in New Mexico for one year. For a closed-loop gas-powered data center, the cumulative impacts are double the annual emissions of all the homes in New Mexico.

PART 6. ENERGY EFFICIENCY PROGRAMMING

Q. What energy efficiency programming have the Joint Applicants indicated they would support? What have they committed to in terms of financial investment? Are these commitments adequate in their detail and ambition?

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[49] *Id.*

[50] *Id.*

A. The Joint Applicants indicate in discovery that they will "implement energy efficiency measures to the greatest extent reasonably possible without exceeding the cap" (referring to the statutory cap on energy efficiency spending).[51] However, the Joint Applicants refuse to quantify their definition of "greatest extent reasonable possible" or to commit to specific investments; they say they cannot make such commitments without having a revenue forecast and a new energy efficiency plan.[52] CCAE followed up with another interrogatory to clarify the Joint Applicants' response and provide additional opportunity to the Joint Applicants to make any kind of quantitative commitment on energy efficiency investment. CCAE asked if BCP would commit to spending at least much annually on energy efficiency as it will spend in 2025, or if it would commit to a total energy savings goal equivalent or greater to the 2023-2025 energy efficiency plan. Again, the Joint Applicants demurred, and said they could not commit to anything, and changed the rationale to say that energy efficiency plans need to go through an RFP (request for proposals)process, and need PRC review and approval. If the Joint Applicants are in fact committed to maintaining current energy efficiency programming investment, they could have responded that they commit to doing so assuming that level of investment complies with the State cap and is approved by the PRC. Their failure to make this modest commitment suggests that they may not be serious about implementing energy efficiency "to the greatest extent reasonably possible." Moreover, the Joint Applicants citing the RFP process as a reason why they cannot make a quantitative commitment to energy efficiency is not persuasive. The Joint Applicants will have control over the RFP process;

[51] Exhibit AV-9, Joint Applicants Response to CCAE Interrogatory 1-7.

[52] *Id.*

they will write the RFP, dictate the energy efficiency services to be procured from an implementation contractor, and set the budget.

Q. How could the Joint Applicants mitigate some of their likely GHG increases from customer acquisition through clean energy programming (i.e., subsidization of electric heat pumps, studying geothermal)?

A. In addition to investments in energy efficiency programs, the Joint Applicants could mitigate the GHG impacts of continued customer acquisition, both residential and data center customers, by:

- Identifying potential customers that may be better served by electric heat pumps, and subsidizing the first cost of electric heat pumps in these situations. These may include potential customers in the NMGC service area that are currently using propane for heating fuel, and/or do not have a current gas hookup.
- Investing in analysis of the potential for using NMGC's gas infrastructure for delivering geothermal heat to industrial facilities that require process heat.
- In advance of the next integrated resource plan filing, voluntarily producing a non-pipeline analysis that compares alternatives to meeting forecasted energy demands through a combination of electrification and energy efficiency.[53]

Q. Are commercial gas heat pumps a proven technology widely demonstrated to be efficient and cost effective?

[53] Exhibit AV-4, New Mexico Building Decarbonization Roadmap, Version 1.0, 2025.

A. No, commercial gas heat pumps ("gas heat pumps") are not a proven technology widely demonstrated to be efficient and cost effective. Although the market for electric heat pumps is growing, gas heat pumps are an emerging technology with little widespread market adoption. A 2022 analysis of the global market for heat pumps in the academic journal Nature Energy makes no mention of gas heat pump technology.[54] Additionally, commercial market research reports on heat pumps from 2023 also make no mention of gas heat pumps, indicating the deployment of this technology is very limited.[55] A 2019 industry white paper by the Gas Technology Institute indicates a "weak business case" for gas heat pumps due to lack of available evidence to support investment into the technology.[56]

Q. Is it typical for utilities to incentivize customers to invest in emerging technologies like commercial gas heat pumps?

A. No. Utility energy efficiency programs are designed to promote widespread market adoption of proven energy efficiency technologies. Typically, emerging technologies like commercial gas heat pumps are relegated to testing in the context of smaller pilot programs, which are not open to entire customer classes. The role of pilot programs is to gather evidence that technology is reliable and cost-effective, prior to widespread

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[54] Nature Energy (2022), *Heating Up the Global Heat Pump Market*, available at: https://www.nature.com/articles/s41560-022-01104-8

[55] See reports from Global Market Insights and Market Research Future for examples.

[56] Gas Technology Institute (2019), *The Gas Heat Pump Technology and Market Roadmap*, Available at: https://www.gti.energy/wp-content/uploads/2020/09/Gas-Heat-Pump-Roadmap-Industry-White-Paper_Nov2019.pdf

incentivization and deployment. NMGC is participating in a pilot test currently that is cross utility, and limited to 15 participants.[57]

Q. Do the Joint Applicants have a clear plan for commercial gas heat pumps?

A. No. The Joint Applicants refuse to say whether they will propose incentivizing natural gas heat pumps in their next three-year energy efficiency plan.[58] The refusal to rule it out suggests that they want to retain the option to propose their inclusion. I would caution that inclusion of natural gas heat pumps as a deployment technology is premature. Their market trajectory is unclear, and their performance and cost-effectiveness are not well demonstrated.

In addition, the Joint Applicants have only identified one HVAC contractor that can service this technology outside the Albuquerque /Santa Fe area, Horizon Enterprises in Gallup, while NMGC service territory is considerably larger.[59] All of the other locations listed in Table 1 in Joint Applicants' Response to CCAE Interrogatory 2-10 are located within an hour drive of either Albuquerque or Santa Fe[60].

PART 7. RENEWABLE NATURAL GAS (RNG)

Q. What is so-called "renewable natural gas"?

[57] Exhibit AV-10, Joint Applicants' Response to CCAE Interrogatory 2-8.

[58] Exhibit AV-11, Joint Applicants' Response to CCAE Interrogatory 2-9.

[59] Exhibit AV-12, Joint Applicants' Response to CCAE Interrogatory 2-10.

[60] We further note that there is no city of "Rochester" New Mexico, which the Joint Applicants list as a city serviced by Williams Mechanical. Joint Applicants' See *Id.*

A. So-called “renewable natural gas” is derived from capturing and reusing waste sources of methane, including methane emitted from landfills, methane from water treatment plants, and methane from food and livestock based anaerobic digestion systems. Natural gas is not truly a renewable resource, however. Natural gas emissions from most of these sources can be prevented.

Q. Why is RNG controversial?

A. RNG is chemically identical to conventional natural gas, but it ostensibly has a reduced GHG impact, because the production of RNG recycles methane that might otherwise be emitted into the atmosphere. However, RNG is controversial from an environmental perspective because combustion of RNG has the same criteria pollutant emissions and health effects as natural gas. Also, methane leakage during RNG production and transportation causes fugitive GHG emissions, just as processing and transport of conventional natural gas leads to fugitive emissions. And the purchase of RNG from farms or wastewater treatment plants creates an incentive to generate more RNG, rather than to reduce generation. RNG is controversial from an economic perspective because it is costly to produce and costly for utilities to purchase, and utilities pass on that additional cost to ratepayers. RNG is costly to produce for many reasons; among them, sources of precursor biogas are diffuse, and the biogas needs to be transported from diffuse sources to centralized processing; diffuse sourcing limits the ability to scale biogas collection and significantly constrains supply; and processing biogas into RNG is a complex process requiring extensive capital investment. It should be noted that although RNG has seen expansion as a sector over the last ten years, its future outlook is uncertain given these challenges.[61]

Q. Broadly, what is gas utility experience to date in implementing RNG programs in the U.S.?

A. Many gas utilities have attempted programs and projects to integrate RNG; to date, they have typically used voluntary tariffs and pilot programs. However, the intertwined challenges of high cost and low availability have limited utility uptake of physical RNG. As such, gas utilities in the US that have forayed into purchasing RNG combine purchases of small amounts of physical RNG with significant purchases of RNG credits to offer RNG to customers. RNG credits are the environmental attributes of RNG quantities, including attributes related to GHG reductions, which can be monetized and sold separately from RNG supply. When a utility or other customer buys RNG credits, it is buying the environmental attributes, in terms of GHG reduction benefit, of a specific supply of RNG. The environmental attributes are calculated, and verified, according to clear and universally applied rules and equations for analyzing carbon reductions.

Less commonly, utilities have used carbon offsets as part of RNG programming. Carbon offsets can be generated by RNG projects. However, unlike RNG credits, caron offsets can also be generated by any project that sequesters GHG emissions, including nature-based projects, such as forestry preservation projects, tree planting projects, or land use

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[61] Bray Dohrwardt, "Renewable Natural Gas in the U.S: Trends, Challenges, and Future Outlook." Avisen Business Law, March 25, 2025, available at: https://www.avisenlegal.com/renewable-natural-gas-in-the-u-s-trends-challenges-and-future-outlook/

management projects. Unlike RNG credits, nature-based carbon offset projects have no connection to renewable fuels. Nature-based solutions dominate the carbon offset markets. Nearly 80% of carbon offset valuations sold on voluntary markets in 2021 were nature-based solutions, and within this category, forestry projects dominate[62]. As such, if buyers do not specify that they want to buy an offset other than a nature-based offset, they are likely to be sold a nature-based solution. Carbon offset markets differ in several ways from RNG credit markets. Unlike RNG credit markets, where market rules are set by state and federal government programs, and where credits are computed and verified according to criteria set by government agencies, carbon offset markets are unregulated, and, as such, the promised benefits are difficult to audit and ensure.

While state public utility commissions have approved some gas utility proposals on RNG, they have rejected others. In 2023, the Massachusetts Department of Public Utilities issued a ruling creating a regulatory framework for gas utilities aligned with the State's decarbonization goals. The PUC specifically considered, and rejected, a decarbonization pathway to utilize RNG for residential and commercial space heating, which was advocated by the State's gas utilities. Instead, the Commission found that electrification of space heating will be more cost-effective for ratepayers. In their decision, the PUC ruled that any infrastructure costs for RNG (and hydrogen) incurred by utilities cannot be passed onto ratepayers.[63]

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[62] Ecosystem Marketplace: A Forest Trends Initiative, Voluntary Carbon Market Size by Project Category, 2019- 2021, available at: https://data.ecosystemmarketplace.com/

[63] Massachusetts DPU, DPU 20-80-B, *Order on Regulatory Principles and Framework*, December 6, 2023, available at: https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/18297602

Q. Is the natural gas utility sector likely to be a dominant purchaser of locally produced RNG in New Mexico?

A. No. New Mexico passed a low carbon fuel standard in 2026, making it the fourth state to pass such a standard. By mid-2026, the New Mexico Environment Department will promulgate rules for the State's Clean Transportation Fuel Program to generate "low-carbon fuel standard" or LCFS credits, with the goal of reducing the carbon intensity of New Mexico's transportation sector.[64] Currently, most RNG produced in the US is purchased by California and regulated entities that must purchase LCFS credits.[65] Clean transportation markets, where buyers are mandated to either buy renewable fuels or buy credits, dominate RNG markets currently, and are likely to continue to do so. The transportation markets are likely to dominate New Mexico in particular given that New Mexico is standing up its own clean transportation regulation, and the proximity of New Mexico to the largest current market in California. As such, natural gas utilities are unlikely to be willing to pay as high of a price for RNG as regulated entities in the transportation sector, and they may not have ready access to a product in high demand by the transportation sector.

Q. What is the Joint Applicants' experience with RNG?

A. In the Joint Applicants' response to CCAE Interrogatory 1-14, they state "The BCP Applicants do not have specific expertise related to identifying appropriate feedstock

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[64] Morgan Evans, "Sustainability Targets, Customer Interest Driving Natural Gas Utilities to RNG," Na*tural Gas Intelligence*, March 22, 2024, https://naturalgasintel.com/news/sustainability-targets-customer-interest-driving-natural-gas-utilities-to-rng/

[65] Nora Goldstein, "Checking in on California RNG Markets" *BioCycle*, November 3, 2020: https://www.biocycle.net/checking-in-on-california-rng-markets/

options for RNG development in New Mexico." They further state in their response that while NMGH has a generalized understanding of RNG feedstocks in New Mexico, that the Joint Applicants do not.

Q. What is the Joint Applicants' proposal on RNG?

A. The Joint Applicants do not have a specific proposal on RNG. They state that they have examined all three models for RNG programs: physical use of RNG for energy recovery, purchase and sale of RNG credits, and carbon offsets based on RNG. In addition, Joint Applicants say that they are considering both an opt-in voluntary program or potentially a universal program wherein the price premium for RNG would be spread across the NMGC customer base.[66]

Q. Is using an RNG program design based on carbon offsets legitimate? Why or why not?

A. No. The carbon offset market is considered a broken market by experts due to lack of transparency and failure of verifiers to ensure consistent and standardized carbon reduction benefits.[67] The most serious problems include:

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[66] Exhibit AV-13, JA response to CCAE Interrogatory 1-13**.**

[67] Among the most prominent studies are: Raphael Calel et al., Do Carbon Offsets Offset Carbon? CESifo working paper No. 9368, 2021, available at https://www.cesifo.org/en/publikationen/2021/working-paper/do-carbon-offsets-offset-carbon; and Grayson Badgley, Systematic over-crediting of California's forest carbon offsets program, Global Change Biology, 2022, available at: https://onlinelibrary.wiley.com/doi/10.1111/gcb.15943. A comprehensive list of studies finding problems with carbon offset integrity and markets can be found in the February 10, 2022 letter to the US Securities and Exchange Commission from leaders of the Sierra Club, Public Citizen, and Americans for Financial Reform, imploring the SEC to take action to improve credit quality and market transparency: https://www.sec.gov/comments/climate-disclosure/cll12-20115318-267372.pdf

- *Lack of permanence*: Many offset projects cannot demonstrate permanence or durability of carbon removal or avoidance. For example, it is common for offset project developers to put forestry land under some type of legal protection, and then sell the benefit of the carbon sequestration from land protection as a carbon offset. However, in some cases, legal protection fails, and the land is deforested or converted to agricultural or commercial use.
- *Lack of additionality:* Many offset projects cannot demonstrate that the project will lead to additional carbon removal or avoidance, compared to a scenario in which the projects are not undertaken. As noted above, it is common for offset project developers to put forestry land under protection, and sell the benefit of the carbon sequestration from the protected land as an offset. However, such a project only produces a benefit if the land would have been developed or converted to agricultural use *in the absence of the offset program*. In many cases, it is unclear if the land would have been developed or converted.
- *Lack of credible baselines:* Many offset projects lack credible baselines, from which the carbon reduction benefit of a project can be credibly measured. For forestry offsets in particular, establishing a credible baseline is difficult, as it requires an analysis of past deforestation rates, and a forecast of deforestation rates moving forward. However, carbon offsets generated under several common programs do not require setting a baseline that factors in a forecast to deforestation rates. Status quo deforestation rates are often higher than future deforestation rates in jurisdictions where governments are implementing better forestry policies or in jurisdictions when past deforestation rates were quite high. So, again, a project can generate carbon

offsets from protecting a forested area that *would be protected anyway* under current policy, or was otherwise unlikely to experience as much deforestation in the future compared to past practice. In these situations, the baseline carbon emissions are overstated, and therefore, the carbon benefit from the project is overstated. Baselining is also problematic for other nature-based solutions, including sustainable grazing and rangeland management projects.

- *Leakage:* Some offset projects can directly lead to impacts taking place outside of the offset area, a problem known as "leakage." For example, if an area of forest is preserved, the preservation of that area may directly result in a local government deciding to deforest an adjacent area, negating the benefit of the project. Similarly, if a rancher may agree to a rangeland management project that generates offsets, but then adopt more intensive grazing on other land. The problem of leakage is the chief impediment for forestry protection projects accessing capital.[68]

Unfortunately, current carbon verification registries often do not do a good enough job of guarding against these issues; as such, carbon offsets often do not result in actual GHG reductions. [69]

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[68] Charlotte Streck, "Shades of REDD+: We Have to Talk about Leakage," Ecosystem Marketplace, October 28, 2020, available at: https://www.ecosystemmarketplace.com/articles/shades-of-reddwe-have-to-talk-about-leakage/

[69] Among the most prominent studies are: Raphael Calel et al., Do Carbon Offsets Offset Carbon? CESifo working paper No. 9368, 2021, available at https://www.cesifo.org/en/publikationen/2021/working-paper/do-carbon-offsets-offset-carbon; and Grayson Badgley, Systematic over-crediting of California's forest carbon offsets program, Global Change Biology, 2022, available at: https://onlinelibrary.wiley.com/doi/10.1111/gcb.15943. A comprehensive list of studies finding problems with carbon offset integrity and markets can be found in the February 10, 2022 letter to the US Securities and Exchange Commission from leaders of the Sierra Club, Public Citizen, and Americans for Financial Reform, imploring the SEC to take action to improve credit quality and market transparency:

Due to this controversy, carbon offset-based program proposals for RNG programs are rare compared to programs that purchase physical RNG or RNG credits. Use of carbon offsets as part of any clean heat programs, including programs that allow RNG, has been banned by Colorado, Maryland, Massachusetts, and Vermont.[70] And carbon offset-based RNG programs proposed by NiSource/Columbia Gas utilities in rate case proceedings have also been rejected by the Pennsylvania Public Utilities Commission in 2023 (Docket R-2022-3032167) and the Maryland Public Service Commission (Case No. 9680).[71]

Q. What are the implications of a potential RNG program for meeting New Mexico's public interest standard?

A. Several issues related to the Joint Applicants' potential investment in RNG fail to meet the public interest standard, and specifically the provision that the transaction will provide benefits to utility customers, a specific component that the PRC applied in Case No. 04-00315-UT, Certification of Stipulation 17, 39; Case No. 11-00085-UT, Recommended Decision 16-17, 34-38, 41, 48-53, and the TECO Acquisition Case, Certification of Stipulation. Specifically:

- NMGC is required to demonstrate annually that their procurement policies are designed to purchase natural gas at the lowest reasonable cost under the State's

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https://www.sec.gov/comments/climate-disclosure/cll12-20115318-267372.pdf

[70] Caitlin Eichten and Isak Kvam, Fresh Energy, "Decarbonizing the natural gas system: Minnesota has more progress to make to keep pace with other states," November 25, 2024, available at: https://fresh-energy.org/decarbonizing-the-natural-gas-system-minnesota-has-more-progress-to-make-to-keep-pace-with-other-states

[71] Exhibit AV-14, Lillian Federico, Md. Regulators say Columbia Gas rate settlement balances competing interests, S&P Global, December 1, 2022.

Purchased Gas Adjustment Clause (PGAC) regulations. Given that RNG is sold at a price premium, it is difficult to align integration of RNG with this requirement.[72]

- Gas utility use of RNG is controversial due to its price premium and questionable environmental benefit, as described above. The Joint Applicants' integration of RNG will increase costs to all ratepayers if they integrate it via a universal program wherein the price premium for RNG is spread across the NMGC customer base. The environmental benefits are unlikely to outweigh the costs to ratepayers.
- Further, the Joint Applicants are considering a program design that may rely in full or in part upon carbon offsets. As discussed above, the use of carbon offsets does not reliably produce a GHG benefit, and has been banned by several states in the context of clean heat and RNG programs.

PART 8 CERTIFIED LOW EMISSION GAS

Q. What is the Joint Applicants' proposal on certified low emissions gas?

A. The Joint Applicants have not provided a specific proposal on certified low emission gas. In discovery, CCAE asked them to clarify general statements in support of this product from the original filing, but they did not. They also indicated that they have no partners in mind for sourcing the gas, and have not conducted any research on the market demand for certified natural gas.[73]

[72] New Mexico PRC, Purchased Gas Adjustment Clauses for Gas Utilities, Title 17.10.640.1: https://www.srca.nm.gov/parts/title17/17.010.0640.html

[73] Exhibit AV-15, Joint Applicants Response to CCAE Interrogatory 1-19.

Q. Is certified low emissions gas a legitimate offering?

A. Not currently. Certified low emissions gas is currently sold at a typical price premium of one to two cents per MMBtu, reflecting marginal customer willingness-to-pay for the product.[74] However, multiple, intersecting problems plague this nascent market:

- There is no industry-wide accepted standard for defining low emission gas, never mind a standard for monitoring and certifying such gas. Certification providers use their own methods and metrics, and claim they are proprietary, leading to a lack of transparency. [75]
- The monitoring technology used by certifiers does not have an established track record. One of the largest studies conducting of industry continuous monitoring by Project Canary found that the industry's monitors missed nearly all pollution events, and that "continuous" monitors are frequently offline.[76]
- Certification providers, including early market leader Project Canary, have conflicts of interest, as they also provide direct services to the energy companies.[77] In parallel markets, such as carbon offsets, RNG, and renewable

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[74] Wood Mackenzie, Opinion: Reducing the emissions from natural gas, May 13, 2024, https://www.woodmac.com/blogs/energy-pulse/reducing-emissions-from-natural-gas/

[75] Nick Cunningham, "Utilities are Buying Pricier "Responsible Gas. But for What Climate Benefit?" DeSmog, March 5, 2024, https://www.desmog.com/2024/03/05/utilities-responsible-certified-natural-gas-project-canary-climate/

[76] Dakota Raynes et al, Oil Change International and Earthworks, *Certified Gaslighting: How gas certification has gained a policy foothold, even as it fails to prove it can accurately detect emissions*, June 2024, https://earthworks.org/resources/certified-gaslighting-how-gas-certification-has-gained-a-policy-foothold-even-as-it-fails-to-prove-it-can-accurately-detect-emissions/

[77] Nick Cunningham, "Utilities are Buying Pricier "Responsible Gas. But for What Climate Benefit?" DeSmog, March 5, 2024. Attached as Exhibit AV-16.

energy certifications, organizations that write certification rules do not also provide direct services to companies seeking to certify a product.

- The certification schemes do not consider the lifecycle emissions of methane; they only consider fugitive emissions during the production stage. But significant fugitive GHG emissions occur during transportation as well.[78]

Given these concerns, a group of twelve senators wrote a detailed letter to Biden FTC Chair Lena Khan, imploring the agency to take action against "unfair and deceptive environmental claims made by fossil fuel producers and gas certifications programs."[79]

Although a few states' public utility commissions have approved certified low emission gas programs, they have mostly done so in the context of pilot programs or voluntary programs. And the Michigan PSC warned DTE Gas in late 2023 that in future rate cases, cost premiums for low emissions gas "may not be recoverable in future reconciliation cases without first providing evidence of how responsible sourced gas delivers a benefit to customers."[80]

Q. What are the implications of the potential Joint Applicants' integration of certified low emissions gas for meeting New Mexico's public interest standard?

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[78] Wood Mackenzie, Opinion: Reducing the emissions from natural gas, May 13, 2024, https://www.woodmac.com/blogs/energy-pulse/reducing-emissions-from-natural-gas/

[79] US Senate, letter from twelve senators to Lina Khan, FTC Chair, February 12, 2024, https://www.markey.senate.gov/imo/media/doc/certified_gas_letter_21224.pdf

[80] Michigan PSC Order, In the matter of the application of DTE Gas Company for approval of a gas cost recovery plan, Case. No. U-21064, October 12, 2023, page 19, https://mi-psc.my.site.com/sfc/servlet.shepherd/version/download/0688y00000ACbSOAA1

A. Potential integration of certified low emissions gas does not meet the public interest standard provision that the transaction will provide benefits to utility customers, a specific component that the NMPRC applied in NMPRC Case No. 04-00315-UT9, Certification of Stipulation 17, 39; NMPRC Case No. 11-00085- UT~°, Recommended Decision 16-17, 34-38, 41, 48-53, and the TECO Acquisition Case, Certification of Stipulation. Specifically, gas utility use of certified low emissions gas is controversial due to its questionable environmental benefit and problematic market dynamics, as described above. The Joint Applicants' integration of certified gas will increase costs to all ratepayers if they integrate it via a universal program wherein the price premium is spread across the NMGC customer base. The purchase is unlikely to consistently produce environmental benefits, and are unlikely to outweigh any costs to ratepayers.

Q. Does this conclude your testimony?

A. Yes, it does.

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE JOINT APPLICATION FOR APPROVAL TO ACQUIRE NEW MEXICO GAS COMPANY, INC. BY SATURN UTILITIES HOLDCO, LLC.	)	**Case No. 24-00266-UT**
JOINT APPLICANTS	)	

AFFIRMATION

I, Angela J. Vitulli swear and affirm under penalty of perjury under the laws of the State of New Mexico that the foregoing testimony is true and correct to the best of my knowledge, information, and belief.

SIGNED this 18th day of April, 2025

/s/Angela J. Vitulli
Angela J. Vitulli