COMMERCE DEPARTMENT

January 16, 2024 **PUBLIC DOCUMENT**

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
Saint Paul, Minnesota 55101-2147

RE: **PUBLIC Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. G008/M-23-215

Dear Mr. Wolf:

Attached are the **PUBLIC** Comments of the Minnesota Department of Commerce, Division of Energy Resources (Department) in the following matter listed:

A Petition by CenterPoint Energy for Approval of its First Natural Gas Innovation Plan

The petition was filed on June 28, 2023, by Emily Suppes, Director, Regulatory Affairs.

In a Notice of Comment Period (NOC) dated July 17, 2023, the Minnesota Public Utilities Commission (Commission) requested comments this filing. On October 31, 2023, the Commission issued a Notice of Extended Comment Period which extended the deadline for comments.

The Department recommends the Minnesota Public Utilities Commission (Commission) **approve with modifications** CenterPoint Energy's Natural Gas Innovation Plan (NGIP). The Department is available to answer any questions the Commission may have on this matter.

Sincerely,

LOUISE MILTICH/s/	Dr. ADWAY DE	JOHN KUNDERT	SACHIN SHAH
Assistant Commissioner	Rates Analyst	Financial Analyst	Rates Analyst

SS/ar
Attachment

Before the Minnesota Public Utilities Commission

PUBLIC Comments of the Minnesota Department of Commerce Division of Energy Resources

Docket No. G008/M-23-215

I. INTRODUCTION/BACKGROUND

A. INTRODUCTION

The Minnesota Department of Commerce, Division of Energy Resources (Department) appreciates the opportunity to provide comments in response to the Minnesota Public Utilities Commission (Commission, MPUC) Notice of Comment Period (NOC) and Notice of Extended Comment Period (NEOC) dated July 17, 2023, and October 31, 2023, respectively.

The NOC included one issue and the following five topics:

- Issue – Should the Commission approve, reject, or modify CenterPoint Energy's 2023 Natural Gas Innovation Plan?
- Topics –
    - Should the Commission approve, reject, or modify CenterPoint Energy's 2023 Natural Gas Innovation Plan (2023 NGIA Plan)?
    - Should the Commission grant CenterPoint Energy's request to spend up to 25 percent more than budgeted for pilots with higher-than-expected expenditures without seeking additional approval from the Commission, provided the increase does not cause the plan, as a whole, to exceed its statutory cost cap or fail to satisfy any other statutory requirements?
    - Should the Commission approve CenterPoint Energy's plan for recovering the costs associated with its 2023 NGIA plan, including the requested variance to Minn. R. 7825.2400?
    - Should the Commission approve CenterPoint Energy's cost-effectiveness objectives?
    - Should the Commission approve CenterPoint Energy's proposed plan for filing its annual status reports?
    - Are there any other issues or concerns related to this matter?

B. BACKGROUND

The Legislature enacted the Natural Gas Innovation Act (NGIA or the Act) in 2021.[1] The following press release issued shortly after the Act was passed explains the NGIA's purpose.[2]

On June 26, 2021, passing with bipartisan support, Minnesota's Natural Gas Innovation Act (Special Session HF6, the Commerce and Energy Omnibus) was presented and signed into law by Governor Walz.

[1] Minnesota Laws 2021, 1st Special Session, ch. 4, art. 8, §§ 20-21, 27.

[2] www.lexology.com/library/detail.aspx?g=0b9c812b-ccf6-47c9-b2b4-1b4166318015.

The Natural Gas Innovation Act establishes a regulatory framework for natural gas utilities to contribute to meeting Minnesota's greenhouse gas reduction and renewable energy goals through the development of "innovation plans" using "innovative resources." Innovative resources include biogas, renewable natural gas, power-to-hydrogen, power-to-ammonia, carbon capture, strategic electrification, district energy and energy efficiency.

A natural gas utility that obtains approval of an innovation plan from the Minnesota Public Utilities Commission can seek limited cost recovery for reasonable and prudently incurred costs. The Natural Gas Innovation Act requires that by June 1, 2022, the Public Utilities Commission issue an order establishing a framework to calculate lifecycle greenhouse gas emissions intensities of each innovative resource.

The Commission opened a proceeding to develop the framework, docket no. G999/CI-21-565.[3] The MPUC issued two orders in that proceeding which delineated the framework to calculate lifecycle greenhouse gas emissions intensities of each innovative resources, consistent with the NGIA.[4]

Using the Commission's framework and the NGIA as guides, CenterPoint Energy Minnesota (CenterPoint, CPE, Company) developed its first NGIA plan and filed it June 28, 2023.

II. RESPONSE TO COMMISSION QUESTIONS/LEGISLATIVE CONTEXT/FILING SUMMARY

The Department responds to the questions included in the Commission's NOC's first in this section. We then provide a summary of CenterPoint's filing in the subsequent section. In the third section of these comments the Department provides its analysis and recommendations regarding CenterPoint's proposed pilots and Research and Development projects. A fourth section includes the Department's review of:

- The value, cost savings and revenue credit offset included in the Total Incremental Cost Calculation included in the NGIA statute.
- The Company's proposed revenue apportionment of the costs it plans to recover through the Innovation Adjustment Charge associated with the tracker; and
- CenterPoint's proposal to recover RNG costs through the Purchased Gas Adjustment (PGA) and its request for a variance to the current PGA rules.
- The Company's use of dated BENCOST assumptions.

[3] In the Matter of a Commission Evaluation of Changes to Natural Gas Utility Regulatory and Policy Structures to Meet State Greenhouse Gas Reduction Goals.

[4] ORDER ESTABLISHING FRAMEWORKS FOR IMPLEMENTING MINNESOTA'S NATURAL GAS INNOVATION ACT, issued June 1, 2022 and an Order dated September 12, 2022 providing clarification between projects filed as part o NGIA filings and those filed under the utility's current conservation improvement plan (CIP) Triennial Plan.

A. DEPARTMENT RESPONSE TO COMMISSION QUESTIONS

1. *SHOULD THE COMMISSION APPROVE, REJECT, OR MODIFY CENTERPOINT ENERGY'S 2023 NATURAL GAS INNOVATION PLAN?*

The Department recommends the Commission approve CenterPoint's Natural Gas Innovation Plan (NGIP, the Plan) with modifications. We explain the rationale for the Department's proposed modifications in the following sections of these Comments.

2. *SHOULD THE COMMISSION APPROVE, REJECT, OR MODIFY CENTERPOINT ENERGY'S 2023 NATURAL GAS INNOVATION PLAN (2023 NGIA Plan)?*

The Department recommends the Commission approve CenterPoint's Natural Gas Innovation Plan (NGIP, the Plan) with the following modifications.

We recognize that this is a novel and complicated filing, and we commend the tremendous effort that went into developing CenterPoint's initial proposal. The Department has a large number of recommendations after completing its review of this filing. Given that the focus of this filing is the NGIA budget, we elected to discuss those recommendations in a separate category. A second, broader category that includes a mix of policy or non-budget specific recommendations is included as part of the Summary of Recommendations at the end of our comments.

Budget-related Recommendations

Given the number of budgetary recommendations, the Department separated its recommendations into three categories.

The categories are:

- Pilots that need additional work to identify potential customers or R&D projects to justify the estimated budgets.
- Pilots that are inconsistent with the NGIA statute or Existing Regulatory Policy: and
- Pilots related to existing technology that need to demonstrate operational improvement.

The Department also provides brief explanations on its rationale for its recommendations.

A. Additional Work to Identify Customers or Research and Development Projects
   1) RNG Pilots A,B and C – CenterPoint did not identify any potential customers for either the waste-water recovery or landfill gas archetype projects which led the Department to recommend removing the budgets associated with those archetypes. The Department also recommended adjusting the food waste archetype budget due to a smaller than budgeted number of identified interested developers. The Department is awaiting further information on how the Company's proposal to include Pilot A's budget in Pilot C's budget now that Pilot A is no longer under consideration.

2) Pilot E – Archetype Power-to-Hydrogen – The Department recommended adjusting the budget to recognize the smaller than budgeted number of interested customers the Company had identified.
3) Pilot E – Archetype Carbon Capture – This is another proposed pilot with no identified customers to date. The Department appreciates the idea and recommends it be modified such that a scoping study is completed in Year 1 of the NGIP and the costs be categorized as R&D spending.
4) Pilot F – Industrial Methane and Refrigerant Leak Reduction Program - The Department recommended adjusting the budget to recognize the smaller than budgeted number of interested customers the Company had identified.
5) Pilot I – New Networked Geothermal Systems – The Company's support for this Pilot was very limited and not based on locally-developed cost estimates. The Department recommend CenterPoint should modify this proposal to one in which the Company performs a feasibility study for a networked geothermal study for new construction on a greenfield or brownfield site.
6) Pilot N – Residential Deep Energy Retrofit Plus Air Source Heat Pump – The Department is proposing to modify the pilot's proposed budget due to inconsistencies regarding the appropriate number of participants. The Department also notes that the NGIA statute requires any natural gas utility with more than 800,000 customers to include a pilot program that facilitates deep energy retrofits and the installation of cold climate electric air-source heat pumps in existing residential homes that have natural gas heating systems.[5] Pilot N appears to meet that requirement.
7) Pilot O – Small/Medium Business Greenhouse Gas Audit – This is another pilot where the annual forecasted number of participants appeared to be overly optimistic relative to historical information. In response, the Department modified the budget.
8) Pilot P – Residential Gas Heat Pump – The Department is concerned as to the potential for commercialization for this technology in the near term and the potential efficiency of gas heat pump technology relative to electric air source heat pump technology. Hence, the Department modified the pilot's budget.
9) Pilot Q – Gas Heat Pump for Commercial Buildings – The Department approved this pilot's budget without modification but did recommend a change to the pilot's structure such that it enable customers to receive federal tax benefits from the technology.
10) Pilot R – Industrial and Large Commercial Greenhouse Gas Audit Pilot – The Department will defer on making any recommendations on this pilot until it has an opportunity to review the Company's reply comments. Given the Department's recommendations for Pilots H, L and M, it is not clear if there are any remaining proposed NGIA pilots that can be recommended to the auditee.
11) Research and Development Budget – This is another budgetary category in which the number and costs of the defined projects was significantly less than the overall ask. Hence, the Department modified the budget such that it is consistent with the R&D projects

[5] Minn. Stat § 21B.2427 subd. 8.

currently identified. The Department also recommends one of the proposed projects included in the NGIA R&D budget be transferred to the ECO R&D budget.

B. Inconsistency With NGIA Statute or Existing Regulatory Policy

1) Pilot G – Urban Tree Carbon Offset Program – This is another concept the Department agrees with in principle. The issue with this pilot is that it is proposing to purchase carbon credits from trees that were planted between 2019 and 2021. These trees are already capturing carbon dioxide. Thus, ratepayers will receive no additional benefit in terms of carbon dioxide reduction from those trees. In addition, the NGIA statute is focused on removing incremental amounts of carbon dioxide. Hence, the Department's position is that it is inconsistent with this statutory intent. The Department could potentially support a program under which this same agency planted new trees in future years.
2) Pilot H – Rebates for Commercial Buildings - The NGIA statute clearly states that investments that can be reasonably included in the natural gas utility's Triennial Plan under section 216B.241 should not be included in the NGIA Innovation Plans. CenterPoint has an existing program similar to Pilot H in its ECO portfolio. The costs for this Pilot should not be recovered via the NGIA, but rather ECO to be consistent with statute.
3) Pilot K – Decarbonizing Existing District Energy Systems - The NGIA statute defines a District Energy System as the following: "a heating or cooling system that is solar thermal powered or uses the constant temperature of the earth or underground aquifers as a thermal exchange medium to hear or cool multiple buildings connected through a piping network."[6] Given that the District Energy system identified in Pilot K is powered by fossil fuel, it doesn't meet the statutory definition and the Department did not recommend approval.
4) Pilot L – This pilot proposes to install a ground source heat pump to heat and cool one building. Referring to the statutory definition of District Energy System referenced earlier, this pilot's proposed structure is not consistent with that definition. Hence, the Department did not recommend approval.
5) Pilot L – Industrial Electrification Incentive Program – This pilot also appears to be a better fit for the Company's ECO plan than the NGIA. As we noted earlier, the NGIA statute clearly states that investments that can be reasonably included in the natural gas utility's Triennial Plan under section 216B.241 should not be included in the NGIA Innovation Plans. This pilot also needs additional work regarding customer outreach. Hence, the Department didn't recommend approval of the pilot. The Department did suggest the Company pursue the project via the ECO funding mechanism.
6) Pilot M – Commercial Hybrid Heating Pilot – Similar to Pilot L, this pilot would be a better fit for the Company's ECO Plan due to the statutory threshold regarding the classification of projects between ECO and the NGIA.

C. Operational Improvement of Existing Technology

1) Pilot D – Green Hydrogen Blending Pilot in Mankato – As part of its review of this pilot, the Department asked discovery regarding the Company's existing electrolyzer located in

[6] Minn. Stat § 21B.2427 subd. 1e.

Minneapolis. This unit's poor performance to date was the primary driver for the Department recommendation to remove this pilot's budget from the NGIA.

The Department notes that additional policy and other recommendations are not included in this section, but are included in the Summary and Recommendations section at the end of these comments.

3. *SHOULD THE COMMISSION GRANT CENTERPOINT ENERGY'S REQUEST TO SPEND UP TO 25 PERCENT MORE THAN BUDGETED FOR PILOTS WITH HIGHER-THAN-EXPECTED EXPENDITURES WITHOUT SEEKING ADDITIONAL APPROVAL FROM THE COMMISSION, PROVIDED THE INCREASE DOES NOT CAUSE THE PLAN, AS A WHOLE, TO EXCEED ITS STATUTORY COST CAP OR FAIL TO SATISFY ANY OTHER STAUTORY REQUIREMENTS?*

No, the Commission should not approve CenterPoint's request. The Company is attempting to inoculate itself from some portion of the prudency risk associated with funding pilots at cost levels that the Commission has not explicitly approved. The Commission should allow CenterPoint Energy's management to make those determinations as to what are the appropriate pilots to fund and at what level if the Company doesn't believe the Commission's approved cost estimates continue to be relevant. The Commission should then review the Company's decisions as to whether the Company was prudent or not. The NGIA has the word innovation in its title. Innovation is defined as: " the act of introducing something new or the act of innovating, the introduction of new things or methods."[7] This definition suggests the legislature recognized this fact and crafted the legislation such that it allocates the risks associated with the innovative new technologies appropriately between CenterPoint's shareholder and ratepayers.

4. *SHOULD THE COMMISSION APPROVE CENTERPOINT ENERGY'S PLAN FOR RECOVERING THE COSTS ASSOCIATED WITH ITS 2023 NGIA PLAN, INCLUDING THE REQUESTED VARIANCE TO MINN. R. 7824.2400?*

Yes. The NGIA statute allows for recovery of NGIA costs through the Purchased Gas Adjustment (PGA). The Commission should approve the requested variance to Minn. R. 7824.2400.

[7] Duckduckgo.com/?q=definitions+of+innovationa&atb=314-1&ia=web.

5. *SHOULD THE COMMISSION APPROVE CENTERPOINT ENERGY'S PROPOSED COST-EFFECTIVENESS OBJECTIVES?*

The Department doesn't have adequate information to make the requested determination at this time. Based on CPE's reply comments, the Department will recommend a set of cost-effectiveness objectives for the Commission to establish that the Company should demonstrate its compliance through a report.

In support of this position the Department notes Minn. Stat. 216B.2427 Subd. 2 parts (a).6 and 15 state:

> *Subd 2.(a) A natural gas utility may file an innovation plan with the commission. The utility's plan must include, as applicable, the following components:*
> *….*
> *(6) the cost-effectiveness of innovative resources calculated from the perspective of the utility, society, the utility's nonparticipating customers, and the utility's participating customers compared to other innovative resources that could be deployed to reduce or avoid the same greenhouse gas emissions targeted for reduction by the utility's proposed innovative resource;*
> *….*
> *(15) a report of the utility's progress toward achieving the cost-effectiveness objectives established by the commission with respect to the utility's previously approved innovation plan, if applicable; and*

The Department notes that CPE did provide information on cost-effectiveness in its initial filing for its proposed pilots. The Department also highlights that several pilots did not have any specific proposer or entity willing to implement the idea described by CPE in the filing. The relevant cost effectiveness estimates are thus theoretical and actual projects can have significantly different outcomes depending on specifics of implementation that are unknown at the time of this filing. Since the quantitative and qualitative costs and benefits are not based on actual programs or projects that any entity has proposed to develop, the Department concludes that portions of the cost effectiveness analysis in this filing are speculative. The Department has provided its analysis and feedback for each pilot in its comments. Based on CPE's reply comments, the Department will recommend a set of cost-effectiveness objectives for the Commission to establish that the Company should demonstrate its compliance through a report.

6. *SHOULD THE COMMISSION GRANT CENTERPOINT REQUEST TO INCREASE THE STATUTORY BUDGET CAP FOR THE COMPANY'S NEXT NGIA PLAN, AS PERMITTED BY MINN. STAT. § 216B.2427, SUBD. 3 (C) & (D), UNDER THE CONDITION THAT 'A MAJORITY" OF THE APPROVED COST-EFFECTIVENESS OBJECTIVES ARE ACHIEVED?*

This matter isn't yet ripe for discussion. The Department believes CenterPoint must demonstrate that it has fulfilled most of the approved cost-effectiveness objectives before the Commission the Department can address this question.

7. *SHOULD THE COMMISSION APPROVE CENTERPOINT ENERGY'S PROPOSED PLAN FOR FILING ITS ANNUAL STATUS REPORTS?*

The Department has included specific recommendations for each pilot in CPE's NGIA Plan. The Department recommends the Commission make a pilot-by-pilot decision and approve/modify/reject pilots as per the Department's recommendations for each specific pilot. For the pilots that are either approved in their proposed form or approved after suggested modifications, the Department recommends that Commission order CPE to file annual status reports.

8. ARE THERE OTHER ISSUES OR CONCERNS RELATED TO THIS MATTER?

Over the course of the Department's review of CenterPoint's NGIA filing the Department has concluded that the market participants CenterPoint has been able to identify in these pilots are lower than the Company has budgeted for in every instance. It appears to the Department that the various vendors and technologies haven't yet adjusted to the new environment that the passage of the NGIA has created. Essentially there is a pool of funds available for these types of projects in Minnesota equal to around $36.5 million annually.[8] The market has not yet responded to this new legislative subsidy. The Department is confident however that the market or markets will respond quickly to these new financial incentives and CenterPoint and the other two rate regulated natural gas utilities will likely be able to identify developers and vendors in its next annual update or a subsequent update.

The existence of this lag does suggest the Commission may want to provide an enhanced level of oversight. The Department provided the Commission with its recommendations on how to address this situation earlier in its response to question number 7.

B. LEGISLATIVE CONTEXT

The NGIA is one of two pieces of legislation that were passed in 2021 to develop a policy template for addressing Green House Gas (GHG) emissions from the use of natural gas.
It allows a natural gas distribution company to file five-year plans that include programs that will reduce emissions from geologic natural gas . The programs can include a variety of technologies, energy efficiency, district energy, green hydrogen, and renewable natural gas.

[8] CenterPoint's estimated annual spending cap is $21.1 million. Xcel identified its annual spending cap as $9.6 million in its NGIA filing in Docket No. G002/M-23-518 at page 28 of the filing. MERC estimated its annual cost cap to be $5.8 million.. The sum of those three is $36.5 million/year.

The ECO Act was the other GHG-related legislation passed in 2021. It represents a comprehensive update and expansion of Minnesota's energy efficiency framework. ECO also created an unbiased approach for determining if fuel-switching related to energy efficiency efforts is appropriate for reducing GHG emissions. NGIA and ECO can work in tandem to enable emission reductions from natural gas use. The NGIA allows for the implementation cost-effective GHG emission reducing technologies and programs. The statute also includes an annual spending limit for those programs.

The NGIA allows a regulated natural gas distribution utility to recover the costs associated with the proposed programs that are within the spending limit through long-standing cost recovery mechanisms that are more commonly associated with the provision of traditional natural gas service. To the Department's knowledge, the NGIA process is the first regulatory process in which both the determination of the costs of GHG emissions reduction projects are identified and recovered through traditional regulatory cost recovery mechanisms.[9]

Due to the NGIA's focus on reducing GHG emissions, the scope of the Commission's review process has been expanded to include the approval of emissions models and cost-effectiveness tests. Those steps in the process allow for the selection of the appropriated programs that are to be included in the NGIA filing. Once those program costs are identified and modified to comply with several requirements included in the NGIA, the petitioning natural gas utility delineates it proposed method for recovering those costs from its ratepayers. This method usually includes the assignment of costs to the different customer classes, an apportionment of the revenues that are not recovered through the Purchased Gas Adjustment (PGA), and the proposed recovery of that revenue for the different customer classes. That final step requires developing rates by customer class within the context of the Company's general rate cases and via an annual tracker mechanism with a true-up.

Given the hybrid nature of the Petition, the Department has separated its review into two sections. The first reviews CenterPoint's proposed NGIA project portfolio and discusses the rationale for the proposed modifications the Department recommends to the Company's NGIA project portfolio. The second section considers the credits included in the Total Incremental Cost calculation defined in the NGIA statute and miscellaneous topics more common to economic regulatory filings like cost recovery and rate design.

[9] Historically, those two steps were performed separately. Prior to 2021, The Department of Commerce's Conservation Improvement Program (CIP) team reviewed proposed conservation projects approved those cost estimates. The recovery of those costs from ratepayers occurred through CIP costs included in base rates and an annual tracker with a true-up.

C. FILING SUMMARY

1. Calculation of Annual Incremental Bonus Cost Caps

CenterPoint proposes to recover $105,704,610 from its ratepayers over the five years the first NGIA will be in effect (July 2024 – June 2029).

Minn. Stat. § 216B.2427 Subd. 3(a) delineates the calculation that determines the limit on utility customer costs resulting from the approval of an NGIP. This portion of the calculation is referred to as the Cost Cap in the Petition. It is an annual amount defined as the lower of two calculations. One of those calculations is based on CenterPoint's annual revenue. The second is based on the Company's number of non-exempt CIP customers multiplied by the limitations on utility customer costs described in the statute. CenterPoint provided this calculation in Table 2 on page 18 of the filing. Table 1 recreates that calculation.

Table 1 – Company's Calculation of the Incremental Cost Cap – Initial Filing

1	CenterPoint Energy's Gross Operating Revenues from natural gas service provided in Minnesota at the time of plan filing	$1,209,096,803.00
2	Line 1 x 1.75%	$21,159,194
3	CenterPoint Energy customers	905,924
4	CenterPoint Energy CIP-exempt customers	15
5	Line 3 – Line 4	905,909
6	Line 5 x $20	$18,118,180
7	Lesser of Line 2 and Line 6	$18,118,180

The Company calculated the annual Incremental Cost Cap (ICC) to be $18,118,180 per year for the first NGIP.

There is also an additional amount of revenue available under the NGIA which is called the "Renewable Natural Gas Bonus Incremental Cost Cap" (RNG Bonus ICC). Table 2 provides the calculation that was included on pate 18 of the Petition.

Table 2 – Company's Calculation of the Incremental Cost Cap – Initial Filing

1	CenterPoint Energy's Gross Operating Revenues from natural gas service provided in Minnesota at the time of plan filing	$1,209,096,803.00
2	Line 1 x 0.25%	$3,022,742
3	CenterPoint Energy customers	905924
4	CenterPoint Energy CIP-exempt customers	15
5	Line 3 – Line 4	905,909
6	Line 5 x $5	$4,529,545
7	Lesser of Line 2 and Line 6	$3,022,742

According to the NGIA statute, CenterPoint is allowed to recover this annual bonus amount from its ratepayers if the Company's NGIP meets certain criteria.[10] CenterPoint states its Plan meets those criteria and that the Company is allows to recover an additional $3,022,742 annually as part of the NGIP.

The sum of the ICC and the RNG Bonus ICC annual amounts equals $21,940,922 . The Department refers to this term as the Total Annual Incremental Cost Cap (TAICC). CenterPoint then assumes the appropriate approach the calculation of the total amount to be recovered over the five-year NGIP is to multiply the $21,940,922 TAICC by five, for the number of years in the planning period. This amount equals $105,704,610.[11]

2. Proposed Project and Research and Development Portfolios

The Company is proposing 18 pilot programs. Table 3 summarizes the 18 different pilots.

Table 3 – Proposed Pilots Projects – Initial Filing[12]

Line No.	Description	NGIA Funding Request
1.	RNG – Hennepin County	$ 2,856,759.00
2.	RNG – Ramsey & Washington Counties	$ 10,160,058.00
3.	RNG – Request for Proposals	$ 32,368,811.00
4.	Green Hydrogen Blending into Distribution System	$ 5,073,067.00
5.	Commercial Hydrogen and Carbon Capture – Industrial and Large Commercial Customers	$ 3,793,770.00
6.	Industrial Methane and Refrigerant Leak Reduction	$ 1,247,651.00
7.	Urban Tree Carbon Offsets	$ 329,301.00
8.	Carbon Capture Rebates for Commercial Building	$ 1,303,022.00
9.	New Networked Geothermal Systems	$ 11,625,764.00
10.	Decarbonizing Existing District Energy Systems	$ 597,909.00
11.	New District Energy System	$ 215,644.00
12.	Industrial Electrication Incentives	$ 503,821.00
13.	Commerical Hybrid Heating	$ 7,067,270.00
14.	Residential Deep Energy Retrofits and Electric ASHP	$ 13,616,532.00
15.	Small/Medium Business GUG Audit	$ 2,291,206.00
16.	Residential Gas Heat Pumps	$ 380,759.00
17.	Gas Heat Pumps for Commercial Buildings	$ 749,442.00
18.	Industrial and Large Commercial GHG Audit	$ 950,286.00
19.	Total	$ 95,131,072.00

[10] Minn. Stat. § 216B.2427 Subd. 3(b) describes this calculation.

[11] The Company also notes that the five-year total for the Cost Cap is $90,590,000 and the same figure for the NRG Cost Cap is $15,113,170.

[12] On January 3, 2024 CenterPoint filed a letter with the Commission notifying the Commission and other interested parties that it was proposing to remove the RNG – Hennepin County project from this roster. The Company also proposed to transfer the budget for that project to the RNG – RFP project. The Company also stated it would provide an updated analysis in its reply comments. The Department didn't update its analysis given the incomplete information associated with the change.

The Company identified $95,131,072 as the total proposed pilot costs. Table 4 summarizes the Company's proposed R&D portfolio.

In a letter dated January 3, 2024, CenterPoint notified the Commission and other interested parties that the Company had identified two changes to its original NGIA proposal. CenterPoint stated that it would address these two changes in its reply comments. The second of those changes is relevant to the information in Table 3 as it involves removing Pilot A from the list of proposed pilots. The Department will not modify its comments to recognize this change specifically, we do however address the Company's proposed modification to Pilot C which CenterPoint's January 3, 2024 letter also explained in the RNG section of these comments.

Table 4 – Proposed Research and Development Projects – Initial Filing

Line No.	Description	NGIA Funding Request
1.	CenterPoint Minnesota Net Zero Study	$ 220,000.00
2.	Weatherization Blitzes	$ 800,000.00
3.	High Performance Commercial New Construction Building Envelope Initiative	$ 400,000.00
4.	Assessing Next-Generation Micro-Carbon Capture for Commercial Buildings	$ 275,000.00
5.	Commercial Hydrogen and Carbon Capture – Industrial and Large Commercial Customers	$ 100,000.00
6.	Green Ammonia Novel Technology	$ 205,000.00
7.	RNG Potential Study	$ 60,000.00
8.	Undefined R&D Projects	$ 8,510,462.00
9.	Total	$ 10,570,462.00

The combined total outlay forecasted for the 18 pilots and the proposed R&D budget is equal to $105,701,534.

3. Proposed Cost Recovery and Rates

Minn. Stat. § 216B.2427 Subd. 2 c allows the Company to recover its NGIA costs through: 1) the Purchased Gas Adjustment (PGA) and 2) base rates or an annual tracker.[13]

CenterPoint has identified two types of costs it believes should be recovered through the Company's PGA mechanism. The first is the costs CenterPoint will incur associated with the purchase of Renewable Natural Gas (RNG). The second is the cost of electricity the Company incurs to manufacture hydrogen gas under its proposed Green Hydrogen Blending into Natural Gas Distribution Pilot.

CenterPoint also noted the Company's proposal to recover these costs through the PGA will require a variance to the applicable PGA Rules, specifically Minn. R. 7825.2400, subp. 12 and subp. 10. CenterPoint provides its reasoning for the Commission allowing the variance beginning on page 22 of

[13] The costs recovered via base rates will be defined as the "Innovation Act Charge" or the "IAC" The costs recovered through the proposed tracker will be defined as the "Innovation Act Adjustment" or the "IAA".

the Petition. The Company expects RNG costs to begin to be recovered through the PGA sometime in the July 2025 to June 2026 period.

The Company proposes to recover the following categories of costs via base rates as part of its general rate case filed November 1, 2023:

- NGIA-related costs incurred prior to the rate case filing:
- Projected costs through 2023;
- Projected costs through 2024; and
- Projected costs through 2025.

CenterPoint filed a multi-year rate plan with test years 2024 and 2025 in Docket No. G008/GR-23-173. Thus, the Company's forecasted NGIA costs for 2024 and 2025 could be classified as test-year costs in that proceeding. NGIA costs recovered through base rates will be defined as Innovation Act Charges or "IAC". The recovery of the IAC would begin with the implementation of final rates in the Company's current rate case. CenterPoint assumed January 1, 2025 as the implementation date for those final rates.

The third and final cost recovery mechanism the Company proposes is an annual rider with true-up to match actual NGIA expenses with revenues recovered from ratepayers. This mechanism and its associated charges would be defined as the Innovation Act Adjustment tracker or "IAA". CenterPoint assumes the IAA tracker and the accompanying rates would be implemented on January 1, 2026.

Table 5 summarizes the forecasted revenues by year from the three different cost recovery mechanisms.

The Department notes that subtracting CenterPoint's estimate for avoided geologic gas costs from the estimate in Table 5 results in a NGIA ask of $105,703,735 over the five-year period. The Department also notes that this amount is $875 less than the $105,704,610 TIACC the Company calculated in its Petition.

Table 5 – Proposed Recovery of NGIA Costs by Year by Mechanism – July 13, 2023, Filing

Year	IAC	IAA	PGA	Annual Total
2024	$ -	$ -	$ -	$ -
2025	$ 15,427,454	$ -	$ 3,410,597	$ 18,838,051
2026	$ 15,427,454	$ (145,056)	$ 9,199,477	$ 24,481,875
2027	$ 15,549,065	$ -	$ 11,653,114	$ 27,202,179
2028	$ 15,243,666	$ -	$ 11,801,283	$ 27,044,949
2029	$ 15,243,666	$ (6,768,645)	$ 5,937,050	$ 14,412,071
Total	$ 76,891,305	$ (6,913,701)	$ 42,001,521	$ 111,979,125

The Company also is proposing a revenue apportionment that assigns the different pilots or research projects to either the residential or commercial classes based on the benefit received from the pilot or

research project. Table 6 summarizes the annual recovery of base rate and tracker related costs by class using the Company's proposed revenue apportionment.

Table 6 – Proposed Recovery of IAC and IAA Costs by Year by Class – July 13, 2023, Filing

Class/Mechanism	2025	2026	2027	2028	2029	Total
Comm -Base Rate	$ 10,019,160	$ 10,019,160	$ 9,168,910	$ 7,008,817	$ 7,008,816	$ 43,224,863
Comm -Tracker	$ -	$ (130,218)	$ -	$ -	$ (3,385,680)	$ (3,515,898)
Comm - Total	$ 10,019,160	$ 9,888,942	$ 9,168,910	$ 7,008,817	$ 3,623,136	$ 39,708,965
Res-Base Rate	$ 5,408,293	$ 5,408,293	$ 6,380,154	$ 8,234,850	$ 8,234,850	$ 33,666,440
Res- Tracker	$ -	$ (14,838)	$ -	$ -	$ (3,382,965)	$ (3,397,803)
Res - Total	$ 5,408,293	$ 5,393,455	$ 6,380,154	$ 8,234,850	$ 4,851,885	$ 30,268,637
Total	$ 15,427,453	$ 15,282,397	$ 15,549,064	$15,243,667	$ 8,475,021	$ 69,977,602

Table 7 provides CenterPoint's estimated NGIA recovery by class over the five-year term of this first NGIP.

Table 7 – Proposed Recovery by Class by Year – July 13, 2023, Filing (Thousands)

Class	2025	2026	2027	2028	2029	Total
Residential	$ 7,039	$ 10,054	$ 12,396	$ 14,328	$ 8,146	$ 51,963
Comm Firm A	$ 335	$ 412	$ 431	$ 368	$ 209	$ 1,755
Comm/Ind Firm B	$ 940	$ 1,170	$ 1,224	$ 1,053	$ 572	$ 4,959
Comm/Ind Firm C - Sales Service	$ 5,785	$ 7,384	$ 7,744	$ 6,750	$ 3,448	$ 31,111
Comm/Ind Firm C - Transport	$ 107	$ 105	$ 98	$ 75	$ 39	$ 424
Large General Firm Sales Service	$ 195	$ 256	$ 265	$ 235	$ 97	$ 1,048
Large Firm Transport	$ 334	$ 329	$ 305	$ 234	$ 121	$ 1,323
Small Duel Fuel A - Sales Service	$ 659	$ 824	$ 847	$ 737	$ 336	$ 3,403
Small Duel Fuel A - Transport	$ 40	$ 39	$ 37	$ 28	$ 14	$ 158
Small Duel Fuel B - Sales Service	$ 455	$ 582	$ 602	$ 529	$ 233	$ 2,401
Small Duel Fuel B - Transport	$ 61	$ 60	$ 56	$ 43	$ 22	$ 242
Large Volume - Dual Fuel Sales Service	$ 1,081	$ 1,422	$ 1,468	$ 1,311	$ 515	$ 5,797
Large Volume - Dual Fuel Transport	$ 965	$ 953	$ 883	$ 676	$ 349	$ 3,826
Large Volume Transport - MR	$ 185	$ 183	$ 169	$ 129	$ 67	$ 733
Large Volume - Dual Fuel Sales Service - MR	$ 187	$ 246	$ 254	$ 227	$ 89	$ 1,003
Large Volume - Dual Fuel Transport - MR	$ 464	$ 458	$ 424	$ 324	$ 167	$ 1,837
Total	$ 18,832	$ 24,477	$ 27,203	$ 27,047	$14,424	$ 111,983

The figures in Table 6 vary from those in Table 7 due to the cost being recovered through the PGA are not included in Table 6.

Table 8 provides the estimated annual bill impact for a typical residential customer given the Company's proposed plan.

Table 8 – Estimated Annual Bill Impact for Typical Residential Customer[14]

Class	2025	2025	2027	2028	2029
Residential	$ 9.55	$ 12.06	$ 14.87	$ 17.18	$ 9.77

The Company characterizes these bill impacts as modest. The Department does note that the 2029 figure only covers the first six months of that year.

III. DEPARTMENT ANALYSIS

The Department begins its analysis with its review of the pilots and research and development projects included in CenterPoint's proposal. The Department provides the basis for adjustments to the costs of the pilots and projects attempts and then summarizes its proposed modifications to the Company's portfolio and provides an estimate of its proposed portfolio costs. This section includes the following analyses:

- Renewable Natural Gas Pilots A, B and C and Draft Request for Proposals (RFP);
- Power-to-Hydrogen Pilots D and E (power-to-hydrogen component);
- Carbon Capture Pilots E, F (carbon capture component), G and H;
- District Energy Pilots I, J and K;
- Strategic Electrification – Pilots L, M and N:
- Energy Efficiency (EE) – Pilots O, P, Q, and R; and
- Research and Development – Projects and Budgets

In a subsequent section the Department reviews CenterPoint's approach for determining the effects of revenue credits or offsets provided in the NGIA statute. The Department recommends:

- A change to the method for forecasting the price of geologic natural gas used to calculate the avoided geologic gas revenue credit to CenterPoint's proposed portfolio.
- A change in the Company's existing method for calculating variable Operations and Maintenance expenses.
- A change in the Company's proposed revenue apportionment between the residential and commercial classes;
- The Commission approve the proposed rule variance to allow for the recovery of RNG and Green Hydrogen costs through the Purchased Gas Adjustment; and
- the Company use updated Benefit/Cost assumptions in the analysis it provides in its reply comments.

[14] Petition at page 24.

A. REVIEW OF CENTERPOINT'S PROPOSED PORTFOLIO

a. RNG Pilots and Draft RFP

1) Introduction

CenterPoint originally proposed to develop RNG under three Pilot Programs.

- Pilot A – CenterPoint proposed to purchase RNG from Hennepin County. The Company notified the Commission in a letter dated January 3, 2024 that it is now proposing to remove this pilot from the NGIA.[15] CenterPoint did not provide any explanation as to why it is requesting the change. Given that the Company also proposed to include the costs associated with this pilot (Pilot A) in Pilot C in that same letter, the Department believes including information related to the original Pilot A might be of use to the Commission and other interested parties. Hennepin County proposed to construct an anaerobic digestion facility which would process source-separated food waste from a broader program. Hennepin County also assumed that it would sell some fixed percentage of the RNG produced to CenterPoint. For its part, the Company assumed:
  - No investment from CPE was required;
  - Modeled potential costs at three different annual levels of RNG purchase (8,288 Dth/year, 41,440 Dth/year, 82,880 Dth/year that represents 10%, 50% and 100% of RNG expected to be produced at the facility);,
  - A $24.00/Dth purchase price for the RNG;
  - The project has not yet broken ground and is expected to be operational in 2026
  - RNG purchases for this pilot would begin in 2026 and continue through 2029.
  - Annual proposed purchase volume of RNG would be equal to 41,440 Dth/Year for the three years covered by this plan and:
  - The contract would be exempt from the Company's competitive bidding process. CenterPoint referenced the term "fair market price" as the standard for the contract which would be based on the carbon intensity and available market benchmarks.

- Pilot B – CenterPoint is proposing to purchase RNG from Ramsey and Washington Counties (Counties). The Counties will build an anaerobic digestion facility which will process source-separated food waste from a broader recycling program. The Company assumed:
  - No investment from CPE was required;
  - Modeled potential costs at three different annual levels of RNG purchase (18,168 Dth/year, 152,613 Dth/year, 190,767 Dth/year that represents 10%, 80% and 100% of Dth listed by the Counties in their RFI response);
  - A $24/Dth purchase price for the RNG for costing purposes,
  - The project has not yet broken ground and is expected to be operational in 2026
  - The contract would be exempt from the Company's competitive bidding process.
  - RNG purchases for this pilot would begin in 2026 and continue through 2029.

[15] See "Letter – Pilot Allocation Adjustment Planned for Reply Comments" dated January 3, 2024 in this docket.

- Annual proposed purchase would be equal to 152,613 Dth/Year for the three years covered by this plan.

- Pilot C – CenterPoint proposes to purchase RNG from other RNG projects like dairy, food waste, landfill gas facilities or wastewater treatment facilities. The Company assumed:
  - CPE might be required to make an investment in the facility;
  - Some projects would be operational in 2025;
  - Participants would be selected through the Company's Request for Proposals (RFP) process (i.e. be competitively bid);
  - Weighted average prices for the RNG sourced from different facilities would be $21.75/Dth.
  - RNG annual purchase volumes under this pilot are expected be equal to 408,750 Dth/Year beginning in 2025 and continuing through 2029. A breakdown of this total quantity is provided in the table 9 below:

Table 9 – Expected price and quantity of RNG from different feedstock in Pilot C

Source	Expected Price/Dth	Expected Quantity/year
Wastewater Resource Recovery Facility	$21	50,000 Dth
Dairy Manure	$50	10,000 Dth
Food Waste	$24	220,000 Dth
Landfill Gas	$16	128,750 Dth

The sum of the RNG volumes produced by the four projects included in Pilot C is 408,750 dekatherms/year. In its letter proposing to remove Pilot A and to allocate the costs of Pilot A to Pilot C, CenterPoint didn't identify the how that change would affect the price and quantity of RNG. Apparently, the Company will provide that information in its Reply Comments.

2) Preliminary Department Analysis

The Department based its review of CPE's RNG proposal on two criteria: 1) how could the proposed pilots be modified to lower the financial risks and burden that the Company's ratepayers will incur due to the program and 2) how could the pilots be modified to maximize the participation of RNG developers in the Company's proposed competitive bidding process?

Given the hybrid nature of CenterPoint's proposed RNG pilots, the Department's review identified two perspectives for evaluating those 3 pilots. The first focused on the process for evaluating and selecting specific RNG projects via the use of a competitive bidding process. This first perspective incorporated both the Department's evaluation criteria. The second focused on drilling down into the particulars of the three pilots to determine the reasonableness of the proposed budgets for those pilots. This evaluation focused primarily on the first evaluation criterion.

Based on that review, the Department proposes three modifications to the process for selecting and evaluating the three proposed RNG Pilots:

- Simplification of the Company's proposed contracting process;
- An increase to the number of contract options included in CenterPoint's draft Request for Proposals (RFP) and;
- Development of a Model RNG contract with 5-, 10-, and 15-year terms that would be included as part of the Company's draft RFP.

The Department also is proposing modifications to CenterPoint's proposed budget for Pilot C which is discussed in a subsequent section.

The details of the proposals related to the process for evaluating and selecting RNG proposals are described below.

(a) RNG Evaluation and Selection Process

(i) Simplification of the RNG Contracting Process

CenterPoint is proposing to exempt the RNG purchase contracts for Pilots A (Hennepin County) and B (Ramsey and Washington Counties) (collectively "The Counties") from the Company's competitive bidding process for Renewable Natural Gas (Pilot C). While the Department recognizes certain qualitative benefits associated with those two Pilots, the Department believes that requiring CenterPoint to competitively bid <u>all</u> its RNG purchase contracts is preferable from a ratepayer and societal perspectives.

To develop some additional context regarding Pilots A and B the Department asked the Company in Department Information Request No. 4 to; "explain why CPE decided to include two pilots outside an RFP process and include the other pilot in an RFP Process?

CenterPoint responded:

> Pilots A and B were two specific RNG projects proposed in response to the Request for Ideas ("RFI"). Each of these pilots is connected to a local government entity within CenterPoint's Minnesota service area and accordingly are expected to result in widespread public benefits for communities served by CenterPoint Energy including assisting the state in achievement of waste management goals, promotion of a circular economy, and the development of low intensity RNG. In addition, as food waste diversion projects, both qualify for additional funding under Minn. Stat. § 216B.2427, subd 3. These factors make each project highly attractive in ways that are unlikely to be replicated by any other potential RNG projects.[16]

[16] See Attachment A.1 for CPE's response to Department Information Request No. 4.

Considering the Department's two evaluation criteria, CPE's response didn't reference how this approach to the two projects would lower ratepayer's financial risks associated with contracting for Renewable Natural Gas from the facilities. The Company also didn't discuss how the current approach would maximize the participation of RNG developers in the Company's competitive bidding process.

A competitive bidding process is a mechanism that allows the utility to procure resources at the least possible cost. This is crucial for ensuring ratepayer dollars are being prudently spent. In Center Point Energy's (CPE) Reply Comments in Docket G-999/CI-21-566 filed on October 15, 2021, the Company stated:

> *CenterPoint Energy generally agrees that it is appropriate to require competitive bidding to ensure that utilities are securing reasonable-cost options for the benefit of customers. However, because certain innovative pilots could utilize new and developing technologies and approaches, the Company cautions that there may be cases in which few or no outside bidders respond to requests for proposals.*[17]

The Department's primary concern regarding Pilots A and B not being required to participate in a competitive bidding process is that both projects are still in the planning stage. This creates operational and financial uncertainties some of which include:

- The carbon intensity of the RNG that these projects will produce. This implies there is also uncertainty about the fair value of the RNG that will be produced.
- The costs of many crucial aspects of the projects are still unknown or to be decided.
- Effects of increased higher interest rates on expected project financing costs.
- Potential construction delays.

Under the current structure, it is not clear how the risks associated with these projects will be distributed between the Counties, CenterPoint's shareholders, and CenterPoint's ratepayers. The Company has not addressed how those risks will be distributed either at least for Hennepin County. Department Information Request No. 29 asked CenterPoint several questions about the terms of the potential contract with Hennepin County.[18] Specifically, the Department asked:

> c. Will a developer have an option to terminate the contract with CPE before its expiration?
> d. Please provide details of any penalties the developer will have to pay if they fail to meet the terms of the contract.
> e. Please provide details of any early termination clause in the contract.
> f. Will CPE sign bonds with the developer and take legal action against them in case they fail to meet the terms of the contract?
> g. Will the developer have the ability to renegotiate the contract before expiry? If yes, provide details.

[17] CenterPoint Reply Comments at page 7.
[18] See Attachment A.2 which contains Department information request no. 29 and CPE's response.

CenterPoint provided one response to the four questions: "CenterPoint has not made a decision on these potential contract terms or related agreements at this time."

This lack of specificity regarding the outline of the RNG purchase agreement CPE would execute with Hennepin County further supports the Department's recommendation to require Pilots A and B to participate in the competitive bidding process. Doing so would require the Counties to assume the risks associated with the projects' carbon intensities, the value of the RNG produced and increased construction and financing costs. In addition, a competitive bidding process will require the Counties to identify a date for commercial operation which would shift at least some portion of the construction risk onto those entities.

Ratepayers do not appear to be completely insulated from any costs increases associated with the uncertainties/risks identified under CenterPoint's current proposal for Projects A and B. CenterPoint's current proposal is simply too ambiguous as to the allocation of the two projects' risks between other stakeholders and ratepayers. These two projects' forecasted costs over the five-year NGIA sum to $13,016,817. A 20 percent cost overrun on those projects would increase the forecasted costs of the two projects by $2,603,363 over the five-years covered by this NGIA plan. That level of cost overruns would increase the NGIA recovery by approximately 3 percent.

Hence, the Department recommends the Commission require CenterPoint to include the projects identified as Pilots A and B to be competitively bid.

(ii) Increase Contracting Options Included in the Company's Draft Request for Proposal

CenterPoint drafted a Request for Proposals (RFP) for Pilot C which is the basis of its proposed competitive bidding process.[19]

The Department reviewed the Draft RFP considering our proposed recommendation to require CenterPoint to include the Hennepin and Ramsey/Washington County RNG projects in that competitive bidding process. The Department did not identify any changes that would need to be made to the Draft RFP for the Counties to be able to participate in that competitive bidding process.

The Department also reviewed the Draft RFP considering the criterion regarding maximizing the number of potential bidders that would participate in the competitive bidding process. Our review identified one area of the Draft RFP which the Department recommend be modified.

This modification would increase to the number of contracting options available to bidders in the Draft RFP.

The current RFP allows a bidder to submit a proposal if the bidder is: 1) willing to sell RNG and the associated environmental attributes (EA) as a bundled product; or 2) willing to sell only the environmental attributes of an unbundled RNG Product.

[19] See Attachment Q of CenterPoint's filing.

In its description of Pilot #1 CenterPoint modeled three scenarios under which Hennepin County sold 10 to 100 percent of its RNG production to the Company. CenterPoint also modeled Pilot #2 in a similar fashion.

(a) Are the Department's Proposed Modifications to the RNG RFP Consistent with NGIA Statutory Language?

Prices for the same environmental credit may vary significantly between different markets due to differences in state law or the proposed end use for the environmental credits (for example home heating versus transportation) in the United States. In the example being discussed, Hennepin and Ramsey/Washington Counties could receive a larger amount of revenue for the environmental credits they produce if they were to sell a portion of those credits in markets where prices for those assets are higher while selling the remaining portion of their respective production to CenterPoint. Any similarly situated economically rational producer might want to pursue a similar contract structure.

Fortunately, it appears that a contract structure like the ones proposed by Hennepin and Ramsey/Washington Counties would be allowed as part of an Innovation Plan under the NGIA. The portion of the NGIA statute that defines Innovation Plans includes the following language. Minn. Stat. § 216B.242, Subd. 1 (r) defines the term "Total Incremental Cost".[20] The language in Part 2 (i) states:

(2) less the sum of:

(i) value received by the utility upon the resale of innovation resources or innovative resource by-products, including any environmental credits included with the resale of renewable gaseous fuels or value received by the utility when innovative resources are used as vehicle fuel.

Subd. 2 (a) Part 10 (i) of that same statute states:

(10) a description of third-party systems and processes the utility plant to use to:

i) track the innovative resources included in the plan so that environmental benefits produced by the plan are not claimed by any other program; and

ii) verify the environmental attributes and greenhouse gas emissions intensity of innovative resources included in the plan:

Nowhere in the statute is the natural gas LDC submitting the Innovation Plan required to purchase all the output of an innovative resource that produces environmental benefits like RNG.

We note that overall the Company's position on the ownership of any environmental credits appears to be inconsistent. CenterPoint identified some value in a contract structure that allows the developer to retain some or all the EAs produced by power-to-hydrogen and carbon capture pilots. According to

[20] Total Incremental Cost is a construct that is used in the development of an Innovation Plan.

details provided in Exhibit W of CenterPoint's filing, these two pilots can be structured such that the developers are allowed to retain ownership of some or all of the environmental attributes.[21, 22]

(b) Proposed Contract Lengths for RNG Projects

Market prices for RNG vary substantially over time and depend on the demand and supply of the associated commodity gas and environmental attributes. Given the volatility of prices, determining whether a long term or short-term contract will be in the best interest of ratepayers and society, depends on the actual pricing offers submitted by the project developers.

The Department reviewed the Draft RFP to see if CenterPoint had identified one or more contract terms as part of that document. There was no discussion of contract terms in that document, so the Department expanded its search to the entire NGIA filing. We identified four references:

- Exhibit D identified a 10-year contract period that was an input into modeling the Greenhouse Gas Emission and Geologic Gas Savings
- Exhibit K, Part 1 – requested desired contract term for specific RNG projects;
- Exhibit K, Part 2 – Modeled 10-year contracts and include the following statement: "By offering long-term contracts, CenterPoint could use their relative financial stability as a utility to get a better price."
- Exhibit L, page 2 – under Biogas/RNG Pilot "producing 3 Bcf/yr of pipeline quality fuel for sale under a long-term (15+ year) agreement".

It appears the Company is considering 10 or 15+ year contract terms for RNG facilities. Either of those contract terms could be reasonable. Given that CenterPoint doesn't have pricing proposals at this stage, the Department recommends the Company identify three contract terms for each bidder: 5-, 10- and 15-years in the Draft RFP. Standardizing these contract terms would simplify the Company and stakeholders' review of the cost implications of the proposals.

(c) Inclusion of Model Contract in the RFP

The Department's review related to RNG purchase contract term or duration identified a second issue. While the Company is proposing to negotiate long-term purchase agreements for RNG, it doesn't appear that CenterPoint staff have much experience negotiating long-term purchase gas commodity agreements for geologic or renewable natural gas.[23]

The Citizens Utility Board (CUB) in its information request no. 6 referenced some Comments the Company had filed in another docket (G008/M-21-138) in which CenterPoint stated: "With respect to

[21] While the Department doesn't consider the equity aspects of the difference between how RNG and power-to-hydrogen and carbon capture developers are treated in CPE's NGIA to be a major issue, legally it would probably be a good idea to have developers for those three projects treated equally.

[22] CenterPoint Petition Attachment W at page 2 states the following under Tracking:
For customer-owned power-to-hydrogen projects, in project participation agreements, CenterPoint Energy will prohibit customers from generating and reselling any environmental attributes in other markets for hydrogen. CenterPoint Energy may grant an exception to allow sale or transfer of environmental attributes if there are sufficient controls and tracking to ensure that the environmental attributes and their benefits are retired on behalf of an entity within the state of Minnesota.

[23] See Attachment A.4 for a copy of CUB information request no. 6 and the Company's response.

setting benchmarks for natural gas commodity costs, one significant challenge with gas purchasing incentive mechanisms is the fact that the majority of natural gas commodity purchases are either through a) short- to medium-term contracts predominantly tied to some external market index, or b) from spot gas purchases where the price is set in the daily market." CUB then proceeded to ask the Company to define short-term and medium-term contracts.

CenterPoint defined short-term contracts as "any natural gas commodity purchase with a term of one year or less". The Company declined to define medium term contracts and stated that it categorizes contracts as short-term (less than one year) or long-term (more than one year). In a subsequent response CenterPoint also stated that for the gas year July 2022-2023, approximately 99% of CenterPoint Energy's natural gas commodity purchases were secured through short-term supply contracts. One contract with a term of 24 months and an associated quantify of 10,000 Dth/d was the only long-term contract executed during that twelve-month period.

Relative to gas commodity contracts, CenterPoint's response suggests that it has little or no experience negotiating long-term contracts. The Department also notes that the contracts the Company uses to purchase natural gas volumes are standardized contract approved by the North American Energy Standards Board (NAESB). This greatly simplifies purchases in that the contracts are identical. This will not be the case for responses to the Company's RFP for RNG as the RFP is currently structured.

CenterPoint's apparent lack of experience in this area is a concern for the Department. Long-term agreements commit the Company (and its ratepayers) to larger financial outlays then do shorter-term contracts. In addition, there are additional layers of complexity related to negotiating a long-term agreement to purchase Renewable Natural Gas that are not present in the short-term agreements the Company has used historically to purchase geologic natural gas.

The inclusion of a standard contract is one aspect of a comprehensive competitive bidding process that Xcel Energy's electric department has developed over the past twenty-years or so as part of that organization's competitive bidding process. It has been used successfully in both Xcel's Minnesota and Colorado service territories.

The logic of having a standard contract and exceptions to it provided in the bid is that process enables the bid to be evaluated from the same starting point (the standard contract). It also should accelerate the negotiations stage of the process as both parties knows that they are negotiating only on the negotiations to the standard contract.

According to the Department's subject matter expert in this area, Xcel includes a copy of one of its standard contracts in the RFP Bidder's packet, which it sometime refers to as the Term Sheet. The relevant section of the RFP for the Term Sheet explains how respondents should complete the Term Sheet (TS).[24]

[24] The language in this example is taken from the Sherco Solar Resource Solicitation which was referenced in a letter to the Commission dated December 18, 2020 in Docket No. E002/M-20-716. The information itself resided at the following website: www.xcelenergy.com/Sherco Solar RFP at page 12.

In this section, respondents are required to clearly document any exceptions to the TS by providing a red-line version of the document with their Proposal and reason for taking each exception(s). Bidders should also provide the information highlighted in yellow on the TS for their project.

The Company then proposed to review the Term Sheet as part of its completeness review and its Threshold review.[25]

One of Xcel's RFP from a 2016 wind solicitation provides some additional context:[26]

Power Purchase Agreements (PPAs) will include rights to all energy, capacity, and environmental attributes for a specified $/MWh price.

All PPA proposals shall include a bid price that is fully compliant with NSP's Model Wind Purchase Power Agreement (Attachment A). PPAs must also include any desired written exceptions to the Model Wind Power Purchase Agreement if applicable and the corresponding price reduction for each written exception the bidder would like the Company to consider.

In one its more recent RFPs, Xcel upgraded the importance of the standard contract. In an RFP issued on August 1, 2022, Xcel stated that it would include changes to the standard contract in the final evaluation phase of the RFP. Xcel included "Exceptions to the applicable Model PPA or PSA template" as one the "Score Deductors" in its scoring approach for the different bidders' proposals.[27]

That same RFP contained the following explanation regarding the use of the Model PPA:[28]

Exceptions to the applicable Model PPA or PSA template: The number and type of exceptions made to the Company's applicable model Agreement or term sheet. Similar to Bidder Strength category, this is not a percentage of the total score but will act only as a detractor to the total score. If material exceptions are made to the Model PPA or PSA term sheet, the final score will be decreased by up to 10 points from the 100 total proposal point.

While the Department recognizes that the use of a standard contract in CenterPoint's proposed RFP process isn't necessary or required, we believe that it would make sense in this instance and would be good for the overall process. The Department is also aware that this is a topic that is more process oriented and hence, could be considered somewhat beyond the scope of the Department's standard review. CenterPoint's estimates for the potential expenditures for RNG under long-term agreements are so significant ($102 million over the proposed contracts lifetimes) that the Department considers the topic too important not to discuss.

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[25] *Ibid.* at page 14.

[26] This passage's source was the Wind Resources Request for Proposal filed in Docket No. E002/M-16-777 at page 6. The date of Xcel's letter was September 22, 2016. The letter also listed the website where the RFP resided: www.xxcelenergy.com/NSP2016WINDRFP. The language cited is located on page 6 of that document.

[27] This passage's source was the 2022 NSP Request for Proposal filed in Docket No. E002/M-22-403 at page 21. The date of Xcel's letter was July 20, 2022. The letter also listed the website where the RFP resided: www.xxcelenergy.com/NSP2022RFP.

[28] *Ibid. at page 21.*

The Department also notes that a second Minnesota electric utility, Minnesota Power (MP) has adopted a standard contract as part of a Wind RFP bid package it recently completed.[29] MP also has included a Model Solar Power Purchase Agreement in an RFP for Solar resources that is currently in progress.[30] Minnesota Power's adoption of a model contract provides further support for the Department's position on this matter.

As a result, the Department asks CenterPoint to discuss the potential advantages and disadvantages of developing a standard RNG contract which can be included in its RFP in its reply comments.

a. **3.** Department Recommendations

Regarding CenterPoint's process for selecting and evaluating RNG projects the Department recommends:

- All proposed RNG projects should be included and evaluated as part of the competitive bidding process;[31]
- The Company identify three contract terms for each bidder: 5-, 10- and 15-years in the Draft RFP;
- The Company develop a standard or model RNG contract to be used as an evaluation tool in the RFP.

(b) RNG Projects – Detailed Budget Review

RNG is the NGIA's centerpiece from a financial perspective. Minn. Stat. 216B.2427 Subd 2.d states:

> *The Commission may not approve a utility's initial plan filed under this section:*
> 1) *50 percent or more of the utility's costs approved by the commission for recovery under the plan are for the procurement and distribution of renewable natural gas, bio-gas, hydrogen produced via power-to-hydrogen, and ammonia produced via power-to-ammonia*; and

Given that hydrogen produced via power-to-hydrogen and ammonia produced via power-to-ammonia are both nascent technologies, we anticipate that RNG will be the primary technology that will be funded under this provision, at least the initial Natural Gas Innovation Plan (NGIP).
Stat. 216B.2427 Subd 3.b reinforces this perspective by allowing the Commission to approve additional costs that can be included in the NGIA if:

> *the Commission determines that the additional costs are associated exclusively with the purchase of renewable natural gas produced from: (i) food waste diverted from a landfill; (ii) a municipal wastewater treatment system; or (iii) an organic mixture that includes at least 15 percent, by volume, sustainably harvested native prairie grasses or locally appropriate cover crops, as determined by a local soil and water conservation district*

[29] See Minnesota Power Compliance filing in Docket No. E015/RP-21-33 Attachment B, filed December 15, 2023.
[30] www.mnpower.com/SolarRFP, Attachment B.
[31] This includes projects identified in Pilots A,B and C.

> *or the United States Department of Agriculture, Natural Resources Conservation Service.*

As a result, CenterPoint has requested over $45.4 million in project costs for the RNG pilots included under the NGIA.[32] Those costs would be recovered over the 5-year initial NGIA period. The total estimated lifetime costs for the RNG projects are slightly more than $102 million. In addition, the Company is also requesting an additional $8.9 million in project costs for green hydrogen. Table 10 summarizes this request as well as the comparison to the Legislative minimum spend threshold of 50 percent of the total NGIA costs.

Table 10 – RNG, Power-to-Hydrogen and Power-to-Ammonia Estimated Project Costs in NGIA Budget Compared to the Statutory Requirement that 50% of the NGIA's Costs be Related to those Three Types of Projects

Line No.	Classification	Pilot Description	CPE Propsed 5-Year Budget	Calculation Description
1.	Power-to Hydrogen Pilot	Green Hydrogen CPE-owned	$5,073,067	none
2.	Power-to Hydrogen Pilot	Green Hydrogen Comm/Ind	$3,793,770	none
3.	Power-to-Ammonia Pilots	None Proposed	$0	none
4.	RNG Pilot - Non-Archetype	Hennepin County Organic Waste - RNG	$2,856,759	none
5.	RNG Pilot - Non-Archetype	Ramsey/Washington County Organic Waste - RNG	$10,160,058	none
6.	**Sub-total Non-Archetype RNG Project Costs**		$21,883,654	Sum of Lines 1 - 5
7.	RNG	Archetype - Waste Water Recovery Facility	$4,013,867	none
8.	RNG	Archetype - Dairy Manure	$2,239,781	none
9.	RNG	Archetype - Landfill Gas	$6,778,944	none
10.	RNG	Archetype - Food Waste	$19,336,219	none
11.	**Sub-total Archetype RNG Project Costs**		$32,368,811	Sum of Lines 13 - 16
12.	**Total Proposed RNG, Power to Ammonia and Power to Hydrogen Spend**		$54,252,465	Line 10 + Line 15
13.	**Legislative Minimum Spend Requirement for Bonus RNG Cost Cap**		$52,850,767	$105,701,533 x .5
14.	**Difference**		$1,401,699	Line 16 - Line 17
15.	**Percentage Spend of Total NGIA**		51.3%	Line 20 / $105,701,533

[32] On January 3, 2024 CenterPoint filed a letter with the Commission notifying the Commission and other interested parties that it was proposing to remove the RNG – Hennepin County project from this roster. The Company also proposed to transfer the budget for that project to the RNG – RFP project. The Company also stated it would provide an updated analysis in its reply comments. The Department didn't update its analysis given the incomplete information associated with the change and that this proposed change would have no effect on CPE's RNG budget all else being equal.

The Department confirms that the proposed project costs for RNG, Power-to-Hydrogen and Power-to-Ammonia meet the Legislative minimum spend requirement of 50% of the total NGIA costs.[33] The RNG costs represent almost 43% of the total NGIA costs requested over the five-year period. The Power-to-hydrogen costs are estimated to equal roughly 8% of the NGIA costs over the first planning period.

Looking at the RNG pilots specifically, CenterPoint bundled the four archetype projects (3 through 6) into one pilot called Pilot C. The archetype designation refers to the fact that CPE has not yet identified project developers for all those types of RNG facilities.[34] Table 11 summarizes the NGIA budgeted costs and the estimated lifetime utility costs.

Table 11 – Renewable Natural Gas Estimated Project Costs in NGIA Budget and Lifetime Utility Cost[35]

Line No.	Pilot Description	Cost Counting Against NGIA Budget ($)	Estimated Lifetime Utility Costs ($)
1.	Hennepin County Organic Waste - RNG	$2,856,759	$7,675,137
2.	Ramsey/Washington County Organic Waste -	$10,160,058	$27,356,579
3.	Archetype - Waste Water Recovery Facility	$4,013,867	$8,312,087
4.	Archetype - Dairy Manure	$2,239,781	$4,604,795
5.	Archetype - Food Waste	$19,336,219	$40,000,026
6.	Archetype - Landfill Gas	$6,778,944	$14,053,817
7.	Total RNG-related Costs	$45,385,628	$102,002,441

The Company made assumptions about the carbon intensity of the RNG produced from various feedstocks and imputed a price based on the carbon intensity assumed for the archetype projects included in Pilot C.

The Department notes that there are large variations in carbon intensity for RNG produced from the same feedstock due to specifics of the facility. To help understand the range of variation of carbon intensity scores, the Department looked at the certified carbon intensity scores in California's Low Carbon Fuel Standards (LCFS) Market[36]. The Department chose the fuel category as Bio-CNG and Bio-LNG and then filtered the projects by their feedstock to find the maximum and minimum carbon intensity scores of existing projects. Table 12 summarizes the findings.

[33] The Department also notes that it will discuss the two Power-to-hydrogen pilots in a subsequent section.
[34] CPE has identified potential project developers for some of the type of projects included as archetypes, but not all.
[35] The Hennepin County RNG facility is no longer part of the NGIA budget roster according to a letter CenterPoint filed with the Commission on January 3, 2024. The Company is proposing to shift those costs to another archetype project apparently.
[36] https://www.arb.ca.gov/fuels/lcfs/fuelpathways/current-pathways_all.xlsx

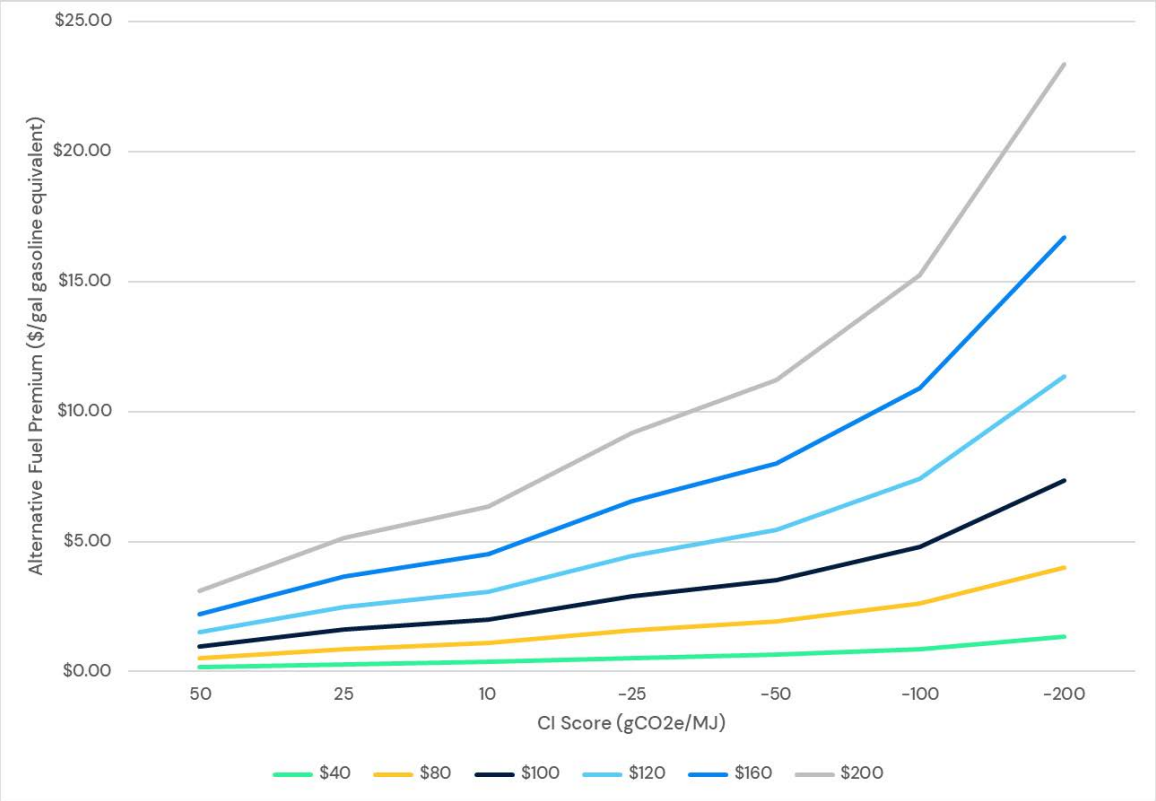
Table 12 – Range of Carbon Intensity (CI) scores for different feedstocks in CA LCFS Market

Feedstock Source	Max CI (gCO2e/MJ)	Min CI (gCO2e/MJ)	CPE Assumption (gCO2e/MJ)
Dairy Manure	-445.37	-532.74	-31.10
Wastewater	52.36	7.75	12.35
Food Waste	-28.20	-79.91	-47.06
Landfill Gas	80.98	7.39	12.12

As can be seen in the above table, there are large variations in the actual carbon intensity scores across projects that produce fuels from the same feedstock. In order to have a sense of how variation in CI score can lead to variation in price that a developer can expect to see, the Department generated Figure 1 using the LCFS Credit Price Calculator[37] provided by the California Air Resources Board. The calculator is meant to capture the use of alternative fuels for transportation end use, so the reference fuel here is gasoline. The price of LCFS credits is determined in the market, so demand and supply are key determinants. For Figure 1, the Department selected a sample of LCFS credit prices ($40, $80, $100, $120, $160 and $200), each of which are depicted by a different color in the graph. The figure shows that at a given credit price, the premium that an alternative fuel receives over the price of gasoline goes up as its CI score decreases. Additionally, if the LCFS credit price is higher, then the premium increases more for a given reduction in CI score. Thus, knowing the actual CI score is critical to be able to estimate a fair value of any alternative fuel like RNG. Since CPE does not know the specific CI scores for its archetype projects, they do not know what the market price for RNG from each feedstock in Pilot C. It is reasonable to assume actual carbon intensities can be significantly different from CPE's assumption (as per Table 12) leading to significantly different pricing.

[37] LCFS Credit Price Calculator, Accessed at:
https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fww2.arb.ca.gov%2Fsites%2Fdefault%2Ffiles%2Fclassic%2F%2Ffuels%2Flcfs%2Fdashboard%2Fcreditvaluecalculator.xlsx&wdOrigin=BROWSELINK

Figure 1: Alternative Fuel Premiums ($/gal gasoline equivalent) at sample LCFS Credit Prices



Looking at where CPE's assumptions about carbon intensity scores are relative to the actual range observed in the market, and the relationship between CI score and fuel premium in California, the Department concludes CPE's cost estimates are speculative and actual prices could be significantly different from what the Company has forecasted.

1. *Pilot Evaluation Criteria*

Given this is the first Innovation Plan filed under the NGIA, the Department needed to develop criteria to determine the reasonableness of the costs the applicant (in this case CenterPoint) identified in its Petition. The Department identified four criteria for this exercise:

1) review the specificity of the cost estimates for the proposed RNG projects;

2) the project developer's ability to secure financing;

3) extent of relevant construction risk associated with the project; and

4) program participation estimates embedded in the cost estimates for the different pilots.

i. Hennepin County Organic Waste – Pilot A

The Company notified the Commission in a letter dated January 3, 2024 that it is now proposing to remove this pilot from the NGIA.[38] CenterPoint did not provide any explanation as to why it is requesting the change. The Company also proposed to include the costs associated with this pilot (Pilot A) in Pilot C in that same letter. In response, the Department has removed its analysis of Pilot A in this section.

ii. Ramsey/Washington County Organic Waste – Pilot B

Like the HCOW project, the Ramsey/Washington County Organic Waste (RWCOW, Pilot B) is currently under development. The project has not broken ground and is in late stages of finalizing its plans. This project appears to have very well-developed cost estimates as well. RCCOW staff described their efforts to review and verify the costs associated with the project in a recent meeting with Department staff. The project is a public private partnership between the Counties and Dem-Con Hzi Bioenergy, LLC. The two entities have a feedstock supply agreement between each other. As per this agreement, the county will supply organic waste to the developer while the developer will build the facility and commercialize it. The Department concludes that the project has less uncertainty relative to the Hennepin County project due to the clear terms laid out in the agreement between the counties and the project developer. That approach resolves the financing issue. Dem-Com Hzi Bioenergy, LLC will apparently secure the financing required to complete the project. The pilot also includes one participant. So, there is no question as to the estimated number of pilot participants. This combination fulfills the Department's requirements for the cost estimates, financing, the project's relative construction risk and the estimated number of participants.

iii. Archetype Sub-Projects

Four types of RNG sub-projects were modeled as archetypes.[39] CenterPoint's consultant for the NGIA filing, ICF modeled the different sub-project's generic costs assuming three project sizes. Department Information Request No. 6.a asked for the definition ICF used for those sub-projects.[40]

CenterPoint replied:

> *The Archetype Projects were the result of a gap analysis conducted by our consultant ICF, which included review of all ideas received through the RFI, and identified promising gas decarbonization solutions that were not reflected in any of the ideas received. These differ from other projects proposed in that the other projects were largely inspired by information contained in RFI responses.*

In subpart c of that same question the Department asked: 'Has the Company issued any RFP's for the above 6 projects? Please explain."

[38] See "Letter – Pilot Allocation Adjustment Planned for Reply Comments" dated January 3, 2024 in this docket.
[39] Wastewater Recovery, Dairy Manure, Food Waste and Landfill Gas were the four sub-projects.
[40] Attachment A.5 includes a copy of Department Information Request No 6.

The Company responded:

> *No. CenterPoint has not yet conducted a competitive bidding project for RNG proposed pilots*.

CenterPoint Energy started its Plan development process by issuing a Request for Ideas ("RFI") seeking information and proposal ideas for different pilot projects. The Company received over 100 responses proposing different kinds of pilots for the Company's consideration. CenterPoint Energy also developed some pilot ideas internally and our consultant, ICF, also contributed ideas.

In subpart e of that same question the Department asked: 'For each of these archetype projects, please describe the process of obtaining detailed estimate of carbon intensity, cost effectiveness, avoided emissions, annual production, and cost estimates."

Regarding the annual production question, the Company responded:

> *RNG Archetype Projects: The different sizes are placeholder assumptions to show a range of RNG purchase volumes. NGIA rules require that at least half of the budget for low-carbon fuels, like RNG and hydrogen. These ranges of placeholder production (Dth/year) estimates gave CenterPoint Energy the flexibility to work within the budget and meet requirements for at least 50% of costs for low-carbon fuels in its Plan. Certain types of RNG seemed more favorable from a $/tCO$_2$ perspective in the plan development process, but this analysis is preliminary. Overall, the expectation is that the RFP process will dictate the types and volumes of RNG projects moving forward, so the mix of different archetypes was not intended to be a prediction of final volumes across RNG types. Thus, the mix intended to set expectations for budget and emission reductions but leave flexibility to pursue the best RNG projects identified through the RFP process.*

Apparently, CenterPoint developed the RNG archetype as part of a separate analysis done by its consultant. This development suggests the RFI process described didn't provide many project proposals.

The Company's response to the third question highlights the need for an "RFP to determine the types and volumes of RNG projects moving forward."

It appears that the Company's entire process for estimating the carbon intensity of the feedstock, the avoided emissions, construction costs, financing costs, estimated annual production, the number of program participants and the commercial operations date for these four sub-projects was completely internal to CenterPoint or its consultant except for asking for Requests for Information and **[TRADE SECRET DATA HAS BEEN EXCISED]**.[41] The Department also notes that CPE's consultant **[TRADE SECRET DATA HAS BEEN EXCISED].** Hence a price estimate for that feedstock was not provided.

[41] See Petition, TRADE SECRET Exhibit T.

CenterPoint's responses to Department Information Request No. 25 support this point.[42] That information request focused on Pilot C and asked the following questions:

a. Please explain how CPE came up with the value of 408,750 Dekatherms (Dths) of RNG annually.
CenterPoint responded: *"408,750 Dth/year is the sum of four archetype pilot estimates that were modeled: wastewater, dairy manure, food waste and landfill gas.*"

b. Does the 408,750 Dths value for the Pilot represent the maximum potential amount to be purchased under this pilot?

The Company responded:

> *It does not represent a maximum potential amount. CenterPoint Energy plans to spend approximately $27.8 million on RNG selected through this RFP to satisfy the NGIA requirement that 50 percent or more of the costs in this Plan be for RNG, biogas, hydrogen produced via power-to-hydrogen, and ammonia produced via power-to-ammonia. Within that budget, CenterPoint Energy's purchasing choices will be guided by the RFP responses actually submitted and the Company may buy more or less RNG from a given source depending on actual project features as described in Exhibit Q, which may result in purchases above or below 408,750 Dth.*

c. What percentage of the 408,750 Dths is CPE expecting to purchase with a relatively high level of certainty each year during the life of the pilot? Please provide justification. . . .

CenterPoint responded:

> *CenterPoint Energy's purchasing choices will be guided by the RFP responses actually submitted and the Company may buy more or less RNG from a given source depending on actual project features as described in Exhibit Q of the Innovation Plan filing.*

f. How many developers have reached out to CPE and expressed interest in participating in this pilot?

The Company responded:

> *In addition to RFI responses used for the design of Pilot A and Pilot B, active and potential producers and developers have reached out to CenterPoint Energy for information about RNG receipt programs and many of these developers have expressed interest in selling us RNG. We have also talked to developers with existing projects (or projects in development) that would not interconnect to the CenterPoint Energy distribution system but who*

[42] **TRADE SECRET** Attachment A.6 contains a copy of Department information request no. 25 and CPE's response including attachments.

would be interested in selling their RNG to CenterPoint Energy in long-term contracts.

g. Please provide details of correspondences with developers that show any of the identified developers are interested in this pilot.

The Company provided four **TRADE SECRET** attachments in response to this question.

h. Please provide justification to support the claim that there will be potential developers interested in this pilot.

The Company responded:

"*Based on our interactions with developers detailed in g. we believe there will be several potential developers interested in this pilot.*"

2. Analysis

The Department will separate its review of CenterPoint's responses to the different questions included in this information request into two parts.

The Company's response to subpart b describes its process for estimating the annual budget for Pilot C. Apparently, CenterPoint's first step was to identify the statutory requirement that 50 percent of the costs of an Innovation Plan are required to be recovered from RNG, Power-to-Hydrogen or Power-to-Ammonia as the starting point for Pilot C's budget. The initial comment in response to subpart b suggests CenterPoint took a top-down approach to determine the initial budget estimate for Pilot C. Such a top-down approach would identify the 50% minimum spend limit and then subtract the costs of previously identified proposed RNG, Power-to-Ammonia and Power-to-Hydrogen projects from that minimum spend requirement. Table 13 provides an example of a potential, initial top-down analysis.

Table 13 – Potential Top-Down Cost Estimates for identified RNG, Power-to-Hydrogen and Power-to-Ammonia Projects

Line No.	Classification	Pilot Description	5-Year Budget	Calculation Description
1.	Power-to Hydrogen Pilot	Green Hydrogen CPE-owned	$5,073,067	none
2.	Power-to Hydrogen Pilot	Green Hydrogen Comm/Ind	$3,793,770	none
3.	RNG Pilot - Non-Archetype	Henn. Cty - RNG	$2,856,759	none
4.	RNG Pilot - Non-Archetype	Ramsey/Washington Cty -RNG	$10,160,058	none
5.	**Sub-total Non-Archetype RNG Project Costs**		$21,883,654	Sum of Lines 1 - 5
6.	**Legislative Minimum Spend Requirement for Bonus RNG Cost**		$52,850,767	$105,701,533 x .5
7.	**Difference of Minimum Spend Requirement and Sub-total of Non-**		$30,967,113	Line 7 - Line 6

The minimum 5-year budgeted amount for the archetype Pilot C would have been $30,967,113.

CenterPoint's proposed budget for the Pilot C is $32,368,811.

While the Department cannot state definitively that this is the approach CenterPoint used to develop a potential budget for Pilot C, the Department does note Pilot C's proposed budget is $1.4 million higher than the minimum spend threshold for the pilot net of other related, specific project costs. The fact that CenterPoint stated in its letter to the Commission proposing to terminate Pilot A, that it will propose to reallocate those costs to Pilot C instead of removing them from the NGIA budget also provides some support for this hypothesis.

This coincidence led to the Department to ask some additional discovery regarding the Company's support for the four projects proposed in Pilot C. We wanted to verify that CenterPoint had identified one or more potential bidders for each of the four archetype projects included in Pilot C. The Department was also attempting to understand the potential production of any RNG projects the Company had identified.

Department Information Request No. 27. asked for the number of RNG developers that have production facilities in Minnesota. CPE stated that the RNG Coalition provides a database of current and in-progress RNG facilities on their webpage[43, 44]. Within Minnesota, the database currently includes three agricultural waste facilities of which one is operational, one planned food waste RNG project and one municipal solid waste facility. Based on CPE's response, the Department concludes that there is very limited availability of RNG within Minnesota.

The Department asked in Information Request No. 59 that the Company gauge the level of interest expressed for the four different archetypes. In response to subpart questions c, d, and e of that information request, CenterPoint stated that it had not had conversations with any developers on the topics of potential landfill or Wastewater RNG projects.[45]

As for food waste, in response to Department Information Request No. 27, CenterPoint said there is only one planned food waste project in Minnesota according to the RNG Coalition database. Furthermore, in response to part c, the company's consultant estimated the annual production potential by 2040 is expected to be between 307,000 Dth and 438,000 Dth. Center Point is proposing to procure 220,000 Dth in 2025 from this specific feedstock. It is worth noting that building an anaerobic digester facility is a capital-intensive project that can cost tens of millions of dollars. From discussions with Hennepin, Washington and Ramsey County staff, the Department learned their projects cost over a hundred million dollars. Thus, one would need substantial planning before such pilots can get off the ground.

The Department issued information request no. 84 with the goal of better understanding the support for the Company's proposed budget for the food-waste facility. In subpart a, the Department asked

[43] https://www.rngcoalition.com
[44] Attachment A.7 contains a copy of Department information request no. 27.
[45] Attachment A.8 contains a copy of Department information request no. 59.

CenterPoint to provide a list of third-party developers who have expressed an interest in selling RNG made specifically from Food Waste other than Hennepin and Ramsey/Washington Counties.[46]

The Company responded:

> *Two developers have expressed an interest in selling RNG made specifically from food waste, although no arrangements have been made to sell to CenterPoint Energy.*

Subpart b asked for the relevant emails/proposals or other forms of communications from any proposed developers. CenterPoint provided that information. According to that information, one of the potential developers anticipated their facility **[TRADE SECRET DATA HAS BEEN EXCISED].** No information regarding the second developer was included in the Company's response.

Subpart c asked for support for identifying the Food Waste Archetype facility as being designated as a medium sized facility (B) in the NGIA budget.

The Company responded:

> *CenterPoint Energy would like to clarify that the purchased Dth assumed for size B of pilot concept CNP05 would not necessarily be sources from a single facility. Rather, size B represents an estimated total Dth of RNG from projects using food waste as a feedstock purchased by CenterPoint Energy – in addition to the RNG purchased from Pilots A and B. As described in Exhibit D, Pilot C, under "Additional Information," this size was selected as part of the process of developing an assumed full portfolio of RNG purchases for the purposes of estimating GHG reductions and cost, but CenterPoint Energy does not anticipate that the RNG projects actually selected will exactly mirror those modeled. CenterPoint Energy's purchasing choices will be guided by the RFP responses actually submitted and the Company may buy more or less RNG from a given source depending on actual project-specific pricing, GHG intensity, and other project features as described in the RNG RFP (Exhibit Q).*

Based on Center Point's responses to these three information requests and stakeholder interactions, the Department concludes that it is reasonable to reduce the proposed budget for Pilot C's food waste project. The forecasted annual production of the one developer that has apparently provide project-specific information is **[TRADE SECRET DATA HAS BEEN EXCISED]** the amount CenterPoint identified in the archetype.

We explain the rationale used to develop the revised budget alternatives in the following section.

[46] **TRADE SECRET** Attachment A.9 contains the Company's response to Department information request no. 84.

3. Department budgets for RNG Pilots

The Department's adjusted budget for Pilot C is based on its concerns regarding the limited interest from potential developers. Table 14 summarizes the information the Department has reviewed regarding the potential number of participants in the pilot by archetype.

TRADE SECRET Table 14 – RNG Pilot C – Budgeted participants vs. Interested Parties to Date

Archetype	CPE Budget Est.	Contacts to Date	Notes
Wastewater	1	0	limited number of sites, no interest to date
Dairy Manure	1	2	limited information on those entities
	[TRADE SECRET DATA HAS BEEN EXCISED]		
Food Waste			
Landfill Gas	1	0	limited number of sites, no interest to date

The results in Table 14 support removing either the wastewater or landfill gas project budgets, or both projects and budgets. Interest in the dairy manure archetype is higher, at least according to CenterPoint, than for the other types of projects. The Department recommends retaining the existing RNG volume for this archetype. The one potential bidder the Company identified in the food waste category is an existing facility in **[TRADE SECRET DATA HAS BEEN EXCISED]** and has forecasted annual production that is significantly less than the annual production CenterPoint included in its budget. The costs and production from that facility will not be anywhere near the $19.3 million budget identified for this project. The Department recommends lowering the food waste archetype budgeted amount significantly.

To estimate alternative incremental costs for the RNG pilots, the Department created two alternative scenarios. Under alternative 1 (Alt 1), the Department assumes CPE purchases up to 30 percent of its projected RNG volume as a bundled product (brown gas and the associated environmental credit) and the remaining percentage of its projected RNG volume as an unbundled brown gas (the developer retains ownership of the environmental attributes). Under alternative 2 (Alt 2), the Department assumes CPE purchases up to half of its projected RNG volume as a bundled product (brown gas and the associated environmental credit) and the remaining half of its projected RNG volume as an unbundled brown gas (the developer retains ownership of the environmental attributes). Both alternatives include all fixed costs and portfolio level costs as proposed by the Company in its initial filing. Tables 15 and 16 provide the Department's proposed budget alternatives 1 and 2 for Pilot C and all the RNG Pilots (A,B,C)

Table 15 – RNG Pilot C – Department Adjusted Budget

Line	Pilot Description	CPE Prop. Incremental	Dept. Adjusted Incremental Cost	Dept. Adjusted Incremental Cost

No.		Cost	- Alt 1	- Alt 2
1.	Wastewater Recovery Facility	$4,013,867	$0	$0
2.	Dairy Manure	$2,239,781	$828,760	$1,231,909
3.	Food Waste	$19,336,219	$6,124,891	$9,899,556
4.	Landfill Gas	$6,778,944	$0	$0
5.	Total RNG-related Costs	$32,368,811	$6,953,651	$11,131,465

Table 16 – RNG Pilots A, B and C – Department Adjusted Budget[47]

Line No.	Pilot Description	CPE Prop. Incremental Cost	Dept Adjust. Incremental Cost - Alt 1	Dept Adjust. Incremental Cost - Alt 2
1.	Hennepin County Organic Waste - RNG	$2,856,759	$977,782	$1,514,633
2.	Ramsey/Washington County Organic Waste - RNG	$10,160,058	$3,240,218	$5,217,315
3.	Archetype - Waste Water Recovery Facility	$4,013,867	$0	$0
4.	Archetype - Dairy Manure	$2,239,781	$828,760	$1,231,909
5.	Archetype - Food Waste	$19,336,219	$6,124,891	$9,899,556
6.	Archetype - Landfill Gas	$6,778,944	$0	$0
7.	Total RNG-related Costs	$45,385,628	$11,171,651	$17,863,413

Both Department alternatives:

- Remove the costs associated with the wastewater archetype;
- Remove the costs of the landfill gas archetype project;
- Retains the dairy manure archetype and food waste archetype projects.

[47] On January 3, 2024 CenterPoint filed a letter with the Commission notifying the Commission and other interested parties that it was proposing to remove the RNG – Hennepin County project from this roster. The Compan also proposed to transfer the budget for that project to the RNG – RFP project. The Company also stated it would provide an updated analysis in its reply comments. The Department didn't update its analysis given the incomplete information associated with the change. The inclusion of Pilot A in this table doesn't signify Department approval of the inclusion of those additional funds into Pilot C.

The removal of the wastewater and landfill RNG projects were due to the lack of developer interest. The dairy manure project was retained due to developer interest.
The Department's alternatives are more reasonable due to several reasons. Since developers retain ownership of some of the environmental attributes, they can generate additional revenue by selling the attributes during attractive market conditions. Subsequently, RNG projects can be more attractive from a financing standpoint. From talking to developers, the Department realized the bottle neck for a potential RNG developer is to find an off taker for its brown gas, not the environmental attributes. Secondly, as the Company has been unable to find RNG projects that can guarantee the delivery of specific volumes of RNG for Pilot C (unlike Pilots A and B), it is not clear that the incremental costs proposed by CPE will be met. The Department's alternative scenarios are more likely to be met as they assume the incremental cost for RNG is lower for food waste and dairy manure projects. Finally, under the Department's proposal, there is more reasonable distribution of costs between CPE ratepayers and project developers for the same amount of RNG development. RNG is nearly five times more expensive than fossil natural gas and thus the more it's procured, the more will be the burden on ratepayers. The Department's alternative strikes a balance and identifies an approach whereby local RNG development can be incentivized while simultaneously keeping the burden on ratepayers lower than it would have been under the original proposal.

3. Recommendations on RNG Proposed Budgets

The Department recommends:

- Pilot B be modified such that CPE is allowed to buy up to 30 percent or up to 50 percent of the environmental attributes associated with the RNG volume proposed for this pilot. The incremental cost for Pilot B should be according to either Department Alternative 1 ($3,240,218) or 2 ($5,217,315).
- Pilot C be modified as follows:
    - RNG Archetypes for Wastewater and Landfill not be approved unless CPE is able to provide justification for inclusion of these projects in the reply comments.
    - CPE is allowed to buy up to 30 percent or 50 percent of the environmental attributes associated with the RNG volume proposed for this pilot.
    - The incremental cost for Pilot C should be according to either Department Alternative 1 ($6,953,651) or 2 ($11,131,465).

The Department doesn't currently have a recommendation as to how whether the costs associated with Pilot A should be removed from the NGIA budget or be included in Pilot C's budget which is the course of action CenterPoint identified in its January 3, 2024 letter. The Department will review the Company's reply comments and its rationale for including that amount in the NGIA budget and provide a recommendation in our supplemental comments.

B. POWER TO HYDROGEN PILOTS

1. Introduction

CenterPoint is proposing to develop Power to Hydrogen under two Pilot Programs.

- Pilot D – CenterPoint proposes to own and operate a 1 MW green hydrogen plant at an existing Company facility in Mankato, Minnesota. The Company proposes to blend the hydrogen it produces into the existing gas distribution system.
    - The Company modeled pilot costs at 3 different levels.

Size A	Assumes no grid electricity used to supplement dedicated solar power input.
Size B	Assumes grid electricity to power the electrolyzer when solar PV is not generating power.
Size C	Assumes battery storage with increased solar PV capacity

    - The Company's preferred choice was Size B and once operational, the facility is expected to produce 21,160 Dth/year.
    - 80% of the electricity required would be purchased from the grid while 20% would be produced by the solar panels installed on site.
    - The pilot involves a utility capital investment of $3.5 million and an incremental cost of $ 5.07 million.
    - The Hydrogen produced will have a levelized cost of $66.19/Dth.[48]

- Pilot E – CenterPoint proposes identify a small number of large commercial or industrial customers who might be interested in installing either power-to-hydrogen or carbon capture demonstration projects and support their projects by providing financial assistance towards feasibility studies and project costs.
    - Based on the Company's proposed pilot size, CenterPoint expects to have one customer participate in the power-to-hydrogen component of this pilot.
    - The Company would offer incentives that cover a portion (100% up to a max of $1.5 million) of the electrolyzer installation costs.
    - The participant would have to displace their existing natural gas usage and use the Hydrogen they produce as a fuel. CPE assumes 42,851 Dth of natural gas will be displaced annually by the Hydrogen produced.
    - CenterPoint has not identified any potential participant for this pilot.
    - The pilot involves no utility capital investment from CPE.
    - The incremental cost for this pilot is $1.8 million.

The Department will provide its review of the carbon capture component of Pilot E in a subsequent section of these comments.

2. Department Analysis

[48] This is equivalent to $7.55/kg of Hydrogen and $225.84/MWh. See CPE Response to DOC Information Request 50 in Attachment A.10 for supporting calculations.

While both the pilots involve power-to-hydrogen as a resource, they have very different structures, learning objectives and proposed funding mechanisms. Thus, the Department analyzed each pilot separately.

a) Pilot D

This pilot is part of a broader strategy from CenterPoint whereby the Company plans to blend Hydrogen with Natural gas in its distribution system to reduce the average carbon intensity of the fuel mixture. The Department looked at three aspects of this strategy: i) Lessons from existing pilots by CPE; ii) Cost Effectiveness and iii) Relevance of the blending strategy in the wider decarbonization conversation.

i) Lessons from existing pilots by CPE

The Company has an existing Green Hydrogen unit in downtown Minneapolis that has been operational since June 2022[49]. The existing unit was approved during CenterPoint's last rate case.[50] The Company projected the unit would produce 20,000 Dth of Hydrogen annually. In the Company's response to Department Information Request 52, CPE provided monthly Hydrogen production at the downtown Minneapolis unit. Between August 2022 and August 2023. The facility has produced 2,027 Dth of Hydrogen or 10 percent of the unit's projected output over the past year.[51]

While the Department acknowledges that there is inherent value in continuing to study implementation of hydrogen blending the Department has concerns that proposing to build a second Hydrogen facility when the Company has operated its existing unit at 10 percent of its capacity is premature. It is not clear if there are significant problems with the design or operation of CPE's existing facility which has led significant actual under production over the past year when compared to the production the Company forecasted. The Department recommends a thorough review of causes of the poor performance at the existing facility before moving forward with a second demonstration pilot. If the source of the poor performance is related to the design of the facility, then the Company should work with the manufacturer to help resolve those design flaws. If the unit's poor performance is due to operational issues then CenterPoint should determine the cause of those operational failings and rectify them before being allowed to pursue additional investment in a second power-to-hydrogen facility.

[49] See media announcement from CenterPoint at https://sustainability.centerpointenergy.com/centerpoint-energy-launches-green-hydrogen-project-in-minnesota/
[50] See Docket No. G-008/GR-21-435.
[51] See Attachment A.11 for a copy of Department information request no. 52.

ii) Cost Effectiveness

The NGIA Statute directs the Commission the evaluate the cost effectiveness of each resource and compare it to the cost effectiveness of other resources that can be deployed through the Innovation Plans. According to the Company's response to Department Information Request 4, the estimated cost per Dth for RNG is $24 for Pilots A and B and $21.75 for Pilot C.[52] A comparison of those estimated costs with Pilot D's levelized cost of production is $66/Dth[53]. The current cost estimates show that Hydrogen produced at CPE's proposed facility will be approximately three times more expensive than the RNG it may be able to purchase. The Department concludes that the proposed Pilot is significantly less cost effective relative to other pilots in the Innovation Plan as currently proposed. The Department notes that since the time of this filing the U.S. Treasury Department has released draft rules[54] on the production tax credit (PTC) for clean hydrogen ("45V") that was created under the Inflation Reduction Act (IRA). We believe that this production tax credit could be leveraged to substantially lower the cost of hydrogen production and improve the potential performance of this proposed pilot, if the pilot is designed to capture some or all of the available PTC. CPE should provide information in their reply comments regarding the ability of the pilot to capture the PTC and a revised cost estimate that incorporates the federal incentives.

(b) Pilot E

This pilot is focused on large commercial and industrial customers who should fully understand the benefits and risks of using Hydrogen in their existing process/technological set up. Since such customers would have the ability to produce the Hydrogen onsite, it removes a number of the challenges that arise if hydrogen is introduced onto the gas distribution system. Furthermore, such customers would be expected to invest in equipment upgrades necessary to ensure safety and reliability for their employees and the public. The Department thus supports this pilot's goal.
The Department was however disappointed by the limited outreach CPE has conducted till now which is expected to reduce the likelihood of success of this pilot. According to CPE's response to Department Information Request 14,

[TRADE SECRET DATA HAS BEEN EXCISED]

As the Company points out, two entities who are **[TRADE SECRET DATA HAS BEEN EXCISED]** are not eligible. Thus, the success of the pilot depends on preliminary interest shown by only a single potential participant. Given this limited interest in this pilot, the Department would have expected CPE's NGIA team to reach out to **[TRADE SECRET DATA HAS BEEN EXCISED]** and gauge their interest and seriousness in participating in the pilot. Such a step is crucial to right size the pilot and provide crucial details to evaluate its appropriateness. Absent these efforts, the Department considers the Company's efforts inadequate to ensuring success of Pilot E. However, the idea behind Pilot E is in the right direction and the Department supports its approval while simultaneously raises doubts about its

[52] See Attachment A.1 for a copy of Department information request no 4.
[53] See CPE's response to Department's Information Request 50 in Attachment A.10.
[54] Federal Register :: Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election To Treat Clean Hydrogen Production Facilities as Energy Property

success due to limited outreach by the Company. The Department recommends that this aspect of Pilot E be limited to one customer.

3. Department Recommendations Power-to-Hydrogen Pilots

The Department's recommendations are as follows:

- Pilot D be rejected due to the poor performance of CenterPoint's existing electrolyzer and the pilot's current structure.
- The component of Pilot E that is related to a power-to-hydrogen project for an industrial or large commercial customer be approved with the budget set for one customer.

C. CARBON CAPTURE PILOTS

1. Introduction

CenterPoint Energy (CPE or the Company) is proposing to develop Carbon Capture under four Pilot Programs, summarized as follows:

- Pilot E – This pilot encompasses two separate technologies – power-to-hydrogen and carbon capture. The target audience for this pilot are industrial and large commercial customers. The Department completed its review of the power-to-hydrogen component of this pilot in the previous section. The Department recommended approval of that aspect of Pilot E.
- Pilot F – CPE will hire a vendor to conduct surveys of participating industrial and large commercial facilities for methane and refrigerant leaks behind the customer gas meter. CPE will also offer incentives to partially offset the cost of leak repair.
    - CPE proposes to target 25 new facilities per year for the first two years based on the proposed size of this pilot.
    - CPE would fund 25 surveys every year that will cost on average around $7,500 each to identify and quantify behind the meter methane leaks, as well as planning support to establish a systematic leak repair program.
    - CPE will provide a total incentive of $37,676 for the first two years or approximately $1,500 per participant.
    - The utility cost towards NGIA Budget of the pilot including portfolio costs is $1,247,651[55].
    - The Company assumes each participant in this pilot will save 301 Dth or 0.25% of their average gas consumption.
- Pilot G – CPE proposes to purchase carbon offsets from local non-profit, Green Minneapolis. Green Minneapolis planted trees in Minneapolis between 2019 and 2021 and registered these as City Forest Credits. CPE proposes to purchase these existing credits and retire them.
    - CPE will purchase and retire 4,500 carbon credits over 5 years through this pilot.
    - The expected price per credit, averaged over 5 years is $54 per carbon credit.

[55] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P

- The utility cost towards NGIA Budget of the pilot including portfolio costs is $329,301[56].

- Pilot H – CPE proposes to provide rebates to commercial customers that install CarbinX carbon capture systems manufactured by Canadian company CleanO2. These units connect to existing natural gas heating equipment, capture CO2, and convert it into chemicals that are resold for commercial uses.
  - CPE has previously installed CarbinX units through its Energy Conservation and Optimization (ECO) program.
  - Customers would own and operate their CarbinX units.
  - CPE estimates 325 participants would install the CarbinX unit through this pilot. The Company also expects an additional 15 units to be installed through Pilot 20 (Pilot O).
  - Total upfront costs are estimated to be $39,000 for the participant, including the purchase of CarbinX unit and installation costs.
  - In years 1 - 3, CPE plans to offer an $8,000 rebate for initial installations, and a $3,000 rebate for a customer's subsequent installations at additional sites. CPE assumes 60% of incentives will go to first time installations, and 40% to subsequent installations, resulting in an average of $6,000 rebate per installation.
  - The utility cost towards NGIA Budget of the pilot including portfolio costs is $1,303,022[57].

2. Department Analysis

Pilot E

Regarding the carbon capture component of Pilot E, the Department information request no. 16 asked a series of questions about; 1) the number of potential customers for this pilot; 2) if there were any examples in Minnesota where carbon capture technology is in use for concrete production, and 3) the potential costs per customer the Company anticipated.

CenterPoint responded and the responses were the following:

> *a. CenterPoint Energy has not yet identified specific facilities as candidates for this pilot. A scoping study is proposed as a first step in Pilot E (Industrial or Large Commercial Hydrogen and Carbon Capture Incentives) to aid in identifying and selecting viable projects. This study would occur in the first year of plan implementation.*
>
> *b. CenterPoint Energy has not shortlisted specific customers but has corresponded with one or more customers who have expressed interest as detailed in Department of Commerce Information Request 14, Attachment 3.*
>
> *c. In addition to the interested customers noted in b., CenterPoint Energy is aware that a number of its customers have set aggressive GHG reduction*

[56] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P
[57] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P

> *goals, and this pilot may assist a variety of Minnesota businesses in meeting these goals.*
>
> *d. The Company is not aware of projects or companies in Minnesota utilizing carbon capture in concrete production.*
>
> *e. The Industrial or Large Commercial Hydrogen and Carbon Capture Incentives pilot combines two similar shortlisted (archetype) projects. To aid in project identification and selection, CenterPoint Energy will conduct a scoping study in the first year of the Plan. The pilot is expected to serve two customers.*
>
> *f. While CenterPoint developed assumptions for the pilot based on captured carbon used in concrete production, the pilot would be open to other potential uses for the captured carbon. CenterPoint Energy plans to pay 20 percent of upfront feasibility study costs, up to a maximum of $30,000 and 100 percent of capital costs for installation, up to a maximum of $1.5 million for a single project.*
>
> *g. . . . Because the societal perspective includes unquantified costs and benefits, CenterPoint Energy is not able to identify a numerical tipping point where a pilot or measure would no longer have net positive benefits from a societal perspective.*
>
> *h. CenterPoint Energy asked ICF to complete a national search for regulatory filings by gas or combined electric and natural gas utilities mentioning or proposing projects similar to the Carbon Capture Archetype for Industrial or Large Commercial Facility pilot, but ICF did not identify any similar projects by other gas or combined electric and natural gas utilities. There may be projects similar to the Carbon Capture Archetype for Industrial or Large Commercial Facility pilot of which CenterPoint Energy is not aware.*

The Department checked Trade Secret Attachment 3 of the Company's response Department IR #14 that is referenced in CenterPoint's response to subpart b. CenterPoint **[TRADE SECRET DATA HAS BEEN EXCISED]** interested in the Carbon Capture aspect of this pilot.

The Department also notes that the Company is planning to perform a scoping study in the first year of the pilot to aid in identifying viable projects. At the same time CenterPoint's consultants could not identify another gas or combined electric and gas utility that has a similar program in the United States.

Pilot E is similar to several other pilots we have reviewed in that the market participants CenterPoint has identified haven't yet adjusted to the fact that the passage of the NGIA has created a pool of funds available for these types of projects. The market has not yet responded to this new legislative subsidy. The Department is confident however that the market or markets will respond quickly to these new

financial incentives and CenterPoint will likely be able to identify developers and vendors in its next annual update or a subsequent update.

Thus, the Department is confronted with the same question – What is the appropriate level of funding for a pilot that has very limited or no customer interest. As noted previously, the Department's funding criterion is that the Company has identified at least one eligible customer that is interested in participating in the pilot. Given that CenterPoint **[TRADE SECRET DATA HAS BEEN EXCISED],** the Department recommends the Commission wait until the second year of the Plan to consider funding this aspect of the pilot. The Department also recommend that the scoping study CenterPoint is proposing to complete in year 1 of the Planning period be transferred to the Research and Development budget and approved within the context of that budget once CenterPoint has identified its costs.

Pilot F

The Department asked CPE to provide details of its communication and outreach to understand the extent of potential interest in this pilot. Unfortunately, in the Company's response to Department Information Request 15, CPE said that the Company has "*not shortlisted specific customers but has corresponded with one or more customers who have expressed interest as detailed in CenterPoint Energy's response to Department of Information Request 14, Attachment 3*".[58] In that **TRADE SECRET** response included in the cited IR response, , the Company stated:

[TRADE SECRET DATA HAS BEEN EXCISED]

The Department also asked[59] about any similar leak detection pilots in the United States that the Company is aware of. In response, the Company stated:

> *CenterPoint Energy asked ICF to complete a national search for regulatory filings by gas or combined electric and natural gas utilities mentioning or proposing projects similar to the Industrial Methane and Refrigerant Leak Reduction pilot, but ICF did not identify any similar projects by other gas or combined electric and natural gas utilities.*

The Department asked the Company to justify that there will be any potential participants in this pilot. In response, CPE stated:

> *[A]n RFI respondent indicated that it has included the Methane and Refrigerant Leak Reduction as a measure in current utility program offerings in seven states.*

To summarize, the Company received potential interest from only one participant and concluded that it will be able to find 50 participants who would participate in the pilot without any further outreach. The Company has not undertaken any additional effort to understand the potential interest among its current commercial and industrial customers to estimate a realistic budget for this pilot. The emission savings calculations are hypothetical and not based on any Minnesota specific facility. While the idea of

[58]See Attachment A.13, CPE response to Department information request no. 15, subpart b.
[59] See Attachment A.13, CPE response to Department Information Request 15.i.

the pilot is in the right direction, the effort put in by the Company to develop the concept into a realistic pilot with reasonable budget is inadequate. Given the meager potential interest shown by participants in this pilot, the Department recommends CPE provide revised cost estimates for the pilot assuming 10 participants in each year, for the first two years.

CPE estimated that the utility cost towards NGIA Budget of this pilot including portfolio costs is $1,247,651. This cost was for 50 participants. Since the Department recommends scaling the pilot down to 20 participants, the utility cost towards NGIA Budget of this pilot including portfolio costs should be reduced to roughly 40 percent of its proposed amount or $499,061.

Pilot G

As part of this pilot, CPE proposes to purchase and retire 4,500 carbon credits for trees that were planted in Minneapolis between 2019 and 2021. Thus, the funding would go towards existing trees that are already growing in Minneapolis and absorbing CO_2. The proposal does not lead to any additional trees being planted anywhere in CPE's service territory. It is only meant to help CPE claim ownership of these carbon reductions but does not produce any additional carbon reductions in the state.

In the world of carbon offsets, a key concept to understand is "additionality". Greenhouse gas (GHG) reductions are additional if they would not have occurred in the absence of a market transaction for the associated carbon credits. If the reductions would have happened anyway – i.e., without any prospect for project owners to sell carbon offset credits – then they are not additional. Since the trees were planted in 2019 and 2021 and were not contingent on CPE buying the associated credits through NGIA funding, it cannot be considered additional at this stage. Additionality is essential for the quality of carbon credits – if their associated GHG reductions are not additional, then purchasing credits in lieu of reducing a company's emissions will make climate change worse.

The carbon credits CPE is proposing to buy through this pilot are not additional and thus should not be allowed by the Commission. Such a transaction does not lead to lowering of Minnesota's GHG emissions and is not the intent of the NGIA statute. The Department recommends CPE modify this pilot to ensure additional trees are planted in areas with conditions of project-defined high inequity to trees, such as at schools, affordable or subsidized housing, formerly redlined neighborhoods, areas with high property vacancy rates, or areas with high proportion of renters. Absent such a modification, the Department recommends Pilot G in its current form be denied.

The Department still considers the carbon offset technology as a possibility for decarbonization efforts within the NGIA. Pilot G's specific project attributes do not make it a reasonable project to fund via the NGIA.

Pilot H

The NGIA statute clearly states that investments that can be reasonably included in the natural gas utility's Triennial Plan under section 216B.241 should not be included in the NGIA Innovation Plans.[60] Additionally, the Commission's September 12, 2022 Order in the NGIA Framework Docket[61], states that

[60] Minnesota Statutes §216B.2427 subd. 1(f)
[61] Docket No. G-999/CI-21-566.

to be eligible for inclusion in Innovation Plans, the utility must demonstrate that its investments are neither currently included nor can be reasonably included in their Triennial Plans. The Department believes that Pilot H has not demonstrated compliance with either of these requirements.

For example, under the Carbon Capture Rebates Pilot for Commercial Buildings, CPE stated, "CenterPoint Energy has installed four CarbinX units through CIP but savings information is not yet available to report." Therefore, CPE has previously supported CarbinX research through its ECO portfolio. Additionally, CPE has not clearly demonstrated why CarbinX could not be reasonably included in its 2024-2026 ECO portfolio.

Based on the Deputy Commissioner's December 1, 2023 Decision approving CPE's 2024-2026 ECO Triennial Plan (Docket No. G008/CIP-23-95), Table 17 shows CPE's approved ECO R&D budget for 2024-2026 program years. The table highlights that CPE is significantly below the ECO R&D spending cap, meaning that the Company does have potential additional ECO R&D budget available that could be used for research efforts during 2024-2026 program years.[62]

Table 17: CPE's 2024-2026 Planned vs Maximum ECO R&D Spending

Year	R&D Budget	R&D Spending Cap	Additional R&D Spending Possible
2024	$ 400,000	$5,673,121	$5,273,121
2025	$ 400,000	$6,002,710	$5,602,710
2026	$ 400,000	$6,341,689	$5,941,689

Based on the Department's analysis of this pilot, the statutory requirements outlined in the NGIA statute, and the order points contained in the Commissioner's September 12, 2022, Order[63], the Department concludes that Pilot H is not eligible for inclusion in the Innovation Plan and should be rejected by the Commission.

At the same time, the Department notes that if CenterPoint wishes to proceed with Pilot H, that project may be eligible for funding under the Company's ECO R&D spending.

3. Department Recommendations

Based on the Department's review and analysis, the Department's recommendations are as follows:

- Pilot E's Carbon Capture component be modified such that:
    - the proposed scoping study that will be completed in year 1 of the Plan be classified as R&D spending;
    - any budgeted amounts beyond the cost of that study be removed from the NGIA budget until the Company has provided additional information on applicable cost-effectiveness of the technology; and

[62] Minnesota Statutes §216B.241 subd. 2(e) states that up to 10% of an investor-owned utilities' total energy conservation improvement spending may be spent on R&D projects that meet the definition of an energy conservation improvement.
[63] Docket No. G008/CIP-23-95

- the Company has identified one or more customers interested in participating in the carbon capture component of Pilot E.

- Pilot F be modified and its budget reduced to what would be required for supporting 10 participants in each year for the first two years of the NGIA Plan.
- Pilot G not be approved. The Commission should ask CPE to modify this pilot to ensure the spending through this pilot ensures additional trees are planted such that the GHG emission reductions are additional.
- Pilot H as currently structured not be approved.

D. DISTRICT ENERGY PILOTS

1. Introduction

CenterPoint is proposing to develop District Energy under three Pilot Programs.

- Pilot I – CenterPoint Energy proposes to develop a new networked geothermal system to provide building heat and cooling for a neighborhood currently served by the Company.
  - CenterPoint Energy would own and operate the geothermal shared loop system, which would be installed in phases over the 5-year program period.
  - Entire sections of the neighborhood(s) would be shifted off the natural gas distribution system at the same time.
  - In addition to converting gas space and water heating to ground source heat pumps drawing on the shared loop, any other gas appliances would be converted to electric appliances.
  - The pilot program would cover all upfront costs for customers, requiring only a roughly 5% co-payment / participant fee from customers in the participating neighborhood.
  - Of the three sizes modeled, CPE chose the largest size for this pilot that is expected to provide 1,000 Ton heating/cooling capacity over the 3 years of its operation.
  - The utility cost towards NGIA Budget of the pilot including portfolio costs is $11,625,764.[64]
  - CPE stated that there is significant uncertainty in the costs and savings that would result from this pilot, and a more detailed study is required.
- Pilot J – CenterPoint Energy proposes a two-part pilot to help existing district energy systems that currently use geologic gas, to identify opportunities to reduce the lifecycle GHG impact of their systems.
  - First, CenterPoint Energy proposes to support customers who hire expert engineering firms, or similar, to complete feasibility studies to identify decarbonization opportunities.
  - Second, CenterPoint Energy would support customers in implementing GHG reduction projects that deploy NGIA innovative resources.
  - CPE identified two potential participants for this pilot.
  - CenterPoint Energy proposes to pay 20 percent of feasibility study costs up to $30,000.

[64] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P

- CPE proposes to pay a rebate equal to between $10/Dth and $25/Dth of annual geologic natural gas savings for measures installed through this pilot up to $1.5 million per project.
- CenterPoint Energy assumed a total cost per customer of $2,475,000 but expects total costs to vary significantly between projects depending on specific project scope, design and size.[65]
- CenterPoint Energy intends to aim this pilot at district energy systems that are powered by fossils fuel. Participating systems will not satisfy the statutory definition[66] prior to implementation of decarbonization measures and may not satisfy it after completing projects, depending on what measures they undertake. If it does not satisfy the statutory definition, CPE will reclassify the projects as electrification, energy efficiency or other innovative resources.
- The utility cost towards NGIA Budget of the pilot including portfolio costs is $597,909.[67]

- Pilot K – CenterPoint Energy proposes a two-part pilot to help current natural gas customers considering developing district energy systems.
  - First, CenterPoint Energy proposes to support customers who hire expert engineering firms, or similar, to complete feasibility studies for new district energy systems.
  - Second, CenterPoint Energy would support customers in developing new district energy systems.
  - CPE estimates two potential commercial and industrial customers will be served by this pilot.
  - CenterPoint Energy proposes to pay 50 percent of the cost of an engineering study, up to $10,000.
  - CenterPoint Energy proposes to pay a rebate equal to between $10/Dth and $25/Dth of annual geologic natural gas savings for measures installed through this pilot, up to $1.5 million per project.
  - CenterPoint Energy assumed a total project cost per customer of $12,375,000.
  - CenterPoint Energy would allow participation by customers that intend to use systems in a single building although it does not meet the definition of district energy in Minn. Stat. §216B.2427 subd. 1(e). In such cases, the Company intends to classify the project as strategic electrification.
  - The utility cost towards NGIA Budget of the pilot including portfolio costs is $215,644.[68]

2. Department Analysis

<u>Pilot I</u>

[65] See Attachment A.14, CPE's response to Department information request 19 part d.
[66] Minnesota Statutes §216B.2427 subd. 1(e) states: "District energy" means a heating or cooling system that is solar thermal powered or that uses the constant temperature of the earth or underground aquifers as a thermal exchange medium to heat or cool multiple buildings connected through a piping network.
[67] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P
[68] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P

To develop cost estimates for a networked geothermal pilot, CPE provided a breakdown of costs from National Grid's Boston Gas Company. The Department thus started its review by examining the demonstration program submitted by Boston Gas Company[69] to understand the steps a utility should take to come up with a reasonable proposal for such a system.

A robust technical and economic feasibility study for a Network Geothermal system should delve into various critical aspects to ascertain its functionality and cost implications. Firstly, the technical assessment should encompass a detailed site analysis, considering geological and hydrogeological conditions. The study must evaluate the suitability of the ground for drilling or excavation and assess local climate patterns to optimize the system's performance.

System design is a pivotal component, involving meticulous calculations of heating and cooling loads for diverse applications such as residential and commercial sectors. The selection of an appropriate ground loop type, whether horizontal, vertical, or pond/lake, is crucial for efficient energy exchange. Additionally, the study should explore various configurations of the geothermal heat pump system.

On the economic front, a comprehensive cost estimation is imperative, breaking down expenses into drilling/excavation costs, ground loop installation, heat pump equipment, and distribution system costs. It should consider potential incentives, rebates, or tax credits that might offset the initial investment. The study must provide a detailed analysis of the expected energy performance, comparing energy efficiency and savings with conventional heating and cooling systems. Operational considerations, such as maintenance requirements and lifespan, should be factored in, along with a thorough financial analysis, calculating payback periods and return on investment. Furthermore, the feasibility study should adhere to regulatory compliance, assess environmental impact, identify potential risks, and propose mitigation strategies. Stakeholder engagement, an implementation plan, and ongoing monitoring and evaluation mechanisms should also be integral components of the study to ensure the successful deployment and sustained efficiency of the Network Geothermal system. Collaborating with experts across various domains is essential to construct a comprehensive and accurate assessment.

Unfortunately, the Company's approach for putting together this proposal lacks all these crucial steps. Instead, CPE copied the calculations from Boston Gas Company's filing and scaled them up to a per ton estimate to generate cost predictions for Pilot I. The Department finds several issues with this approach to estimating costs of a networked geothermal system. The cost of implementing a networked geothermal system can exhibit substantial variation across locations due to a multitude of factors that are deeply rooted in the geological, climatic, regulatory, and economic characteristics specific to each region.

Firstly, geological and hydrogeological variations play a pivotal role in determining the feasibility and cost-effectiveness of a geothermal system. The type of subsurface formations, depth at which suitable temperatures are reached, and geological complexities can differ widely from one location to another. Conducting detailed geological surveys and drilling to assess these conditions can incur varying costs depending on the geological intricacies of the area.

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[69] Petition of Boston Gas Company d/b/a National Grid for Approval of a Geothermal District Energy Demonstration Program filed in Docket # 21-24 accessed at https://eeaonline.eea.state.ma.us/DPU/Fileroom/dockets/bynumber

Climate is another critical determinant. The local weather conditions influence the heating and cooling demands of buildings, impacting the design and size of the geothermal system. Colder climates may require deeper drilling or more extensive ground loops, while warmer climates may necessitate larger heat exchangers for effective heat dissipation. These climate-driven variations directly affect the overall cost of system installation.

The regulatory environment in different regions introduces another layer of variability. The permitting processes, environmental regulations, and local building codes can significantly differ, affecting both the installation procedures and associated costs. Areas with more stringent regulations or additional requirements may experience higher project expenses.

Labor and material costs, which vary across regions, are also substantial contributors to the overall cost discrepancy. Higher living costs, scarcity of skilled labor, or increased demand for geothermal expertise can escalate project expenses. Additionally, the availability and cost of materials needed for the installation, such as piping and heat exchangers, can differ based on local market conditions.

Energy prices in each location influence the cost-effectiveness of geothermal systems. In areas where conventional energy sources are relatively inexpensive, the economic incentive for adopting geothermal technology might be diminished. Conversely, in regions with higher energy prices, the long-term cost savings offered by geothermal systems can make them more attractive.

Access to equipment and expertise is another factor that contributes to cost variations. In regions where there is an established geothermal industry, access to specialized drilling equipment and skilled professionals may be more readily available and cost-effective.

Furthermore, the presence of incentives, rebates, and tax credits at the local and federal levels can significantly impact the overall cost of a geothermal system. Areas with more favorable financial incentives can make the technology more affordable for consumers, encouraging its adoption.

Finally, the scale of the project itself can affect costs. Larger projects, serving a greater number of buildings or homes through a networked system, may benefit from economies of scale, potentially reducing the cost per unit.

Considering the complex interplay of these factors, it becomes evident that the cost of implementing a network geothermal system is highly contingent on the unique conditions and circumstances present in each location. A comprehensive feasibility study that accounts for these variables is imperative for accurate cost estimation and the successful implementation of geothermal projects. Based on this understanding, the Department concludes that the estimates for this Pilot are speculative. Given the level of uncertainty with respect to feasibility and costs, the Department recommends that Pilot I be rejected by the Commission.

Instead, the Department proposes that CPE come up with a Pilot that is targeted to new construction (Greenfield or Brownfield sites). Instead of scaling the costs of an existing study, CPE should propose a comprehensive feasibility study for a networked geothermal system that encompasses a thorough analysis of geological, climatic, and environmental conditions, along with an assessment of the economic viability and consumer interest. The study should include a detailed system design, considering technology selection and load analysis. Cost estimation, risk analysis, and financial

modeling are essential components, providing insights into the economic viability of the project. An environmental impact assessment should be examined, and community engagement strategies should be outlined. Additionally, the feasibility study should explore alternative energy solutions, present findings in a comprehensive report, and offer fact based recommendations for decision-makers, ensuring a well-informed and strategic approach to the development of the networked geothermal system. Such an approach would help the Company meet the requirements set forth in Minn. Stat. §216B.2427 subd. 9.

Pilot J

The Department appreciates CPE's proactive engagement with potential participants for this pilot. However, the Department notes that funding for pilots and their subsequent cost recovery is contingent on Commission approval. In the Company's filing, CPE stated:

> *CenterPoint Energy engaged with Hennepin County who was seeking funding to support a decarbonization study for the Hennepin County Energy Center. As Hennepin County Energy Center is one of the largest users on CPE's system, this decarbonization study is aligned with the goals of NGIA and has potential to lead to projects that significantly reduce GHG emissions for this customer that would be eligible for incentives under this pilot. Accordingly, CenterPoint Energy plans to provide $30,000 in funding for this study prior to Plan approval and is requesting recovery as part of its NGIA Plan as a cost "to develop and administer programs" and has counted this cost towards our estimates for this proposed pilot.*[70]

The Department notes that utilities should not assume pilots would be approved and associated costs would be recovered before the Commission has issued an order to that effect.

Another issue arises with respect to the definition of "District Energy" in the NGIA Statute. Since Minn. Stat. §216B.2427 subd. 1(e) includes a specific definition of District Energy, pilots under this category should comply with the relevant definition. If the Company wants to invest in District Energy systems that are powered by fossils fuel and reclassify the pilot as strategic electrification or energy efficiency, the Company should provide a narrative to show why such a reclassification is reasonable. If such a reclassification of the pilot is proposed by CPE, and the pilot does include significant levels of energy efficiency and/or electrification, the Company must clearly demonstrate why such a pilot cannot reasonably be included in CPE's ECO Triennial Plan.

The Department asked the Company to provide details of potential customers who might participate in this pilot. In the Company's response to Department Information Request 19 part b, CPE stated[71]:

[TRADE SECRET DATA HAS BEEN EXCISED]

Based on the information provided by CPE in their filing, it is not clear if any of these candidates would meet the definition of district energy. It is also not clear if there is adequate amount of energy efficiency or electrification measures included in the pilot such that it can qualify under one of those innovative resources. Lastly, if the Company believes this pilot can be reclassified as energy efficiency

[70] Exhibit D of CPE's initial filing, Page 33 of 58.
[71] See **TRADE SECRET Attachment A.12.1.**

or strategic electrification, CPE has not demonstrated why such a pilot cannot be implemented in their ECO Triennial Plan. Based on the Department's analysis and review, the Department concludes that Pilot J is not eligible for inclusion in the Innovation Plan and should be rejected by the Commission.

Pilot K

The first issue arises with respect to the definition of "District Energy" in the NGIA Statute. Since Minn. Stat. §216B.2427 subd. 1(e) includes a specific definition of District Energy, pilots under this category should comply with the relevant definition. If the Company wants to invest in systems that are used by single buildings and reclassify the pilot as strategic electrification, the Company should provide a narrative to show why such a reclassification is reasonable. If such a reclassification of the pilot is proposed by CPE, and the pilot does include significant levels of electrification, the Company must clearly demonstrate why such a pilot cannot reasonably be included in CPE's ECO Triennial Plan.

The Department asked the Company to provide details of potential customers who might participate in this pilot. In the Company's response to Department Information Request 20 parts a and b, CPE stated[72]:

[TRADE SECRET DATA HAS BEEN EXCISED].

The Department also asked the Company to explain why the pilot is ineligible for the Company's ECO Triennial Plan. In the Company's response to Department Information Request 38 parts b, CPE stated[73]:

> *If costs are low enough, it is theoretically possible that certain similar projects as those envisioned for Pilot K would be eligible for custom rebates under CPE's 2024-2026 Eco Triennial plan*.

The Department notes that CPE did not explain what it means by costs being "*low enough*" in the above response. CPE also did not explain what caps, if any, would be breached if the project does not cost "*low enough*". Furthermore, in CPE's response to Department Information Request 20 part d stated: "*CenterPoint Energy expects total costs to vary significantly between projects for this type of system, depending on specific project scope, design and size*."

Based on the information provided by CPE in their filing, it is not clear if any of these candidates would meet the definition of district energy. It is also not clear if there is adequate amount of energy efficiency or electrification measures included in the pilot such that it can qualify under one of those innovative resources. Lastly, if the Company believes this pilot can be reclassified as energy efficiency or strategic electrification, CPE has not demonstrated why such a pilot cannot be implemented in their ECO Triennial Plan. Based on the Department's analysis and review, the Department concludes that Pilot K is not eligible for inclusion in the Innovation Plan and should be rejected by the Commission.

3. Department Recommendations

[72] See Attachment A.15 for a copy of Department information request no. 20 and **TRADE SECRET** Attachment A.12.1 for the TS response to IR 20, subparts a and b.

[73] See Attachment A.16 which contains Department information request no. 38 and CPE's response.

The Department recommends:

- Pilot I not be approved.
- CPE file a modified version of Pilot I that funds a feasibility study for a networked geothermal system for new construction on a greenfield or brownfield site.
- Pilot J not be approved as it is currently structured.
- Pilot K not be approved as it is currently structured.

E. STRATEGIC ELECTRIFICATION PILOTS

1. Introduction

CenterPoint proposes three electrification-focused NGIA pilot programs, summarized as follows:

- Pilot L – CenterPoint Energy proposes to provide support for industrial customers to electrify low-to medium heat processes using electric heat pump technologies.
  - CPE anticipates 3 industrial customers would participate in this pilot.
  - The study would be split up into 3 phases: equipment survey, installation and measurement.
  - CenterPoint Energy proposes 100 percent of capital costs for project installation, up to $1.5 million per facility.
  - CPE stated that there are limited examples of successful application of technologies included in this pilot, and customers are hesitant to apply them to their processes[74].
  - Although some participants may be eligible for Advanced Energy Production Credits under the IRA, 26 U.S.C. 48C, since CenterPoint plans to pay the full cost of the heat pumps and installation, participating customers would not be able to claim a credit if their project consists only of the new heat pump.
  - The utility cost towards NGIA Budget of the pilot including portfolio costs is $503,821[75].
- Pilot M – CenterPoint Energy proposes to provide support for commercial buildings interested in replacing existing Heating, Ventilation, and Air Conditioning ("HVAC") systems with hybrid system using electric heat pumps and gas backup. The pilot would focus on dual-fuel rooftop units, but may support installation of other hybrid heating systems (e.g., split system hybrid heat pumps).
  - CenterPoint Energy will hire a third-party vendor who will provide targeted customer outreach, technical support for project sizing and design, custom savings calculations, and direct installation of hybrid heating systems.
  - CenterPoint Energy proposes to pay customer incentives equal to 40 percent of hybrid heating system costs, up to $100,000 while the customer would pay remaining 60 percent of the vendor costs.

[74] Exhibit I in CPE's initial Filing in this Docket, Page 3 of 7.
[75] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P

- CenterPoint Energy estimates the total cost of the heating system conversion will be approximately $81,000 for an average participant and so the average rebate amount will be approximately $32,400.
- This pilot would be conducted in coordination with the Energy Technology Accelerator (ETA) Program within ECO, which has chosen hybrid rooftop units as one of its focus technologies.
- The utility cost towards NGIA Budget of the pilot including portfolio costs is $7,067,270[76].

- Pilot N – CenterPoint Energy proposes a three-phase pilot program to test a combination of deep energy retrofits and air-source electric heat pumps with gas back-up in a variety of residential building types.
  - This pilot proposal satisfies the requirement in Minn. Stat. § 216B.2427, subd. 8.
  - The three phases include study scoping & program design, demonstration projects and broader development.
  - CenterPoint Energy expects to pay the full cost of installed measures during the second phase.
  - For phase 3, CenterPoint Energy assumed rebates of $16,933 per single family home participant and $115,000 per multi-family building participant, which is equal to 25 percent of estimated project cost.
  - Amount of federal funding participants will be eligible for is unknown at this time. CenterPoint Energy will reevaluate the likelihood of participant tax credits and/or rebates prior to launch of Phase 3 and include updated information in its first annual NGIA status report.
  - CPE estimates there will be 238 participants in this pilot (204 single family homes and 34 multifamily homes)
  - The utility cost towards NGIA Budget of the pilot including portfolio costs is $13,616,532[77].

[76] As reported in Worksheet titled “Innovation Plan Summary” in Exhibit P
[77] As reported in Worksheet titled “Innovation Plan Summary” in Exhibit P

2. Department Analysis

Pilot L

The Department started its review of this pilot by inquiring about potential participants. CPE anticipates only 3 customers will participate initially and acknowledges that there is hesitation with respect to customer adoption of these technologies. The Department hoped for some preliminary indication from at least one industrial customer who is planning to participate in the pilot. However, in CPE response to Department Information Request 21,[78] the Company stated that it "*has not yet identified specific facilities as candidates for this pilot.*" A lack of outreach on behalf of CPE to find potential participants for this pilot makes the Department skeptical of the pilot's chances of success, especially considering other pilots targeting industrial customers where the Company did provide details of customer interest.

It is also worth noting that the current pilot design, whereby CPE would cover the full cost of heat pump installation, means that the participants would not be eligible for IRA incentives. The Department supports maximizing the use of federal funds through sources like the IRA to reduce rate payer burden. Unfortunately, CPE's pilot design ensures the use of federal funding is minimized in this pilot.

CenterPoint stated that the Company did not include any electrification measures in its ECO Triennial Plan and felt the technologies included in this pilot were at nascent stages[79]. The Department notes that CPE does provide rebates for electrification measures in its current ECO Triennial Plan.[80] Other utilities have also included electrification measures, including heat pumps in their ECO Triennial Plan.[81]

Additionally, CPE's ECO Triennial Plan includes R&D budget to research, develop, test, and integrate new technologies.[82] CPE has used this venue to research various ECO-related measures. As pointed out for Pilot H, there is significant room for additional spending on R&D projects through CPE's 2024-2026 ECO Triennial Plan.

The NGIA statute clearly states that investments that can be reasonably included in the natural gas utility's Triennial Plan under section 216B.241 should not be included in the NGIA Innovation Plans.[83] Additionally, the Commission's September 12, 2022 Order in the NGIA Framework Docket[84], states that to be eligible for inclusion in Innovation Plans, the utility must demonstrate that its investments are neither currently included nor can be reasonably included in their Triennial Plans.

[78] Attachment A.17 contains a copy of Department information request no. 21 and CPE's response.
[79] Exhibit I of CPE's Initial filing, Page 3 of 7.
[80] See CPE's Triennial Decision, issued 12/01/23 in docket no. G-008/CIP-23-95, Pages 67-68.
[81] Otter Tail Power (E017/CIP-23-94), and Xcel Energy (E,G002/CIP-23-92) that have electrification measures in their ECO Triennial Plan.
[82] Minnesota Statutes §216B.241 subd. 2(e) states that up to 10% of an IOU's total energy conservation improvement spending may be spent on R&D projects that meet the definition of an energy conservation improvement.
[83] Minnesota Statutes §216B.2427 subd. 1(f)
[84] Docket No. G-999/CI-21-566

Based on the Department's analysis of this pilot, the statutory requirements outlined in the NGIA statute, and the order points contained in the Commissioner's September 12, 2022, Order, the Department concludes that Pilot L is not eligible for inclusion in the Innovation Plan and should be rejected by the Commission.

Pilot M

The Department started its review of this pilot by inquiring about potential vendors for the pilot. In CPE's **TRADE SECRET** response to Department Information Request 22 [85], the Company disclosed that the vendor for the pilot is **[TRADE SECRET DATA HAS BEEN EXCISED].** In its response, the Company also stated that CPE came up with the estimate of 135 participants for this pilot based on recommendations from the same RFI respondent. Largely the design of the pilot seems to follow the RFI response provided by same vendor.

Next, the Department reached out to the vendor to obtain more information about the proposed measures they were considering to be implemented through the pilot. Apart from installation of heat pumps, the vendor mentioned other measures that are complementary that can further reduce energy consumption and costs for the participant that would be considered. This made sense as savings from heat pump installations can be increased with other complementary strategies. Overall, the vendor explained that they would include additional efficiency measures so that the overall package of measures was cost-effective. The vendor is a well known service provider in this sector and has experience of working with other utilities in Minnesota including Xcel, MERC and GRE.

As the kind of measures being proposed in this pilot have significant overlap with measures that will be installed by other utilities through their 2024-2026 ECO Triennial plans, the Department asked about the overlap of this pilot with the Company's ECO portfolio. In CPE's response to Department Information Request 42,[86] the Company stated "*The 2024–2026 ECO plan could potentially support the equipment and installation component of commercial hybrid heating projects through custom efficient fuel switching ("EFS") rebates.*" The Company's primary reason for not including this Pilot in their ECO Triennial was based on the lack of cost-effectiveness of this program according to the Minnesota Test as per CPE's response to Department Information Request 43[87]. However, because similar measures are being bundled and provided by other utilities and the fact that the vendor explained that the overall package of measures will be cost-effective, the Department concludes that CPE has not clearly demonstrated why these measures could not be reasonably included in its 2024-2026 ECO portfolio.

The NGIA statute clearly states that investments that can be reasonably included in the natural gas utility's Triennial Plan under section 216B.241 should not be included in the NGIA Innovation Plans. Additionally, the Commission's September 12, 2022 Order in the NGIA Framework Docket[88], stated that to be eligible for inclusion in Innovation Plans, the utility must clearly demonstrate that its investments cannot be reasonably included in their Triennial Plans. Based on this Order and the

[85] **TRADE SECRET** Attachment A.18 contains a copy of Department information request, no. 22, which includes the attachment referenced.
[86] See Attachment A.19 which contains a copy of Department information request no. 42 and CPE's response.
[87] See AttachmentA.20 which contains a copy of Department information request no. 43 and CPE's response.
[88] Docket No. G-999/CI-21-566

Department's own analysis, the Department concludes that Pilot M is not eligible for inclusion in the Innovation Plan and should be rejected by the Commission.

Pilot N

The Department started its review of this pilot by inquiring about the RFI Responses that the Company used to create estimates for this pilot. In CPE's response to Department Information Request 23[89] NP – Attachment 5 and 6, the Company disclosed that the RFI respondents for the pilot are **[TRADE SECRET DATA HAS BEEN EXCISED].** The Department then reviewed the RFI Responses relevant additional details that helped understand better the potential scope, timeline, budget and levels of participation for the pilot.

[TRADE SECRET DATA HAS BEEN EXCISED]
[TRADE SECRET DATA HAS BEEN EXCISED]

Both the respondents who submitted RFIs included a clear description of what they were trying to achieve, at a reasonable level of participation combined with relevant budget estimates. However, CPE's pilot proposal, which was supposedly based on these RFIs, included more than double the number of participants and a substantially higher budget. There was no indication that CPE had performed any additional outreach to justify such high levels of participation in the pilot beyond what was proposed by the RFI respondents. Keeping the program budget within the bounds of what the RFI respondents submitted allows us to create realistic cost estimates that are achievable. Furthermore, in CPE's response to Department Information Request 41[90], the Company stated that the measures included in this pilot "*will be in the same technology class (e.g., insulation, other weatherization, air source heat pumps) as measures available through CIP.*" Thus, additional demand for the pilot measures could potentially be served through CPE's ECO portfolio if the need arises.

Based on its review the Department concludes the budget for Pilot N should be scaled back to $4,885,520. The pilot should be designed based on the proposed budget and participation levels in the two relevant RFIs. The Department notes that once modified as per the Department's recommendation, the Pilot will satisfy requirements of Minn. Stat. § 216B.2427, subd. 8.

3. Department Recommendation

The Department recommends;

- Pilot L not be approved.
- Pilot M not be approved.
- Pilot N be approved but modified by scaling its budget to $4,885,520.

[89] See **TRADE SECRET** Attachment A.21 which includes a copy of Department information request no. 23.
[90] See Attachment A.22 which contains Department information request no. 41.

F. ENERGY EFFICIENCY PILOTS

1. Introduction

CenterPoint proposes four energy efficiency focused NGIA pilot programs, summarized as follows:

- Pilot O – CenterPoint Energy proposes to expand its existing Natural Gas Energy Analysis ("NGEA") ECO offering to include identification of non-ECO GHG reducing opportunities for small and medium businesses.
  - This pilot satisfies the NGIA requirement in Minn. Stat.§ 216B.2427, subd. 6, which requires the Company to propose a pilot to provide thermal energy audits to small- and medium- sized businesses in order to identify opportunities to reduce or avoid GHG emissions from natural gas use.
  - Services proposed under this pilot will be offered at no additional charge to customers.
  - Participation levels chosen were chosen to align with ECO participation for next Triennial, which averages 240/year (220 in 2024, 240 in 2025, 260 in 2026)
  - CPE assumes 3 percent of audit recipients will want to implement an NGIA pilot, with those evenly split between commercial hybrid heating (pilot M) and commercial carbon capture (pilot H).
  - CPE proposed criteria to provide incentives to businesses that achieve significant emission reduction by implementing recommendations from the audit.
  - The utility cost towards NGIA Budget of the pilot including portfolio costs is $2,291,206[91].
- Pilot P – CenterPoint Energy proposes to fund the deployment and testing of space and water heating gas heat pump systems for residential customers.
  - The Pilot is expected to have 6 participants.
  - CenterPoint Energy proposes to pay the full cost of the units for participants.
  - The cost of installing each residential gas heat pump is $30,000[92].
  - While gas heat pumps generally are eligible for the energy efficient home improvement credit in 26 U.S.C. § 25C, because CenterPoint Energy proposes to pay the full unit cost, they do not expect participants to be eligible for the tax credit.
  - Thermal Heat Pumps (THPs) can replace residential furnaces and water heaters and are expected to achieve over 1.3 system Coefficient of Performance (COP) in laboratory conditions[93].
  - The utility cost towards NGIA Budget of the pilot including portfolio costs is $380,759[94].
- Pilot Q – CenterPoint Energy proposes to fund the deployment and testing of engine-driven and/or absorption gas heat pump systems in Minnesota commercial buildings.
  - The pilot will include phases: site identification, installation and measurement of results.
  - The Pilot is expected to have 3 participants.
  - CenterPoint Energy proposes to pay the full cost of the units for participants.

[91] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P
[92] Cell E168 on Worksheet "CNP21" in "Pilot details spreadsheet.xls" filed by CPE.
[93] Cell B242 on Worksheet "CNP21" in "Pilot details spreadsheet.xls" filed by CPE.
[94] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P

- The initial plan would be to target a multifamily building with gas boiler heat, a small commercial with gas boiler heat, and a recreational facility with high hot water usage.
- The cost of installing each commercial gas heat pump is approximately $117,000[95].
- Commercial gas heat pumps can contribute to eligibility for the Commercial Buildings Energy Efficiency Tax Deduction under 26 U.S.C. § 179D. However, because participants are not paying for the units installed, they would not be able to claim expenses associated with the heat pump as part of a deduction.
- Gas absorption heat pumps are included in the Minnesota ETA starter portfolio.
- The utility cost towards NGIA Budget of the pilot including portfolio costs is $749,442[96].

- Pilot R – CenterPoint Energy proposes to expand its existing C&I Process Efficiency program, which it will propose to continue in its 2024-2026 Triennial Plan, to include identification of non-ECO GHG reducing opportunities for industrial and large commercial customers.
  - The Company is not proposing to conduct extra audits, but instead enhance current number of audits funded through ECO.
  - The Company will focus on Electric heat pumps for certain process hot water needs, heat recovery opportunities and process efficiency improvements.
  - CPE estimates 10 audits will be completed each year and 1 of those participants will implement a GHG Reduction Pilot each year.
  - CPE proposes to pay a rebate equal to between $10/Dth and $25/Dth of annual geologic natural gas savings for measures installed through this pilot, up to $1.5 million per project.
  - The utility cost towards NGIA Budget of the pilot including portfolio costs is $950,286[97].

2. Department Analysis

<u>Pilot O</u>

Audits and surveys included in this pilot will help identify opportunities for reducing energy consumption and emissions. The current program design will help increase awareness about different solutions for decarbonization and increase participation in company programs, both in NGIA and ECO. As described by CPE[98], based on the NGEA ECO offering's historic participation levels since 2010, on average, the Company has had 116 NGEA Audits per year. Thus, the Company's projection of 240 audits a year seems overly optimistic. Based on more recent participation levels in 2021 and 2022, the Department expects a 17 percent lower participation level than what the Company has projected, which works out to around 200 participants per year is more reasonable[99]. Furthermore, since the Department recommended rejection of Pilot H and M, attribution of emission reduction to NGIA Pilots might be limited. However, the Department still supports Pilot O as it meets the statutory requirement

[95] Cell D137 on Worksheet "CNP22" in "Pilot details spreadsheet.xls" filed by CPE
[96] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P
[97] As reported in Worksheet titled "Innovation Plan Summary" in Exhibit P
[98] Exhibit I: CIP NGIA Coordination Information, Table 2 on Page 6 of 7
[99] In 2021, CPE conducted 194 audits, the highest number of audits since 2010. The Department picked 200 as this was the closest multiple of ten above the highest number of audits CPE has achieved since the inception of the program in 2010. Exhibit I: CIP NGIA Coordination Information, Table 2 on Page 6 of 7

outlined in Minn. Stat. §216B.2427, subd. 6 and helps meet the state's emission and energy reduction goals.

Based on its review, the Department recommends approval of Pilot O but that it be scaled down to serve 200 participants per year for the next 5 years of the NGIA Plan. The Department requests CPE to provide the relevant cost estimate in its reply comments for this pilot based on 200 participants per year for the next 5 years.

Pilot P

Gas heat pumps are part of the Minnesota Energy Technology Accelerator (META) program's starter portfolio.[100] The technology is still at an early stage of development and has not been recommended for program development yet. It is helpful to wait until existing evaluations are completed before piloting this technology as it can help prevent duplication of learnings across NGIA and META.

NGIA already includes a pilot for electric heat pumps with gas back up and electric heat pumps are a more mature technology with significantly higher levels of adoption. In addition, electric heat pumps with gas back up can have a significant higher COP, with estimates at 3.5 COP during shoulder months[101]. Given electric heat pumps are more cost-effective, have higher adoption rates, and are already included in Pilot N within this Innovation Plan, the Department concludes that it is not reasonable to fund a separate pilot for gas heat pumps. Furthermore, the current program design fails to leverage any federal dollars and would place an additional financial burden on ratepayers compared to installing electric heat pumps. Based on its review and analysis, the Department recommends that Pilot P be rejected at this stage.

Pilot Q

Gas heat pumps for commercial buildings proposed in Pilot Q suffer the same challenges as gas heat pumps for residential buildings (as proposed in Pilot P). Since this technology is at an early stage of development, there are multiple unknowns. Customers might hesitate to adopt this technology. However, commercial customers in general might be better able to understand the risks involved with a new technology given an assumed higher level of sophistication. and the implementation of this pilot could also help the Company learn more about this technology. More importantly, the Company does not have any other pilot in its Innovation Plan targeting the heating needs of this specific customer class.

Since CPE proposes to pay the full installation cost, the participant will be unable to utilize any federal funds. Instead, the Department proposed CPE cover a portion of the installation costs such that the use of federal funds can be maximized. The Department recommends Pilot Q be approved with modifications to ensure maximal utilization of federal funds to cover installation costs.

[100] See April 15, 2022 Filing in Docket No. E,G999/CIP-21-548
[101] Blog by CEE accessed at https://www.mncee.org/cold-climate-air-source-heat-pumps

Pilot R

Since this pilot is not conducting any additional audits beyond the number of audits conducted within its approved ECO Triennial, its objective is to provide rebates to respondents who decide to participate in other NGIA pilots geared towards commercial and industrial customers. Given that the Department recommended rejection of Pilots H, L and M, it is not clear if there are any remaining proposed NGIA Pilots that can be recommended to the auditee. Instead, if the audit recommends programs within the Company's ECO Triennial Plan, rebates should be determined according to the approved budget and program design parameters of one of the Company's relevant C&I ECO programs.

The Company also requested an incentive cap of $25/Dth for NGIA Pilots while CPE caps the incentives through its ECO Triennial at $10/Dth[102]. The Department notes that incentives through this pilot must be reasonable and comparable to other pathways of emission reduction implemented through NGIA. For instance, if RNG can be purchased at $21.75/Dth through Pilot C and that RNG has a negative carbon intensity, it is not reasonable to provide an even higher incentive to reduce gas consumption. Instead, the Department recommends picking an incentive cap at $15/Dth such that the pilot remains cost-effective relative to other pilots and resources within NGIA.

Based on its review, the Department recommends CPE explain the relevance of this Pilot assuming Pilots H, L and M are rejected by the Commission in its reply comments. If the Company thinks that Pilot R is still relevant, the Department requests CPE to provide revised incremental cost estimates based on a rebate cap of $15/Dth.

3. Department Recommendations

The Department recommends:

- Pilot O be modified by scaling it down to conduct 200 audits per year during the first innovation plan. CPE should provide relevant cost estimates in its reply comments.
- Pilot P not be approved.
- Pilot Q be modified to ensure maximal utilization of federal funds to cover installation costs. The Department may provide additional recommendations regarding Pilot Q depending on the Company's responses in its reply comments to the Department questions.
- The Department may provide additional recommendations regarding Pilot R depending on the Company's responses in its reply comments to the Department questions.

B. REVIEW OF CENTERPOINT'S PROPOSED RESEARCH AND DEVELOPMENT STUDIES AND BUDGET

1. Introduction

CenterPoint is proposing to fund several research and development (R&D) projects through this Innovation Plan.

[102] See CPE's response to Department Information Request 47, part a in Attachment A.23...

1. CenterPoint Energy Minnesota Net Zero Study: CenterPoint Energy is proposing an initiative to investigate pathways for achieving net-zero emissions from natural gas use in its Minnesota service territory by 2050, with a specific focus on both scope 1 and 3 emissions. The study envisions a multi-step process. The contractor will:
    a. Review existing emissions accounting and gather detailed information on customer consumption and emissions.
    b. Analyze additional emissions reduction strategies.
    c. Initiate discussions with interested parties to understand challenges and opportunities.
    d. Identify pathways for achieving net-zero emissions.
    e. Ensure those pathways will be aligned with core scenarios.
    f. Model the selected pathways to assess their impacts on gas and electricity:
        i. Consumption;
        ii. Customer energy costs, and;
        iii. GHG emissions reductions.
    g. Prepare a comprehensive final report in collaboration with the Company. This final report will detail the selected pathways and modeling results for achieving net-zero natural gas use and will be submitted to the Commission.

The study is estimated to take one year and cost around $220,000, aiming to provide valuable insights for CenterPoint Energy's future activities and planning toward net-zero emissions.

2. Weatherization Blitzes: CenterPoint Energy proposes a comprehensive pilot project aimed at enhancing participation in its existing Energy Conservation and Optimization (ECO) weatherization offerings. The initiative focuses on intensive, novel, and community-based marketing and outreach, targeting both low-income and non-low-income neighborhoods.
    a. The research questions guiding this pilot revolve around:
        i. identifying effective community-based outreach tactics,
        ii. assessing cost-effectiveness, and
        iii. understanding the impact of neighborhood characteristics on these tactics.
    b. The plan involves:
        i. hiring a contractor through an RFP process,
        ii. starting with customer surveys and data collection,
        iii. followed by neighborhood selection,
        iv. community engagement, and
        v. the design and implementation of research activities.
    c. Outreach tactics will include:
        i. community events;
        ii. door-to-door canvassing;
        iii. media promotions;
        iv. workshops, and;
        v. geotargeted social media advertisements.

The project will track participation and analyze data to draw conclusions about the most successful tactics. The estimated cost for this two-year pilot is approximately $800,000, with findings influencing

future ECO and NGIA efforts. CenterPoint Energy commits to providing updates and conclusions in annual NGIA status report filings.

3. High Performance Commercial New Construction Building Envelope Initiative: CenterPoint Energy aiming to contribute to Minnesota's greenhouse gas reduction targets, proposes a $400,000 initiative to address barriers hindering the integration of high-performance commercial building envelopes in new commercial constructions. Recognizing the underutilization of these envelopes, especially in small and medium-sized buildings, the project plans a multifaceted strategy:
    a. including surveys;
    b. data analysis of existing buildings;
    c. prototype modeling;
    d. guidance on envelope definitions, and
    e. training.

The project seeks to offer valuable insights into the cost and energy-saving impacts of these envelopes by:

- collecting information on designer practice;
- analyzing existing high-performance buildings, and
- conducting prototype modeling.

The guidance on definitions and training initiatives aim to encourage the adoption of best practices. Overall, this comprehensive is aiming to provide better information for utility program planning and enhance the use of high-performance building envelope design in Minnesota.

4. Assessing Next-Generation Micro-Carbon Capture for Commercial Buildings: GTI Energy's proposal outlines a project to demonstrate CleanO2's latest carbon capture technology in collaboration with CPE to mitigate carbon emissions from gas-fired appliances in residential and commercial buildings.
    a. The project aims to assess the technology's:
        i. Performance;
        ii. carbon capture effectiveness;
        iii. energy savings, and
        iv. economic feasibility.

It focuses on the latest CarbinX technology's compatibility with both non-condensing and condensing efficiency appliances. The demonstration will provide insights into the potential of distributed carbon capture technologies, contributing to Minnesota's greenhouse gas reduction goals. The project involves a comprehensive measurement and verification (M&V) campaign, including baseline data collection, retrofitting with CarbinX, and real-time monitoring using data acquisition systems. The proposed 18–24-month plan includes tasks such as site selection, baseline testing, CarbinX installation,

and extensive data analysis. The outcomes aim to inform CNP's engagement with regulatory bodies and advance the understanding of carbon capture technology's economic and environmental benefits.

5. Green Ammonia Novel Technology: CenterPoint Energy proposes a $100,000 funding support for testing a Modular One Vessel Ammonia Production System (MOVAPS) for green ammonia production, with the aim of improving efficiency and reducing costs. The pilot is expected to last 24 months and focuses on minimizing risks associated with ammonia exposure and odors. The project distinguishes itself from power-to-hydrogen processes, as it specifically targets ammonia production improvement. The proposal also highlights a separate project involving the development of a Green Ammonia reactor vessel, the MOVAPS, in two phases. Phase I, conducted by Colorado State University, focuses on developing the reactor, with a proof of concept estimated to take a year. Phase II involves detailed design, construction cost estimates, and commercial readiness. Green Nitrogen Energy LLC plans to contribute substantial funding, with potential leveraging of federal DOE and USDA grants. The overarching goal is to achieve commercial-ready systems through the proposed phases.

6. Renewable Natural Gas (“RNG”) Potential Study: CenterPoint Energy proposes a study to evaluate the potential for developing Renewable Natural Gas (RNG) production facilities at three locations within its service territory. The study, estimated to cost $60,000 and expected to conclude by the end of 2023, aims to support the issuance of a Request for Proposal (RFP) and subsequent benchmarking. The preliminary techno-economic analysis will focus on feedstock availability within a 50-75 mile radius of the proposed locations, considering organic waste from farming operations, ag commodity processing, and urban areas. AURI will provide essential feedstock characteristics and quantities. The study includes a vendor-neutral class 5 capital and operating cost analysis for a digester facility, estimating digestate quality and quantity, and identifying disposal and valorization opportunities. The analysis aims to inform CenterPoint Energy's business model and potential participation in RNG projects, aligning with its NGIA Plan for research and development related to innovative resources.

7. Utilization of Green Ammonia for Thermal Applications: CenterPoint Energy proposes a two-year research project with an estimated cost of $205,000 to investigate the use of green ammonia in industrial-scale burner applications, particularly for grain drying and district heating boilers. The project aims to determine operating ranges and burner concepts by conducting experiments with ammonia blended with reactive fuels like hydrogen, syngas from biomass gasification, and natural gas. The research will be conducted in an application-relevant laboratory test burner apparatus capable of measuring flame stability and emissions metrics. The project will provide critical information on the potential use of green ammonia in burners and aims to develop new burner designs applicable to industrial heating equipment. The data collected, including flame stability and emissions information, will be analyzed and used to guide a follow-on demonstration project retrofitting a biomass gasifier district heating and power system at the University of Minnesota Morris. The work plan includes tasks for setting up the laboratory burner, performing experiments with natural gas and ammonia blends, performing experiments with syngas and ammonia blends, designing a burner for integration with a biomass gasifier heating system, and analyzing and disseminating research findings

through reports and presentations. The proposal demonstrates a comprehensive approach to exploring the application of green ammonia in industrial burners, with a clear plan for experimentation, data analysis, and dissemination of findings.

2. Department Analysis

The Department reviews each of the Company's seven proposed R&D projects in order.

1. CenterPoint Energy Minnesota Net Zero Study: CenterPoint Energy's proposal to engage a consulting firm for an in-depth investigation into achieving net-zero emissions from natural gas use in its Minnesota service territory by 2050 demonstrates a commendable commitment to environmental sustainability. The five-step process outlined, starting with a comprehensive review of current emissions and culminating in the preparation of a final report, exhibits a systematic approach. Leveraging the G21 Report and engaging stakeholders in discussions about emissions reduction strategies exemplifies a collaborative and informed methodology. The incorporation of diverse perspectives in Step 2 reflects a desire to consider a range of options and understand the challenges and opportunities associated with emissions reduction. The emphasis on modeling the selected pathways in Step 4, with a focus on key impact areas, aligns with a data-driven decision-making process. The estimated cost of $220,000 for a one-year study appears reasonable, considering the complexity of the task. However, a critical evaluation would require assurance of the contractor's independence and expertise and should consider potential challenges in accurately modeling the long-term impacts of the proposed pathways. Overall, the proposal showcases a thorough and conscientious approach to addressing the critical issue of achieving net-zero emissions.

2. Weatherization Blitzes: CenterPoint Energy's proposal to employ intensive, novel, and community-based marketing and outreach for increasing participation demonstrates a strategic approach to address weatherization offerings. By focusing on both low-income and non-low-income neighborhoods, the initiative aims to maximize the impact of federal and utility funding, incorporating tax credits and rebates. The proposed five-step process, involving customer surveys, neighborhood selection, community engagement, research design and implementation, and data collection and analysis, presents a comprehensive framework. Strategies encompass various outreach methods, including community events, door-to-door canvassing, media promotions, and workshops, tailored to diverse languages and demographics. The estimated cost of $800,000 for the two-year pilot aligns with the substantial scope of the project. However, a critical evaluation should consider potential challenges in community engagement, the scalability of effective strategies, and the long-term integration of successful pilot outcomes into CenterPoint Energy's broader initiatives. Regular updates through NGIA status reports demonstrate transparency and commitment to continuous improvement.

3. High Performance Commercial New Construction Building Envelope Initiative: CenterPoint Energy's proposal to address barriers to integrating high-performance commercial building envelopes in new constructions in Minnesota is comprehensive and well-structured. The

initiative recognizes the importance of reducing greenhouse gas emissions and aims to overcome market barriers limiting the adoption of high-performance envelopes. The proposed strategies, including designer surveys, data analysis of existing buildings, prototype modeling, guidance development, and training, cover various aspects of the problem. The focus on collecting information, providing resources, and offering training aligns with the goal of improving building envelope design practices. However, the long timeline and substantial cost raise questions about efficiency, and the success of the project may depend on effective collaboration with design firms and industry stakeholders. Overall, the proposal demonstrates a commitment to sustainable practices but should ensure timely and cost-effective implementation.

4. Assessing Next-Generation Micro-Carbon Capture for Commercial Buildings: The proposal from GTI Energy outlines a plan to demonstrate CleanO2's latest carbon capture technology. As explained in the Department's analysis for Pilot H, CPE has installed similar units through ECO and the Company is significantly below its R&D spending cap for their 2024-2026 ECO Triennial Plan. Thus, the Company has not clearly demonstrated why this research project could not be included in ECO.

   The NGIA statute clearly states that investments that can be reasonably included in the natural gas utility's Triennial Plan under section 216B.241 should not be included in the NGIA Innovation Plans. Additionally, the Commission's September 12, 2022 Order in the NGIA Framework Docket, states that to be eligible for inclusion in Innovation Plans, the utility must demonstrate that its investments can't be reasonably included in their Triennial Plans. The Department believes that this reach project has not demonstrated compliance with either of these requirements.

   Based on the Department's analysis of this project, the statutory requirements outlined in the NGIA statute, and the order points contained in the Commissioner's September 12, 2022, Order, the Department concludes that this R&D Project is not eligible for inclusion in the Innovation Plan and should be rejected by the Commission.

5. Green Ammonia Novel Technology: CenterPoint Energy's proposal to support testing of a Modular One Vessel Ammonia Production System for green ammonia production is commendable. The initiative aligns with the goal of improving production efficiency and reducing costs for green ammonia. The commitment of $100,000 in funding for the pilot, with a 24-month duration, reflects a practical approach to innovation. The detailed consideration of risks associated with ammonia exposure and odors, as well as the focus on improving power-to-ammonia production processes, demonstrates a thoughtful approach. Additionally, the proposal outlines a comprehensive two-phase plan involving the development of the MOVAPS reactor vessel, emphasizing modularity and distributive placement. The incorporation of discussions, collaborations, and intellectual property protection in both phases enhances the project's strategic planning. While the suggested funding of $100,000 for the project appears reasonable, the commitment of Green Nitrogen Energy LLC to pursue of federal grants

underscore a well-rounded financial strategy. Overall, the proposal demonstrates a thorough and strategic approach to advancing green ammonia production technologies.

6. Renewable Natural Gas (“RNG”) Potential Study: CenterPoint Energy's proposal to study potential Renewable Natural Gas (RNG) production facilities in three regions of its service territory is a comprehensive and strategic initiative. By focusing on regions with both significant RNG feedstock potential and feasible integration into CenterPoint's system, the study aims to inform the development of RNG projects. The inclusion of a preliminary techno-economic analysis, with an emphasis on feedstock availability, cost analysis of a digester facility, and evaluation of RNG production costs, showcases a thorough understanding of the project's key elements. However, potential limitations include the absence of actual digestion experiments and characterization of digestate, which might affect the accuracy of predictions. The proposed budget of $60,000 appears reasonable for the scope of work outlined, and CenterPoint's intent to fund the study prior to Plan approval underscores the perceived value and urgency of the project. The proposal aligns with the NGIA Plan's focus on innovative resources and program development, contributing to the advancement of RNG initiatives.

7. Utilization of Green Ammonia for Thermal Applications: CenterPoint Energy's proposal for research into the use of green ammonia in industrial-scale burner applications is comprehensive and well-structured. The project's primary goal is to determine operating ranges and burner concepts for industrial burners used in grain drying and district heating boilers. The estimated cost of $205,000 for a two-year research period seems reasonable given the scope of the project. The proposal addresses the challenges associated with using green ammonia as an energy source and outlines a detailed plan, including laboratory setup, experiments with different fuel blends, burner design for integration with a biomass gasifier heating system, and data analysis. The integration of various fuels with ammonia and the focus on reducing carbon emissions in industrial applications demonstrate a commitment to sustainability. The proposal's clear timeline, deliverables, and plans for dissemination through presentations and publications enhance its credibility. Overall, the proposal presents a well-organized and thorough approach to advancing the understanding and application of green ammonia in industrial burners.

Based on its review, the Department concludes six out of seven research proposals from the Company are reasonable and should be funded. However, looking at the overall funding request from CPE, the Department notes that the total amount requested far exceeds the cost of the above projects. Table 18 below shows the cost of the six R&D proposals that the Department recommends cost a total of $1,785,000. However, the total amount requested by the Company is $10,570,462. Thus, the six projects constitute 17 percent of the total amount of funding requested by the Company while 83 percent of its funding request doesn’t identify specific projects.

Table 18: Breakdown of R&D Project Budget across justified and unjustified projects.

R&D Project	Cost
CenterPoint Energy Minnesota Net Zero Study	$ 220,000
Weatherization Blitzes	$ 800,000
High Performance Commercial New Construction Building Envelope Initiative	$ 400,000
Assessing Next-Generation Micro-Carbon Capture for Commercial Buildings	$ 275,000
Green Ammonia Novel Technology	$ 100,000
Renewable Natural Gas ("RNG") Potential Study	$ 60,000
Utilization of Green Ammonia for Thermal Applications	$ 205,000
Total	$ 2,060,000
Amount Requested by CPE for R&D Projects	$ 10,570,462
Unjustified amount	$ 8,510,462

The Company explained its approach in its initial filing by stating:

> *CenterPoint Energy proposes to utilize the full available budget for R&D over the five-year Plan term but is only proposing specific projects for the first two years of the Plan at this time. CenterPoint Energy will propose additional R&D pilots in annual NGIA status reports.*[103]

Minnesota Statute 216B.2427 Subd 3.g states

> *A utility filing an innovation plan may include annual spending and investments on research and development of up to ten percent of the proposed total incremental costs related to innovative plans, subject to the limitations in paragraphs (a) to (e).*

Thus, the 10 percent is a cost cap and does not require the Commission to approve the amount of the cap even if the utility fails to provide concrete proposals for R&D Projects. The Department points out that Minnesota Statute 216B.241 (ECO Act) Subd 2.e states:

> *Each public utility subject to this subdivision may spend and invest annually up to ten percent of the total amount spent and invested on energy conservation improvements under this section by the public utility on research and development projects that meet the definition of energy conservation improvement.*

[103] Exhibit J of its initial Filing, Page 1 of 6

The provision is similar to the R&D cost cap in the NGIA Statute. Based on the Deputy Commissioner's December 1, 2023 Decision approving CPE's 2024-2026 ECO Triennial Plan (Docket No. G008/CIP-23-95), Table 17 shows CPE's approved ECO R&D budget for 2024-2026 program years was $400,000 annually while the R&D cap was between $5.6 to $6.3 million annually between the same period. The Department concludes that the Commission should approve an R&D budget that is consistent with the six projects the Department recommends ($1,785,000) and should deem the remaining amount of $8,785,462 as unjustified.

3. Department Recommendations on Research and Development Projects

The Department recommends:

- Six R&D Projects that include specific proposals should be approved that amounts to $1,785,000.
- The remaining R&D budget of $8,785,462 should be denied.

This set of recommendations concludes this section of the Department's comments.

B. REVENUE CREDIT/OFFSET CALCULATIONS

The calculation of the "Total Incremental Cost" in the NGIA statute includes language identifying the value, cost savings or other revenues resulting from the implementation of the NGIP. Minn. Stat. § 216B.2427 Subd. 1 (r) (2) identifies three sources of incremental revenue that can be used to offset the costs of the Innovation Plan:

(i) Value received by the utility upon the resale of innovative resources or innovative resource by-products, including any environmental credits included with the resale of renewable gaseous fuels or value received by the utility when innovative resources are used as vehicle fuel:
(ii) Cost savings achieved through avoidance of purchases of natural gas produced from conventional geologic sources, including but not limited to avoided commodity purchases and avoided pipeline costs; and
(iii) Other revenues received by the utility that are directly attributable to the utility's implementation of an innovation plan.

Given that those potential offsets would help to lower the "Total Incremental Cost" of CenterPoint's NGIA, the Department reviewed those aspect of the Company's filing. The Company's approach for including these credits in the filing relies on accounting for these credits at the Pilot level so it is a little difficult to tease out this information.

1. Resale of Environmental Credits

The Company didn't identify any revenue credits from the resale of environmental credits in the filing. Specifically, CenterPoint stated in the filing that "any Environmental Attributes would be retired on behalf of CenterPoint Energy's customers.[104]

The Department was interested in learning more about this topic. In Department information request no. 75, the Department asked the Company to provide support for his statement.[105] CenterPoint explained:

> Retirement of environmental attributes is envisioned solely for the pilots in which CenterPoint Energy would generate or assume ownership of the environmental attributes associated with renewable thermal fuels registered on M-RETS, specifically Pilots, A, B, C and D.
>
> Retiring environmental attributes on behalf of CenterPoint Energy customers is consistent with NGIA's purpose of reducing gas utilities' emissions associated with customer natural gas end uses to contribute to the State of Minnesota's GHG goals. Based on established GHG accounting

[104] Petition, Excel spreadsheet 20236-196995-11, Tabs CP01 through CNP25.
[105] Attachment A.24 includes a copy of Department information request no. 75 and the Company's response.

> protocols and principles, selling environmental attributes to other parties outside of CenterPoint Energy customers or parties outside of Minnesota would preclude CenterPoint Energy or State of Minnesota, respectively, to credibly claim the associated GHG reductions. CenterPoint Energy managing the resale of environmental attributes to those other parties would introduce complexity to the program administration, as well as risk for ratepayers (if the resale prices is lower than the purchase price of environmental attributes), as compared to achieving the same GHG reduction benefits to CenterPoint Energy and Minnesota by simply purchasing less RNG. Accordingly, the company has not modeled scenarios in which some percentage of the environmental attributes that CenterPoint generates or receives are sold.

Hence, the Department concludes CenterPoint did not include revenue from the sale of any environmental attributes it forecasts it will receive because of its purchase of RNG in the Petition.

A. ENVIRONMENTAL ATTRIBUTES

Regarding the environmental attributes, under Subpart "IX. Approval Criteria, subpart e" of the filing, CenterPoint stated the following:[106]

The systems used to track and verify the environmental attributes of the innovative resources included in the Plan are reasonable, considering available third-party tracking and verification systems.

However it is unclear how CenterPoint determined that "the systems" are reasonable. The Department requests that CenterPoint in its Reply Comments, clarify and provide detailed explanations of how CenterPoint determined "the systems … are reasonable".

CenterPoint stated the following in its filing:[107]

> In addition to innovation benefits, the proposed Plan also carries many other qualitative benefits that must be taken into account. Some of the key qualitative benefits are:
> - … Supporting local industries and the development of local expertise in growing fields such as RNG, hydrogen, and strategic electrification;
> - Supporting Minnesota businesses to be more competitive with sustainability focused customers by achieving their own GHG reduction goals; and…

[106] See CenterPoint's June 28, 2023 Initial Filing - Page 28 of 33.
[107] See CenterPoint's June 28, 2023 Initial Filing - Page 26 of 33.

In Exhibit Q (Draft RFP for RNG) the Company stated the following under Section 2, titled, "Project Overview and Scope of Services":[108]

Environmental Attributes

Any and all environmental claims, credits, benefits, emissions reductions, offsets, and allowances attributable to the production of renewable thermal energy (i.e. RNG) and, if applicable, its avoided emission of pollutants. The environmental attributes of RNG include but are not limited to the avoided GHG emissions associated with the production, transport, and combustion of a quantity of RNG compared with the same quantity of geologic natural gas. Environmental attributes do not include: (a) The RNG itself or the energy content of that gas; (b) Any tax credits associated with the construction or operation of the RNG production facility or other financial incentives in the form of credits, deductions, or M-RETS Renewable Thermal Operating Procedures 40 allowances associated with the production of RNG that applies to a state, provincial, or federal income tax obligation; (c) Fuel- or feedstock-related subsidies or "tipping fees" that may be paid to the seller to accept certain fuels, or local subsidies received by the RNG production facility for the destruction of particular preexisting pollutants or the promotion of local environmental benefits; or (d) Emission reduction credits encumbered or used by the RNG production facility for compliance with local, state, provincial, or federal operating and/or air quality permits.

… **Midwest Renewable Energy Tracking System (M-RETS)**

M-RETS is a renewable resource tracking system that tracks and manages the activity of environmental attributes and energy commodities. More information is available about M-RETS here.

… Renewable Thermal Certificate (RTC)

RTCs are issued for each dekatherm of renewable thermal generation tracked in the M-RETS system. M-RETS defines an RTC as a "whole RTC" and includes all environmental attributes.

2.2 Scope of Services

The Proposer may propose one or a combination of the following services:

[108] See CenterPoint's June 28, 2023 Initial Filing – Exhibit Q - Pages 6 through 8 of 14.

> - Proposer would sell and deliver to CenterPoint Energy, and CenterPoint Energy would purchase and receive from Proposer, RNG, as a bundled product consisting of both the RTCs as well as the gas commodity. CenterPoint Energy would enter into a gas purchase agreement with the Proposer and receive the RNG at a specific location.
> - The Proposer would sell and deliver to CenterPoint Energy, and CenterPoint Energy would purchase and receive from Proposer, all the RTCs of an unbundled RNG product. In this situation, the Proposer would separately sell or otherwise market the commodity natural gas.
> - For projects interconnected to CenterPoint Energy's gas distribution system, Proposer may accept a CenterPoint Energy capital investment in the project (e.g., for biogas upgrading equipment or other components of the project) in exchange for a reduction in price of the RNG purchased by CenterPoint Energy.
>
> In the above situations, the RTCs that would be purchased by CenterPoint Energy must satisfy the requirements of the definition of Environmental Attributes required in Section 2.1 above. Additionally, the Proposer will support CenterPoint Energy's evaluation of the lifecycle GHG intensity of the RNG by promptly providing all data reasonably necessary for CenterPoint Energy to quantify the lifecycle GHG intensity according to the guidelines established by the Commission in Docket No. G-999/Cl-21-566.
>
> By definition, the RTCs may not also be claimed by any other party, such as an entity selling the attributes into programs such as the California Low Carbon Fuel Standard or any state or provincial clean or renewable fuels program. Additionally, the attributes cannot be claimed by any party also generating Renewable Identification Numbers (RINs) from the same gas for satisfaction of obligations within the Renewable Fuel Standard. CenterPoint Energy will only purchase RNG if the Environmental Attributes would satisfy all requirements for listing on the M-RETS system, established in the NGIA, and established by the Commission in Docket No. G-999/Cl-21-566, and CenterPoint Energy may request further documentation in support of this criteria if a Proposer is invited to move on to the next stage of CenterPoint Energy's selection process.

The California Low Carbon Fuel Standard (LCFS) sets limits on emissions from vehicle fuels and allows RNG producers to create emission reduction credits that are used for compliance. The federal Renewable Fuel Standard (RFS) also creates a system of credits, referred to as Renewable Identification Numbers (RIN). The same unit of fuel can qualify for both the LCFS and the RFS. Environmental Protection Agency (EPA) moderated transaction system (EMTS) is a database of record for all transactions involving RINs. Typically, companies maintain RIN accounts by D-codes and RIN year (typically called “vintage” year, or the year in which the RIN was generated).

Based on the above information on environmental attributes, M-RETS, RTC's and the scope of services for RNG, and regarding the issue of transparency, the Department requests that CenterPoint in its Reply Comments, clarify and provide explanations for the following:

a. If the goal above is to support the qualitative benefit, for example driven by corporate sustainability goals and customer preferences, or for example large end users of natural gas maybe looking into RNG as an option to reduce their GHG emissions, does M-RETS offer the ability to purchase environmental attributes without the RNG commodity?

b. In reference to the above question in subpart (a), does it have to be bundled with the RNG commodity?

c. In reference to the above questions in subparts (a) and (b), would this be considered offsets for customers in Minnesota?

d. Above the Company mentioned that M-RETS defines an RTC as a "whole RTC" and includes all environmental attributes. In its tracking, certification, and verification system, does M-RETS offer anything other than a "whole RTC"?

e. Do the RTC's in M-RETS system expire? If they do expire, what is the duration or shelf life of the RTC's before expiration?

f. Above, given that CenterPoint claims that RTCs may not also be claimed by any other party, does M-RETS track, verify, and certify the RTCs by cross validating with for example, including but not limited to EMTS? California LCFS? Oregon LCFS?

g. Are the M-RETS RTCs tradeable?

h. Can the M-RETS RTCs be banked?

i. Can the M-RETS RTCs be transferred?

j. Does M-RETS submit data on the RTCs to the Department of Treasury, Internal Revenue Service? Is the data based on a calendar year basis?

k. Is M-RETS participation limited in any way, for example to the Midwest? The Lower 48 States? North America? North America and Europe?

l. Does an entity have to take title to the gas to own the environmental attributes?

    a. Cost Savings - Avoided Geologic Gas Cost Calculation

This calculation is straightforward. There are two components, a forecasted price (monthly or annual) for geologic gas costs multiplied by the average quantity of geologic gas volumes that are avoided in dekatherms (monthly or annual).

i. CenterPoint's Estimate of Avoided Geologic Gas Costs

The first step in this process was to determine the Company's estimate of the avoided geologic gas costs and the method used to estimate those costs in the filing. In Department information request no. 77, the Department asked CenterPoint to reconcile the difference between the estimated TIACC of $105,704,610 and the Company's request of $111,971,465, which equals $6,266,855.[109]

CenterPoint responded:

> *For purposes of calculating NGIA recoveries from the Purchased Gas Adjustment ("PGA"), the Innovation Act Surcharge ("IAC"), and Innovation Act Adjustment ("IAA"), as shown in the Company's July 13, 2023, correction letter. CenterPoint Energy did not back out expected savings from avoidance of purchases of natural gas produced from conventional geologic sources. The lower costs from purchasing less geologic natural gas commodity will flow to customers through the normal purchased gas adjustment and annual automatic adjustment mechanisms. However, the Natural Gas Innovation Act, subd. 1(r), specifies that "total incremental cost" is net of those savings, and certain other revenues and value sources. The cost cap set in subd. 3 is based on "total incremental cost". At the time of the correction letter, CenterPoint Energy estimated five-year savings in excess of $6,275,390. {Emphasis added.]*

The Department appreciates the Company's response and notes that CenterPoint's new calculation would lower the amount requested under the NGIP to $105,696,075 from $105,704,610, a difference of $8,535.

The Department also notes the Company's response to information request no. 77 stated:

> *As described in CenterPoint Energy's email to the Department of Commerce and other interested parties on October 10, 2023, CenterPoint Energy has discovered an error in its calculation of commodity cost savings for Pilots A, B and C which does result in estimated "total incremental costs" exceeding the cost cap by approximately $550,000. In reply comments, CenterPoint Energy will propose changes to its plan that will reduce estimated total incremental costs to be below the cost cap.*

[109] Attachment A.25 contains Department information request no. 77 and the Company's response.

The Department notes that adding $550,000 to the revised TIACC would increase CenterPoint's requested recovery over the NGIP to $106,246,075

The Department decided not to attempt to calculate the revised estimated avoided geologic gas costs in these comments due to resource and time constraints. The Department was interested in learning more as to CenterPoint's method for estimating the forecasted geologic gas costs.

The Department asked information requests nos. 71 and 72 to understand CenterPoint's approach for estimating the forecasted average annual price for geologic gas for the period 2024 to 2029.

Department information request no. 71 asked the Company to provide the analysis that supports the $5.41/dekatherm commodity price for natural gas in the model in year 1.[110]

CenterPoint explained: "The initial geologic gas commodity cost used was $5.41/Dth based on 24 months average costs per Dth of gas sales to non-exempt customers between May 2021 and April 2023. This calculation is shown in Attachment 1."

Department information request no. 72 asked the Company to provide the support for the annual escalation rate for -5.25% for gas commodity costs for years 2 through 5; whether that annual escalation rate would change using the most recently available information and to provide support for the updated analysis requested.[111]

CenterPoint's response to the Department's first question was:

> CenterPoint Energy developed the escalation rate in compliance with the Commission's June 1, 2022, Order in Docket No. G999/CI-21-566 ("Frameworks Order), Order Point 28. -5.25% is the average percent change in the price of natural gas between 2023 and 2027 to all users in the North Central Region as estimated in the Energy Information Administration's 2023 Annual Energy Outlook.

CenterPoint's response to the Department's second question was:

> The annual escalation rate would not be different if calculated using the same approach above, with the latest available information. This is because the source of inputs driving this calculation is the Energy Information Administration's 2023 Annual Energy Outlook, and there is not a more recent version of the Annual Energy Outlook available at the time of this response.

The Department reviewed those calculations and did not identify any errors related to the method used for calculating the initial price or the annual escalation factors.

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[110] See Attachment A.26 for a copy of Department information request no. 71 and the Company's response.
[111] See Attachment A.27 for a copy of Department information request no. 72 and the Company's response.

Department information request no. 73 asked CenterPoint to "rerun the analysis using the monthly New York Mercantile Exchange (NYMEX) futures prices as of October 2, 2023, adjusted for delivery to CenterPoint Energy as the monthly commodity prices for geologic gas in the model for year 1 through 5." In addition, the Department also asked the Company not to include any escalation factors.[112]

Department information request no. 74 asked CenterPoint to "rerun the analysis using the Henry Hub monthly forecasted natural gas spot prices for delivery to CenterPoint Energy estimated in the U.S. Energy Information Administration's *Annual Energy Outlook 2023.* Please use the Henry Hub prices forecasted in the EIA's Reference case as the monthly commodity prices for geologic gas in the model for years 1 through 5." In addition, the Department also asked the Company not to include any escalation factors.[113]

CenterPoint provided the requested information. Table 19 compares the annual forecasted prices for the original proposal and the results of the NYMEX and updated EIA sensitivities.

Table 19 – CenterPoint, NYMEX and Updated EIA - Estimated Annual Geologic Gas Cost by Year ($/Dth)

Line No.	Year	CPE Original Estimate	NYMEX Sensitivity	Updated EIA Sensitivity
1.	2023	$5.41	NA	$5.45
2.	2024	$5.13	$3.81	$4.31
3.	2025	$4.86	$4.08	$3.77
4.	2026	$4.60	$4.21	$3.38
5.	2027	$4.36	$4.22	$3.21
6.	2028	$4.13	$4.27	$3.22
7.	2029	$3.91	$4.34	$3.32
8.	2030	$3.71	$4.34	$3.50
9.	2031	$3.51	$4.34	$3.75
10.	2032	$3.33	$4.34	$4.04

The Department also notes that beyond 2032 the annual gas commodity cost continues to decrease at the -5.25% annual escalation factor through 2050 under CenterPoint's method. The use of that "straight line" method results in a price of $1.33/Dth in 2049 and 2050 in nominal dollars. The NYMEX sensitivity uses the $4.34 identified in 2029 as the annual cost from 2029 through 2050. The Updated EIA sensitivity includes annual prices that increase beginning in 2031 and continue to increase through the end of the planning period in 2050. The Updated EIA forecasted price per Dth in 2050, adjusted for the Ventura basis is $7.20/Dth. Table 20 summarizes this information.

Table 20 – CenterPoint, NYMEX and Updated EIA - Estimated Annual Geologic Gas Cost in 2050 ($/Dth)

[112] See Attachment A.28 for a copy of Department information request no. 73 and the Company's response. .
[113] See Attachment A.29 for a copy of Department information request no. 74 and the Company's response.

Description	2050 Natural Gas Price ($/Dth)	Nominal Difference From Original ($)	Percentage Difference
CPE Original Estimate	$1.33	NA	NA
NYMEX	$4.34	$3.01	226.3%
Updated EIA Sensitivity	$7.20	$5.87	441.4%

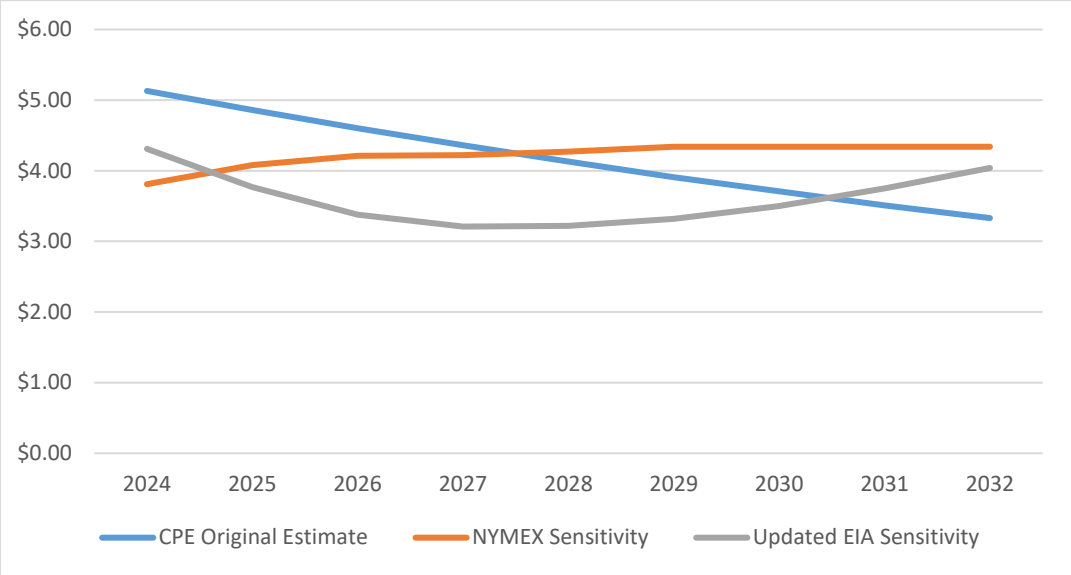
The Department doesn't necessarily think any of the three estimate gas prices for 2050 are accurate. A 26-year time horizon is simply too long to be able to provide an accurate forecasted price. At the same time, the Department does consider CenterPoint's $1.33/Dth forecasted price in 2049 and 2050 to be the least reasonable forecasted price of the three listed.

To elaborate, the probability of long-range price forecast (over 20 years) of natural gas commodity prices being somewhat accurate is miniscule. The probability of a short-range forecast (5 years) providing accurate results is also miniscule, but likely slightly higher than the probability of long-range forecast being accurate results. Given that the time horizon for a short-term forecast is less by definition, the forecast is subject to less variability. Using NYMEX futures prices currently only provides a six-year forecast of natural gas commodity prices, but the Department considers the NYMEX prices to be the preferable approach for use in the calculation of the avoided geologic gas costs for the NGIA.

The NYMEX futures prices are set by market participants. The EIA price forecasts are developed by staff at the U.S. Energy Information Agency. The Department historically has placed a greater weight in prices set by market forces because the actors involved in setting those prices have an economic interest in the market. That financial exposure helps to focus their attention.

The Department recommends the Commission require CenterPoint, or any other gas utility filing an NGIA to use NYMEX futures prices to calculate the avoided geologic gas costs in their respective filings. Figure 2 provides support for this recommendation.

Figure 2– CenterPoint, NYMEX and Updated EIA Estimated Annual Geologic Gas Cost by Year ($/Dth)



CenterPoint's current method for forecasting the annual geologic gas cost it will use in the NGIA calculates a starting value using 24 months of historical prices and then develops an annual escalation factor using the forecasted prices from the most recent EIA forecast. The Department doesn't consider using 24 months of historical costs to determine a starting point to be a reasonable approach for estimating the starting price for geologic natural gas, at least for ratemaking purposes. The use of an annual escalation factor for years 2 through 5 based on EIA forecasted prices also seems to be a simplifying assumption that is not needed. The natural gas spot and futures markets are well developed. The simplest and likely most accurate approach would be to simply use the current spot and futures prices for the NGIA.

CenterPoint noted in its response to Department information request no. 71 that the method it used for determining the annual avoided geologic natural gas costs was consistent with the approach the Commission had approved at Order Point 28 in its ORDER ESTABLISHING FRAMEWORKS FOR IMPLEMENTING MINNESOTA'S NATURAL GAS INNOVATION ACT, dated June 1, 2022, in Docket No. G999/CI-21-566.

Order Point 28 states:

> Where applicable, for quantifying any NGIA cost or benefit, utilities shall use structural cost-benefit values following the methods described in Appendix H of the Minnesota Department of Commerce's February 11, 2020, CIP BenCost Input Decision in Docket No. G999/CIP-18-782, Inputs 1 – 13, with the modifications reflected in the Structural Values Modification to CIP Approach table filed by the Joint Commenters.

The Department reviewed the information in both the documents listed in Order Point 28. It appears that CenterPoint is using the method delineated in Appendix H correctly.

The Department also notes the Commission included the following language in that same ORDER at page 10.

> The adoption of this framework does not preclude the Department, or any stakeholder, from offering supplemental evaluations using alternative methods such as the Department proposed methodology in future innovation-plan proceedings. As Minnesota's natural gas utilities begin testing innovative resources and working with the established framework, the ability to compare analyses under multiple alternative frameworks would be instructive. Accordingly, while utilities submitting innovation plans must follow the frameworks adopted herein, any stakeholder interested in evaluating an NGIA proposal under another methodology will be welcome to do so.

The Department's recommendation is that the Commission adopt a more market-based approach for determining forecasted geologic natural gas commodity prices doesn't rise to the level of an alternative methodology, but we still believe it would benefit the Commission by allowing it to make a more-informed decision as to the costs of the NGIA.

The Department also notes that the method for determining the forecasted natural gas costs also affects the overall NGIA's costs. Table 21 summarizes the different NGIA estimated costs for CenterPoint's filing and the two sensitivities the Department identified.

Table 21 – CenterPoint, NYMEX and Updated EIA - NGIA Costs Net of Credits

Description	NGIA Costs Estimated	Nominal Difference From Original ($)	Percentage Difference
CPE Original Estimate	$105,971,534	NA	NA
NYMEX	$107,018,976	$1,047,442	1.0%
Updated EIA Sensitivity	$109,776,483	$3,804,949	3.6%

The difference between the Company's original estimate and those using the NYMEX prices differ by only 1%. The difference between CenterPoint's filing and the updated EIA forecast is a bit higher at 3.6%. The fact that both sensitivities tested result in lower gas prices relative to CenterPoint's method in the initial years of the NGIP is likely the driver for the higher overall NGIA costs. The avoided natural gas volumes aren't as valuable, so they offset a smaller amount of the Pilots' costs.

Table 22 illustrates the effects of CenterPoint's method that continues to lower annual forecasted geologic gas prices by 5.25% each year until 2050.

Table 22 – CenterPoint, NYMEX and Updated EIA - NGIA Net Utility Cost Test Lifetime Costs - Discounted (in 2023$)

Description	NGIA Costs Estimated and Discounted	Difference From Original ($)	Percentage Difference
CPE Original Estimate	$186,915,163	NA	NA
NYMEX	$180,959,077	-$5,956,086	-3.2%
Updated EIA Sensitivity	$182,887,965	-$4,027,198	-2.2%

Again, the results of both sensitivities lower CenterPoint's original estimated costs by 3.2% and 2.2%. Given that those figures are discounted, the nominal differences are undoubtedly larger.

The information in Tables 21 and 22 suggest that the NYMEX sensitivity is the most stable of the price forecasts. The Department considers that result to provide further support for using the NYMEX futures prices and recommends the Commission require CenterPoint to adopt NYMEX futures prices to calculate future avoided geologic gas costs.

If the Commission doesn't agree with the Department's recommended method for determining the cost of avoided natural gas, another alternative does exist.

The Commission approved at Order Point 29 in its ORDER ESTABLISHING FRAMEWORKS FOR IMPLEMENTING MINNESOTA'S NATURAL GAS INNOVATION ACT, dated June 1, 2022, in Docket No. G999/CI-21-566 the following language.

> Utilities shall update structural cost-benefit values with the filing of each innovation plan or each annual NGIA report filing. Wherever a supporting third-party report of data is used to calculate a structural value, the utility will use the most recent version of that report or data, except that if a new report or data is published within 30 days of an innovation plan or annual NGIA status report filing, the utility may use the prior version.

The Department approved updated inputs for the 2024-2026 CIP Triennial filings on March 31, 2023.[114] If the Commission doesn't agree with the Department's recommendation that utilities use NYMEX

[114] Attachment B contains the updated BENCOST assumptions.

prices to calculate the avoided cost of geologic natural gas, CenterPoint should be required to use these updated BENCOST inputs in any analysis included in its reply comments.

1. Miscellaneous Regulatory Topics

The Department's review of the filing identified four additional topics which warranted brief discussions.

i. Variable Operations and Maintenance Expense Calculation

The Department noted during its review of the Company's filing that CenterPoint used the same annual escalation factor (-5.25%) for its variable operations and maintenance (O&M) expense as it did for geologic natural gas costs. The Department asked information request no. 78 to clarify how the Company calculated the variable O&M annual escalation factor for years 2 through 5 of the NGIA.[115]

CenterPoint explained:

> The method developed for variable O&M for CIP, as described in the Department's February 11, 2020, Decision in Docket No. G999/CIP-18-783, is as follows: "Input 6: Variable O&M: The variable costs, other than fuel and purchased energy costs, that are included as expenses in delivering energy to the end consumer. For utilities that have flexible rate tariffs, Variable O&M is the minimum transportation flexible rate, which is generally based on the utility's best estimate of variable costs. Each utility must fully explain how it determines the Variable O&M input. This cost is multiplied by the Annual Escalation Rate of 4.69 percent, which is described above as Input No. ."
>
> The definition highlights how the annual escalation rate is to match the escalation rate used for Input No. 1, which is the Retail Rate Price. The escalation for the retail rate is described in the Department's decision as follows: "The Retail Rate is multiplied by the *Annual Escalation Rate* of 4.69 percent. Staff calculated the Annual Escalation Rate of 4.69 percent using the average percent change in the price of natural gas between 2018 through 2022 to all users in the West North Central Region as estimated in the Energy Information Administration's December 2018 *Annual Energy Outlook."*
>
> The Company's calculations used to reach the -5.25% annual escalation factor follow the same methodology as used by the Department but using a more recent Energy Information Administration *Annual Energy Outlook.*

[115] See Attachment A.30 for a copy of Department information request no. 78 and the Company's response.

> These specific calculations were provided in response to the Department of Commerce Information Request 72.

It appears that the BENCOST approach used historically identifies a relationship between the price of natural gas and the change in variable cost. This approach has the advantage of simplicity. It is only necessary to calculate the one allocation factor.

It is not consistent however with FERC's definition of variable cost used in cost-of-service regulation for natural gas interstate pipelines. FERC defines variable costs as follows: "Variable costs are costs which vary with the volume of throughput."[116] . The NARUC Cost Allocation Manual also provides a similar definition: "Variable costs do change with volume."[117] There is no mention of price in either of those definitions.

Thus, the Department recommends that the variable cost annual escalation rate used in the calculation be based on the annual percentage change in normalized load growth for Non-CIP Exempt customers. That estimate is more consistent with the concept of variable costs changing on the basis of throughput, not price.

ii. Revenue Apportionment

CenterPoint's proposed revenue apportionment for the NGIA costs for the Innovation Act Charge (IAC) recovered through base rates and the Innovation Act Adjustment (IAA) are identical. The Company is proposing to apportion the revenue to be recovered based on the Company's assessment of who receives the benefit from the specific projects. The proposed revenue apportionment would involve the residential and commercial customer classes.[118]

CenterPoint is also proposing a rate design for the IAC that includes three components:

- Base Rate Recovery All Classes:
- Base Rate Recovery C&I; and
- Base Rate Recovery Residential.

A residential or commercial customer would pay the sum of the Base Rate Recovery All Classes rate and the Base Rate Recovery Residential rate or Base Rate Recovery C&I rate. An example may help illustrate this method. Table 23 summarizes this information.

[116] FERC Cost-of-Service Rates Manual, page 29.
[117] NARUC Gas Distribution Rate Design Manual, June 1989, page 64.
[118] Petition at page 20.

Table 23 – CenterPoint Proposed IAC Rates by Class 2025 -2028 ($/Dth.)

Year	Customer Class	NGIA - All Classes ($/Dth)	NGIA - Residential ($/Dth)	Total NGIA Base Rate ($/Dth)
2025	Residential	$0.0460	$0.0269	$0.0729
	Commercial	$0.0460	$0.0848	$0.1308
2026	Residential	$0.0460	$0.0269	$0.0729
	Commercial	$0.0460	$0.0848	$0.1308
2027	Residential	$0.0493	$0.0367	$0.0860
	Commercial	$0.0493	$0.0704	$0.1197
2028	Residential	$0.0522	$0.0588	$0.1110
	Commercial	$0.0522	$0.0393	$0.0915
2029	Residential	$0.0522	$0.0588	$0.1110
	Commercial	$0.0522	$0.0393	$0.0915

CenterPoint is assuming as two-year cadence for filing rate cases over this period. It is interesting that the residential rate starts out much lower than the commercial rate and then the residential rate becomes higher than the commercial rate in 2028. Figure 3 provides a visual representation of this convergence.

CenterPoint is proposing a similar rate design for the annual tracker cost recovery mechanism known as the IAA. The Company forecasts that the IAA will be needed to recover NGIA costs beginning in 2026. CenterPoint is proposing to use the same revenue apportionment approach for the IAA as it did for the IAC. Table 24 summarizes the Company's forecasted rates for the tracker by customer class.

Figure 3– Comparison of Commercial and Residential IAC by Year ($/Dth)

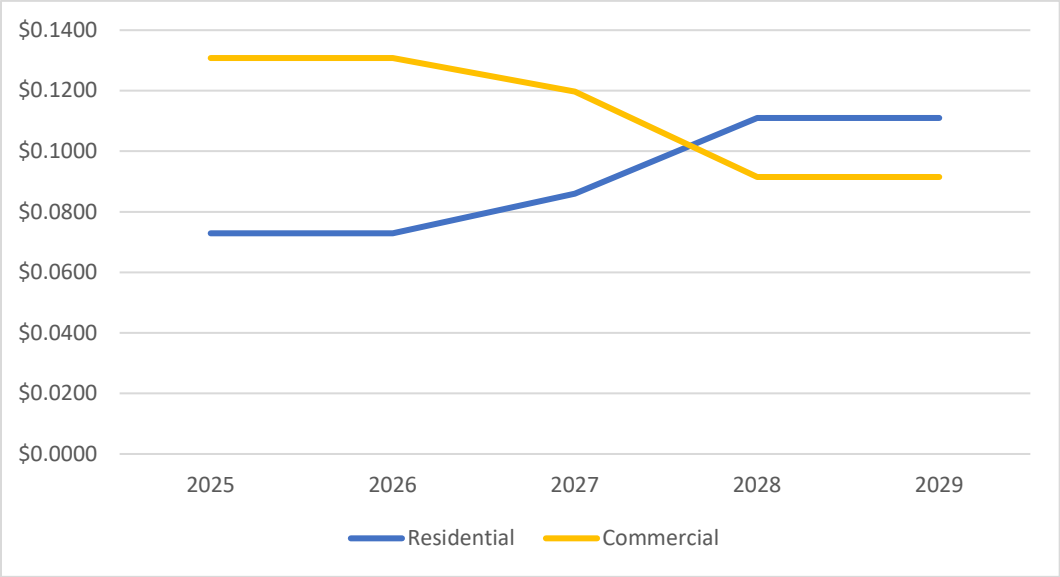


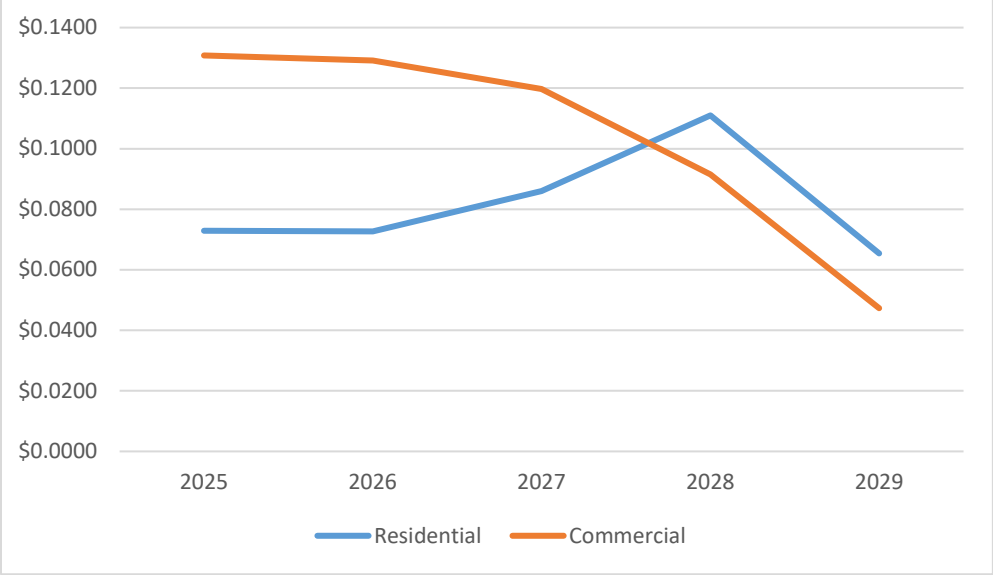
Table 24 – CenterPoint Proposed IAA Rates by Class 2026 -2028 ($/Dth.)

Year	Customer Class	NGIA - All Classes ($/Dth)	NGIA - Class Adder ($/Dth)	Total NGIA Base Rate ($/Dth)
2026	Residential	-$0.0054	$0.0052	-$0.0002
	Commercial	-$0.0054	$0.0037	-$0.0017
2027	Residential	$0.0000	$0.0000	$0.0000
	Commercial	$0.0000	$0.0000	$0.0000
2028	Residential	$0.0000	$0.0000	$0.0000
	Commercial	$0.0000	$0.0000	$0.0000
2029	Residential	-$0.0250	-$0.0206	-$0.0456
	Commercial	-$0.0250	-$0.0192	-$0.0442

While the forecasted rates for the IAA are either zero in years when the Company anticipates having new rates in place (2027 and 2028) and the rates in the other years are negative (2026 and 2027), the existence of a tracker does allow for the recovery of costs if CenterPoint's costs vary from their forecast. The NGIA statute also allows for the use of a tracker as part of an Innovation Plan.[119]

Figure 4 sums the IAA and IACs by class by year.

Figure 4– Comparison of Commercial and Residential IAC and IAA by Year ($/Dth)



CenterPoint appears to be forecasting that its residential ratepayers will be paying an additional $0.065/Dth for NGIA costs recovered in base rate and the tracker in 2029 and commercial customers will be paying $0.0473/Dth. RNG costs recovered through the PGA are not included in those estimates.

[119] Minn. Stat. § 216B2427 Sub 2©.

The Department believes CenterPoint's proposed cost recovery mechanisms through base rates and the tracker are reasonable except for its criterion for apportioning revenue to the residential and commercial customer classes. As noted previously, the Company stated in its filing that it "proposed to match cost recovery to the classes of customers receiving benefits from the proposed pilots."

The Department asked in information request no. 65 if CenterPoint currently recovers any costs for specific projects included in its base rates or existing tracker accounts by customer class, and also requested a list of those specific projects and the recovery mechanism.[120]

The Company responded:

> *There are instances in CenterPoint Energy's current billing where specific costs are allocated to certain classes. Examples of instances where CenterPoint Energy would allocate specific costs include, but are not limited to, Residential Marketing costs which are allocated specifically to Residential customers in the class cost of service study in a general rate case, Conservation Improvement Programs, where certain customers are excluded from the conservation charges, and gas demand costs which are only charged to CenterPoint Energy's firm customers.*

While the Department agrees with the Company that residential customers may benefit more from a NGIA pilot focused on a residential end-use, that benefit seems minor when compared to the stated benefits that the NGIA will provide:

1. Green House Gas emissions reductions;
2. Economic Development; and
3. Improved Load Factor for Customer's Electric Utility.

The Department considers the three benefits listed above as more societal benefits than customer benefits, particularly the benefit associated with GHG emissions reductions. As a result, the Department recommends that the Commission use annual forecasted throughput for Sales customers as the criterion for determining revenue apportionment by class for both the IAC and the IAA. The primary benefit of the NGIA appears to be emissions reduction. It appears reasonable to recover the costs of those reduced GHG emissions, which are calculated on a volumetric basis through base rate and tracker components recovered on a volumetric basis. This proposed change would also allow CenterPoint to simplify its rate design for both the IAC and the IAA. The Company would no longer need to develop separate rate components by class. One all classes rate component would suffice.

The Department has not calculated the effects of this proposed change on rates, or customer bills, but assuming the Residential and Commercial classes have similar level of annual volumetric sales, the effects on rates should be minimal.

[120] See Attachment A.31 for a copy of Department information request no. 65 and the Company's response.

iii. Recovery of RNG Costs Through the Purchased Gas Adjustment

As noted previously, the NGIA does allow a natural gas utility to recover costs through the PGA. CenterPoint is proposing to recover two types of costs through the PGA: 1) Renewable Natural Gas costs paid to third-party producers; and 2) the costs for purchased electricity under the Green Hydrogen Blending pilot.

Given that the PGA Rules are quite restrictive as to the types of costs that can be recovered through the PGA, CenterPoint requested a variance to applicable PGA rules. The Company's position is that the Commission must approve a variance to the PGA rules for CenterPoint to be able to recover those NGIA-related costs through the PGA.

Specifically, the Company requests that the Commission grant variances to Minn. R. 7825.2400, subp. 10 and subp. 12. Minn. R. 7825.2400 subp. 10 states:

> **Cost of fuel consumed in manufacture of gas; peaking shaving volumes.** "Cost of fuel consumed in the manufacture of gas" or "peak shaving gas volumes" is the withdrawals during the heating season, from account 151 as defined by the Minnesota uniform system of accounts, class A and B utilities. All gas public utilities shall use this definition regardless of class.

The Company stated in its Petition that it requires a variance to the language in this subdivision because it will not record its electricity purchases for the hydrogen electrolyzer to any of the listed accounts. Those electricity costs will be charged to FERC account 735.0.

Minn. R. 7825.2400 subp 10 states:

> **Cost of purchase gas; incorporation by reference.** "Cost of purchased gas" is the cost of gas as defined by the Minnesota uniform system of accounts, class A and B utilities, including accounts 800, 801, 802, 803, 804, 804.1, 805, 805.1, 808.1, 909.1, 810, 854 and 858 for energy purchased, as provided by Code of Federal Regulations, title 18, part 201, as amended through April 1, 1988. These accounts are incorporated by reference. The cost of purchased gas also includes the normal and ordinary cost of injection and withdrawal of gas from storage at the time of withdrawal. All gas public utilities shall use this definition regardless of class.

CenterPoint explained in the filing that it will not book its RNG purchases to any of the accounts listed in subdivision 10. Rather, the Company will be charged to FERC account 804.2.

In information request no. 80, the Department asked for the definition of FERC Account 804.2.

CenterPoint replied: The FERC code of regulations specific that, "This account shall include the cost, at the point of receipt by the utility, of natural gas purchased which is received at the entrance to the distribution system of the utility."[121]

The Company's response is reasonable. The Department concludes the request for a variance is appropriate.

1. Criteria for Granting a Variance to a Minnesota Rule

Minnesota Rules 7829.3200 outlines three conditions that must be met for the Commission to grant a variance to a Minnesota rules.[122] The following discussion addresses the three criteria to be considered by the Commission in determining whether it may grant a rule variance.

A. **Enforcement of the rules would impose an excessive burden upon the applicant or other affected by the rules**: According to CenterPoint, by granting a variance to Minnesota Rules 7825.2400, subp. 10 abd subp. 12, the Commission makes it possible for the Company to efficiently and cost-effectively recover the costs associated with its RNG and Green Hydrogen pilot projects Not granting the variances would result in CenterPoint having to recover those costs through base rates or it proposed annual tracker mechanism. This would delay the recover of those costs significantly thereby increasing CenterPoint's costs of doing business.

B. **Granting the variance would not adversely affect the public interest**: As explained previously granting a variance in this case stands to provide potential benefits, rather than harm, to both the Company and its ratepayers through timely cost recovery. CenterPoint also specifically stated in its Petition that the public interest would not be adversely affected by an extension of the rule variance. The Department notes that there is nothing in the Company's proposal that would preclude the Commission from exercising its authority in the future to disallow imprudent or unreasonable transactions, which provides further protection of the public interest.[123]

C. **Granting the variance would not conflict with standards imposed by law**: As it has done in its prior related dockets, the Company stated that it is not aware if any laws with which the proposed variance would conflict. The Department is also not aware of any laws with which the proposed variance would conflict.[124]

[121] See Attachment A.32 for a copy of Department information request no. 80 and the Company's response
[122] https://www.revisor.mn.gov/rules/7829.3200/
[123] *Id.*
[124] *Id.*

The Department concludes that the Company has shown that its proposal meets the criteria for granting a rule variance and recommends the Commission approve the Company's request for variance.

iv. Updated Benefit/Cost Assumptions

As noted previously, the Department's ECO/CIP group recommended and Assistant Commissioner Gransee approved updated BENCOST inputs for the 2024-2026 CIP Triennial filings on March 31, 2023. The Department recommends the Commission require CenterPoint to use the most recent BENCOST assumptions in the analysis the Company provides in its reply comments.

This recommendation concludes the Department Analysis section of these comments.

IV. SUMMARY OF DEPARTMENT RECOMMENDATIONS

The Department has a large number of recommendations after completing its review of this filing. Given that the focus of this filing is the NGIA budget, we elected to discuss those recommendations in a separate category. A second, broader category that includes a mix of policy or non-budget specific recommendations follows.

A. BUDGET-RELATED RECOMMENDATIONS

Given the number of budgetary recommendations, the Department separated its recommendations into three categories.

The categories are:

- Pilots that need additional work to identify potential customers or R&D projects to justify the estimated budgets.
- Pilots that are inconsistent with the NGIA statute or Existing Regulatory Policy: and
- Pilots related to existing technology that need to demonstrate operational improvement.

The Department also provides brief explanations on its rationale for its recommendations.

D. Additional Work to Identify Customers or Research and Development Projects

12) RNG Pilots A,B and C – CenterPoint did not identify any potential customers for either the waste-water recovery or landfill gas archetype projects which led the Department to recommend removing the budgets associated with those archetypes. The Department also recommended adjusting the food waste archetype budget due to a smaller than budgeted number of identified interested developers. The Department is awaiting further information on how the Company's proposal to include Pilot A's budget in Pilot C's budget now that Pilot A is no longer under consideration.

13) Pilot E – Archetype Power-to-Hydrogen – The Department recommended adjusting the budget to recognize the smaller than budgeted number of interested customers the Company had identified.

14) Pilot E – Archetype Carbon Capture – This is another proposed pilot with no identified customers to date. The Department appreciates the idea and recommends it be modified

such that a scoping study is completed in Year 1 of the NGIP and the costs be categorized as R&D spending.

15) Pilot F – Industrial Methane and Refrigerant Leak Reduction Program - The Department recommended adjusting the budget to recognize the smaller than budgeted number of interested customers the Company had identified.
16) Pilot I – New Networked Geothermal Systems – The Company's support for this Pilot was very limited and not based on locally-developed cost estimates. The Department recommend CenterPoint should modify this proposal to one in which the Company performs a feasibility study for a networked geothermal study for new construction on a greenfield or brownfield site.
17) Pilot N – Residential Deep Energy Retrofit Plus Air Source Heat Pump – The Department is proposing to modify the pilot's proposed budget due to inconsistencies regarding the appropriate number of participants. The Department also notes that the NGIA statute requires any natural gas utility with more than 800,000 customers to include a pilot program that facilitates deep energy retrofits and the installation of cold climate electric air-source heat pumps in existing residential homes that have natural gas heating systems.[125] Pilot N appears to meet that requirement.
18) Pilot O – Small/Medium Business Greenhouse Gas Audit – This is another pilot where the annual forecasted number of participants appeared to be overly optimistic relative to historical information. In response, the Department modified the budget.
19) Pilot P – Residential Gas Heat Pump – The Department is concerned as to the potential for commercialization for this technology in the near term and the potential efficiency of gas heat pump technology relative to electric air source heat pump technology. Hence, the Department modified the pilot's budget.
20) Pilot Q – Gas Heat Pump for Commercial Buildings – The Department approved this pilot's budget without modification but did recommend a change to the pilot's structure such that it enable customers to receive federal tax benefits from the technology.
21) Pilot R – Industrial and Large Commercial Greenhouse Gas Audit Pilot – The Department will defer on making any recommendations on this pilot until it has an opportunity to review the Company's reply comments. Given the Department's recommendations for Pilots H, L and M, it is not clear if there are any remaining proposed NGIA pilots that can be recommended to the auditee.
22) Research and Development Budget – This is another budgetary category in which the number and costs of the defined projects was significantly less than the overall ask. Hence, the Department modified the budget such that it is consistent with the R&D projects currently identified. The Department also recommends one of the proposed projects included in the NGIA R&D budget be transferred to the ECO R&D budget.

[125] Minn. Stat § 21B.2427 subd. 8.

E. Inconsistency With NGIA Statute or Existing Regulatory Policy

7) Pilot G – Urban Tree Carbon Offset Program – This is another concept the Department agrees with in principle. The issue with this pilot is that it is proposing to purchase carbon credits from trees that were planted between 2019 and 2021. These trees are already capturing carbon dioxide. Thus, ratepayers will receive no additional benefit in terms of carbon dioxide reduction from those trees. In addition, the NGIA statute is focused on removing incremental amounts of carbon dioxide. Hence, the Department's position is that it is inconsistent with this statutory intent. The Department could potentially support a program under which this same agency planted new trees in future years.
8) Pilot H – Rebates for Commercial Buildings - The NGIA statute clearly states that investments that can be reasonably included in the natural gas utility's Triennial Plan under section 216B.241 should not be included in the NGIA Innovation Plans. CenterPoint has an existing program similar to Pilot H in its ECO portfolio. The costs for this Pilot should not be recovered via the NGIA, but rather ECO to be consistent with statute.
9) Pilot K – Decarbonizing Existing District Energy Systems - The NGIA statute defines a District Energy System as the following: "a heating or cooling system that is solar thermal powered or uses the constant temperature of the earth or underground aquifers as a thermal exchange medium to hear or cool multiple buildings connected through a piping network."[126] Given that the District Energy system identified in Pilot K is powered by fossil fuel, it doesn't meet the statutory definition and the Department did not recommend approval.
10) Pilot L – This pilot proposes to install a ground source heat pump to heat and cool one building. Referring to the statutory definition of District Energy System referenced earlier, this pilot's proposed structure is not consistent with that definition. Hence, the Department did not recommend approval.
11) Pilot L – Industrial Electrification Incentive Program – This pilot also appears to be a better fit for the Company's ECO plan than the NGIA. As we noted earlier, the NGIA statute clearly states that investments that can be reasonably included in the natural gas utility's Triennial Plan under section 216B.241 should not be included in the NGIA Innovation Plans. This pilot also needs additional work regarding customer outreach. Hence, the Department didn't recommend approval of the pilot. The Department did suggest the Company pursue the project via the ECO funding mechanism.
12) Pilot M – Commercial Hybrid Heating Pilot – Similar to Pilot L, this pilot would be a better fit for the Company's ECO Plan due to the statutory threshold regarding the classification of projects between ECO and the NGIA.

F. Operational Improvement of Existing Technology

1) Pilot D – Green Hydrogen Blending Pilot in Mankato – As part of its review of this pilot, the Department asked discovery regarding the Company's existing electrolyzer located in Minneapolis. This unit's poor performance to date was the primary driver for the Department recommendation to remove this pilot's budget from the NGIA.

[126] Minn. Stat § 21B.2427 subd. 1e.

B. POLICY/OTHER RECOMMENDATIONS

The Department recommends three modifications to the process for selecting and evaluating the three proposed RNG Pilots (A,B, and C):

- Simplification of the Company's proposed contracting process;
- An increase to the number of contract options included in CenterPoint's draft Request for Proposals (RFP) and;
- Development of a Model RNG contract with 5, 10 and 15 year terms that would be included as part of the Company's draft RFP.

Turning to pilot specific recommendations, the Department notes CenterPoint proposed to remove Pilot A from the NGIA in a letter dated January 3, 2024 to the Commission. The Department doesn't currently have a recommendation as to how whether the costs associated with Pilot A should be removed from the NGIA budget or be included in Pilot C's budget which is the course of action CenterPoint identified in its January 3, 2024 letter. The Department will review the Company's reply comments and its rationale for including that amount in the NGIA budget and provide a recommendation in our supplemental comments.

Regarding the remaining pilots, the Department recommends

1. Pilot B should be included as part of the competitive bidding process and draft Request for Proposals proposed in Pilot C;
2. Pilot B be modified such that CPE is allowed to buy up to 30 percent or 50 percent of the environmental attributes associated with the RNG volume proposed for this pilot. The incremental cost for Pilot B should be according to either Department Alternative 1 ($3,240,218) or 2 ($5,217,315).
3. Pilot C be modified as follows:
    a) RNG Archetype for Wastewater and Landfill be denied without prejudice
    b) Participants in the Pilot C RFP be allowed to sell bundled RNG (brown gas and environmental attributes), unbundled RNG (just environmental attributes) and unbundled RNG (just brown gas).
    c) CPE is allowed to buy up to 30 percent or 50 percent of the environmental attributes associated with the RNG volume proposed for this pilot.
    d) The incremental cost for Pilot C should be according to either Department Alternative 1 ($6,953,651) or 2 ($11,131,465).

4. Pilot D should not be approved as currently proposed due to the poor performance of CenterPoint's existing electrolyzer and the pilot's current structure that does not address eligibility for federal hydrogen production tax credits.
5. The component of Pilot E that is related to a power-to-hydrogen project for an industrial or large commercial customer be approved with budget set for one customer.
6. Pilot E's Carbon Capture component be modified such that:
    a) the proposed scoping study that will be completed in year 1 of the Plan be classified as R&D spending;
    b) any budgeted amounts beyond the cost of that study be removed from the NGIA budget until the Company has provided additional information on applicable cost-effectiveness of the technology; and
    c) the Company has identified one or more customers interested in participating in the carbon capture component of Pilot E.
7. Pilot F be modified and its budget reduced to what would be required for supporting 10 participants in each year for the first two years of the NGIA Plan.
8. Pilot G not be approved. The Commission should ask CPE to modify this pilot to ensure the spending through this pilot ensures additional trees are planted such that the GHG emission reductions are additional.
9. Pilot H not be approved as it is currently structured.
10. Pilot I not be approved.
11. CPE file a modified version of Pilot I that funds a feasibility study for a networked geothermal system for new construction on a greenfield or brownfield site.
12. Pilot J not be approved as it is currently structured.
13. Pilot K not be approved as it is currently structured.
14. Pilot L not be approved.
15. Pilot M be not be approved.
16. Pilot N be approved but modified by scaling its budget to $4,885,520.
17. Pilot O be modified by scaling it down to conduct 200 audits per year during the first innovation plan. CPE should provide relevant cost estimates in its reply comments.
18. Pilot P not be approved.
19. Pilot Q be modified to ensure maximal utilization of federal funds to cover installation costs. The Department may provide additional recommendations regarding Pilot Q depending on the Company's responses in its reply comments to the Department questions.
20. The Department may provide additional recommendations regarding Pilot R depending on the Company's responses in its reply comments to the Department questions.
21. Six R&D Projects that include specific proposals should be approved that amounts to $1,785,000; and
22. The remaining R&D budget of $8,785,462 should not be approved.

The Department also has several policy recommendations that are not pilot specific. These recommendations address inputs to the Total Incremental Cost model the NGIA statute describes or are in response to a Company-specific request.

The Department recommends:

1. The Commission require CenterPoint to adopt NYMEX futures prices to calculate future avoided geologic gas costs.
2. The Commission require CenterPoint to change the variable cost annual escalation rate used in the calculation be based on the annual percentage change in normalized load growth for Non-CIP Exempt customers instead of the Company's proposal.
3. The Commission use annual forecasted throughput for Sales customers as the criterion for determining revenue apportionment by class for both the IAC and the IAA instead of CenterPoint's proposed approach.
4. The Commission approve the Company's request for variance to recover renewable natural gas costs and electricity costs used to create hydrogen through the PGA.
5. The Commission require CenterPoint to use the most recent version of the Department's approved BENCOST assumptions in the analysis included in its reply comments.

The Department also requests that CenterPoint in its Reply Comments, clarify, and provide detailed explanations for the following:

a) If the goal above is to support the qualitative benefit, for example driven by corporate sustainability goals and customer preferences, or for example large end users of natural gas maybe looking into RNG as an option to reduce their GHG emissions, does M-RETS offer the ability to purchase environmental attributes without the RNG commodity?
b) In reference to the above question in subpart (a), does it have to be bundled with the RNG commodity?
c) In reference to the above questions in subparts (a) and (b), would this be considered offsets for customers in Minnesota?
d) Above the Company mentioned that M-RETS defines an RTC as a "whole RTC" and includes all environmental attributes. In its tracking, certification, and verification system, does M-RETS offer anything other than a "whole RTC"?
e) Do the RTC's in M-RETS system expire? If they do expire, what is the duration or shelf life of the RTC's before expiration?
f) Above, given that CenterPoint claims that RTCs may not also be claimed by any other party, does M-RETS track, verify, and certify the RTCs by cross validating with for example, including but not limited to EMTS? California LCFS? Oregon LCFS?
g) Are the M-RETS RTCs tradeable?
h) Can the M-RETS RTCs be banked?
i) Can the M-RETS RTCs be transferred?
j) Does M-RETS submit data on the RTCs to the Department of Treasury, Internal Revenue Service? Is the data based on a calendar year basis?
k) Is M-RETS participation limited in any way, for example to the Midwest? The Lower 48 States? North America? North America and Europe?
l) Does an entity have to take title to the gas to own the environmental attributes?
m) How CenterPoint determined that "the systems" are reasonable?

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 7/24/2023
Response Due: 8/3/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 04	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing With respect to Renewable Natural Gas (RNG) Pilots, the Natural Gas Innovation Act (NGIA) Plan lists 3 pilots: Pilot A. RNG Produced from Hennepin County Organic Waste Pilot B. RNG Produced from Ramsey & Washington Counties Organic Waste Pilot C. Renewable Natural Gas Request for Proposal ("RFP") Purchase With respect to these three pilots: a. Please explain why CenterPoint Energy (CPE or Company) decided to include two pilots outside an RFP process and include the other pilot in an RFP Process? As part of your response, please identify the criteria CPE used. b. Please explain why CPE's approach of requiring some RNG suppliers to go through an RFP Purchase process but not requiring others to go through and RFP purchase process should not be considered

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

discriminatory?

c. Can any non-affiliated - RNG producer; RNG-entity; RNG- marketer; RNG-distributor; and/or RNG- aggregator request an exemption from the RFP Purchase process from CPE? Please explain.
d. Can any affiliated - RNG producer; RNG-entity; RNG- marketer; RNG-distributor; and/or RNG- aggregator request an exemption from the RFP Purchase process from CPE? Please explain.
e. From CPE's perspective, what are the merits of creating an RFP Purchase process? Please explain.
f. Please explain and provide details of the RFP Purchase process that CPE has created for Pilot C.
g. Please explain and provide details of why the Company thinks Pilots A and B should not go through a RFP Process.
h. Please explain and provide the cost per dekatherm (in $) for these three pilots and how are they calculated across the pilots. As part of your response, please provide the calculation(s) in a Microsoft Excel spreadsheet (*.xlsx) format with all links and formulae intact.
i. With respect to the above proposed pilots please explain and discuss whether substituting conventional natural gas with RNG is a conservation achievement.

Response:

a. Pilots A and B were two specific RNG projects proposed in response to the Request for Ideas ("RFI"). Each of these pilots is connected to a local government entity within CenterPoint Energy's ("CenterPoint Energy" or "Company") Minnesota service area and accordingly are expected to result in widespread public benefits for communities served by CenterPoint Energy including assisting the state in achievement of waste management goals, promotion of a circular economy, and the development of low intensity RNG. In addition, as food waste diversion projects, both qualify for additional funding under Minn. Stat. § 2427, subd. 3. These factors make each project highly attractive in ways that are unlikely to be replicated by any other potential RNG projects.

b. The amount of RNG available is limited. CenterPoint Energy plans to directly negotiate with some local governments to procure RNG, due to the reasons cited in response a. above. The Company is looking for additional suppliers and is utilizing a request for proposal ("RFP") to generate additional interest in RNG production.

c. CenterPoint Energy will evaluate every potential source of RNG supply

Response By: Betsy Lang
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for NGIA, whether brought to the Company's attention through an RFI, RFP or some other means based on the factors identified in the Framework Order, issued on June 1, 2022 in Docket No. G-999/M-21-566, and strive to maximize value to customers under that Framework regardless of how CenterPoint Energy learned of the potential RNG sources. The Company believes that there are situations in which a formal RFP process is not beneficial for maximizing value to customers, but its determination on this point is not dependent on any exemption request made by potential RNG suppliers.

d. The Company has no affiliated RNG producers, RNG entities, RNG marketers, RNG distributors, or RNG aggregators. The Company's sole affiliate RNG entity, ESG, was divested as of June 30, 2023 and is no longer affiliated with CenterPoint Energy.

e. CenterPoint Energy plans to issue an RFP for additional RNG to complete its portfolio. While CenterPoint Energy has heard from some developers that may be interested in responding to the RFP, CenterPoint Energy has not pre-selected any particular projects. In selecting winning proposals, CenterPoint Energy will attempt to achieve a reasonable cost per ton of lifecycle CO_2e reduction while giving preference to projects in Minnesota or neighboring states, or projects with other significant co-benefits, as detailed in our draft RNG RFP provided in Exhibit Q.

f. See Exhibit Q: Draft RFP for RNG. CenterPoint Energy seeks to procure affordable, low-carbon intensity and low-risk RNG resources for delivery to its customers. To do this, CenterPoint Energy desires to partner with participants in the RNG market who are interested in selling their pipeline-quality RNG.

g. See response to part a. above.

h. Discussion of how ICF developed estimated prices for RNG are included in the Plan filing, Exhibit T, Attachment (ICF February 2023 Memo Re: RNG Pricing in Voluntary and Utility Markets). To determine estimated pricing for Pilot C, ICF developed estimated pricing for various RNG feedstocks and estimated quantities of each type of feedstock that would be selected through a future RFP process. See Attachment 1 for this calculation.

Pilot	Estimated Price per Dth

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Pilot A:	RNG Produced from Hennepin County Organic Waste	$24
Pilot B:	RNG Produced from Ramsey & Washington Counties Organic Waste	$24
Pilot C:	Renewable Natural Gas RFP Purchase	$21.75

i. Minn. Stat. § 216B.241 defines "energy conservation improvement" to be "demand-side management of energy supplies resulting in a net reduction in energy use. Load management that reduces overall energy use is energy conservation." Because the proposed RNG pilots do not reduce overall energy use, they do not satisfy the statutory definition of energy conservation. CenterPoint Energy, however, does consider RNG to be a GHG reduction achievement as the proposed pilots would reduce GHG emissions from energy use.

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State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/11/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 029	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to Pilot A: RNG Produced from Hennepin County Organic Waste. a. Please provide details of the terms of contract between the RNG developer and CPE used to model this pilot. b. Will the developer pay the interconnection cost to participate in this pilot? c. Will a developer have an option to terminate the contract with CPE before its expiration? d. Please provide details any penalties the developer will have to pay if they fail to meet the terms of the contract. e. Please provide details any early termination clause the contract. f. Will CPE sign bonds with the developer and take legal action against them in case they fail to meet the terms of the contract? g. Will the developer have the ability to renegotiate the contract before expiry? If yes, provide details. h. Will ratepayers be responsible for any stranded costs in case the developer terminates their contact with CPE?

Response By: Betsy Lang
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Department: Regulatory Services
Telephone: 612-321-4318

Response:

a. CenterPoint Energy assumed 10-year contracts to model this pilot and pricing as described in the NGIA Filing in Attachment 1 to Innovation Plan Exhibit T (Utility System Report and Forecast). No other specific contract terms were assumed as part of the modeling. As noted in Exhibit D to the Company's NGIA Filing, CenterPoint Energy has not yet entered into a contract for this pilot.

b. CenterPoint Energy will not require interconnection to participate in this pilot. However, as noted in Exhibit D of the Innovation Plan filing, it is anticipated that the facility will be directly interconnected to CenterPoint Energy's distribution system. If this project does move forward with the interconnection, they will be subject to our existing RNG interconnection tariff, separate from their participation in this NGIA pilot.

c-g. CenterPoint Energy has not made a decision on these potential contract terms or related agreements at this time.

h. CenterPoint Energy does not anticipate any capital contribution to this project through NGIA and therefore does not foresee a risk of stranded costs. The potential interconnection component of the project would be subject to an exit fee as described in our Interconnection Tariff, specifically, "If Customer suspends RNG production, Customer will pay an exit fee equal to the total cost of installing the RNG facilities, including main to connect to CenterPoint Energy's distribution system, and any costs for removal of facilities, less the initially paid contribution-in-aid-of-construction; any depreciation of facilities that has occurred between time of project inception and suspension of RNG production; and any cost for infrastructure that is utilized by other customers."

Response By: Betsy Lang
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Department: Regulatory Services
Telephone: 612-321-4318

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 8/9/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 024	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing Please provide a legal analysis of Minnesota Statute 216B.2427 (the NGIA statute) that identifies whether emissions credits produced by "Innovative Resources" as defined in that statute must be sold and subsequently retired in the Minnesota jurisdiction. **Response:** Minn. Stat. § 216B.2427 (the NGIA Statute) does not contain any provision that requires emissions credits produced by Innovative Resources must be sold or retired in the Minnesota jurisdiction. Minn. Stat. §216B.2427, subd. 2(a)(10), requires that a utility filing an innovation plan include, as applicable, a description of third-party systems and processes the utility plans to use to (i) track the innovative resources included in the plan so that environmental benefits produced by the plan are not claimed for any other program; and (ii) verify the environmental attributes and greenhouse gas emissions intensity of innovative resources included in the plan. These requirements are addressed in Exhibits D and W of CenterPoint Energy's NGIA Plan.

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Department: Regulatory Services
Telephone: 612-321-4318

Subd. 1(r) of the NGIA Statute defines the "total incremental cost" of a utility innovation plan to be the costs of the plan less any "value received by the utility upon the resale of innovative resources or innovative resource by-products, including any environmental credits included with the resale of renewable gaseous fuels or value received by the utility when innovative resources are used as vehicle fuel." This provision does not purport to require the sale of emissions credits produced by Innovative Resources but instead addresses how the value of any such sales of environmental credits, if they do occur, are accounted for in determining "total incremental cost" under the NGIA Statute.

CenterPoint Energy does not plan to sell emissions credits produced by any Innovative Resources to be procured by the Company under the Company's NGIA Plan. As described in CenterPoint Energy's Plan, CenterPoint Energy proposes to record environmental attributes it procures in the M-RETS tracking system and retire those attributes on behalf of customers. For customer-owned projects where the Company does not take ownership of associated environmental attributes, CenterPoint Energy proposes to require customers to agree not to resell any environmental attributes generated, but may grant an exemption to allow for the sale or transfer of environmental attributes if there are sufficient controls and tracking to ensure the environmental attributes and associated benefits are retired on behalf of an entity within the state of Minnesota. See Exhibit D of the Company's Petition.

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Telephone: 612-321-4318

State of Minnesota
Citizens Utility Board of Minnesota

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 9/26/2023
Response Due: 10/10/2023

Analyst Requesting Information: Brian Edstrom/Brandon Crawford/Olivia Carroll

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
CUB 006	Where applicable, please provide your answers in a live, unlocked spreadsheet with all links and formulas intact. If the calculations or data origins are not obvious/labeled, provide a narrative explanation. Reference *In the Matter of the Petition of CenterPoint Energy for Approval of a Recovery Process for Cost Impacts Due to February Extreme Gas Market Conditions*, Gas Utilities Joint Initial Comments in Response to August 23, 2022 Notice, Docket No. G-008/M-21-138 (Sept. 15, 2022) pg. 9: "With respect to setting benchmarks for natural gas commodity costs, one significant challenge with gas purchasing incentive mechanisms is the fact that the majority of natural gas commodity purchases are either through a) short- to medium-term contracts predominantly tied to some external market index, or b) from spot gas purchases where the price is set in the daily market." a. Define "short-term contract" as that term is used above. Specifically, what term length (or range of term lengths) does CenterPoint consider "short-term.") b. Define "medium-term contract" as that term is used above. Specifically, what term length (or range of term lengths) does CenterPoint consider "medium-term." c. Applying the definitions provided in response to a and b, above: approximately what percentage of CenterPoint's natural gas commodity purchases occurred through short-term or medium-term contracts in the most recently completed gas year? d. Does CenterPoint anticipate that contracts for the purchase of RNG (as

Response By: Betsy Lang
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Department: Regulatory Services
Telephone: 612-321-4318

described in Pilots A-C) will have a fixed price or a variable price? If a variable price, please describe how that variable price will be set.

Response:

a. With respect to CenterPoint's definition of short-term contract, this would be any natural gas commodity purchase with a term of one year or less. Examples of this from CenterPoint's perspective would be daily, monthly or seasonal natural gas commodity purchases. The majority of the Company's supply needs are obtained through these types of transactions.

b. CenterPoint Energy categorizes its natural gas commodity purchases as either short-term (one year or less) or long-term (more than one year).

c. For gas year July 2022-June 2023, approximately 99% of CenterPoint Energy's natural gas commodity purchases were secured through short-term supply contracts. The only transaction considered as a long-term supply contract would be a 24-month hedge that began April 2023 for 10,000 Dth/d. Going forward the Company will continue to evaluate these opportunities along with transacting when it makes prudent business sense to do so.

d. We anticipate that contracts for the purchase of RNG (as described in Pilots A-C) will have a fixed price per MMBtu, assuming Carbon Intensity stays within an acceptable range. Production could vary annually and the Company recognizes that the provision of RNG via an emerging market does not mirror the purchasing process for geologic natural gas.

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State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 7/24/2023
Response Due: 8/3/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: 0

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 06	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing Center Point (CPE or Company) proposed six Archetype Projects: 1. RNG Archetype - Wastewater Resource Recovery Facility 2. RNG Archetype - Dairy Manure 3. RNG Archetype - Food Waste 4. RNG Archetype - Landfill Gas 5. Green Hydrogen Archetype for Industrial or Large Commercial Facility 6. Carbon Capture Archetype for Industrial or Large Commercial Facility With respect to these six Archetype Projects, please answer the following questions: a. Define an "Archetype Project" and explain how it's different from other projects proposed by CPE in its plan. b. Please explain why the Company was unable to propose these archetype projects as actual project proposals in its current filing. c. Has the Company issued any RFP for the above 6 projects? Please explain. d. If the answer to part (c) is yes, please explain and provide details of

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responses the Company received.

e. For each of these archetype projects, please describe the process of obtaining detailed estimates of carbon intensity, cost effectiveness, avoided emissions, annual production, and cost estimates.

Response:

a. The Archetype Projects were the result of a gap analysis conducted by our consultant ICF, which included review of all ideas received through the RFI, and identified promising gas decarbonization solutions that were not reflected in any of the ideas received. These differ from other projects proposed in that the other projects were largely inspired by information contained in RFI responses.

b. The Archetype Projects are being proposed as actual pilots. Specifically Pilot C, Renewable Natural Gas ("RNG") Request for Proposal ("RFP") Purchase, includes the Archetypes listed as 1-4 in your above information request and Pilot E, Industrial or Large Commercial Hydrogen and Carbon Capture Incentives, includes the Archetypes listed as 5-6 in your above information request.

c. No. CenterPoint Energy has not yet conducted a competitive bidding process for RNG proposed pilots.

   CenterPoint Energy started its Plan development process by issuing a Request for Ideas ("RFI") seeking information and proposal ideas for different pilot projects. The Company received over 100 responses proposing different kinds of pilots for the Company's consideration. CenterPoint Energy also developed some pilot ideas internally and our consultant, ICF, also contributed certain ideas.

d. N/A

e. Carbon Intensity: See the Plan filing, Exhibit F, for a discussion of how lifecycle greenhouse gas ("GHG") intensity was calculated for each proposed pilot, including the Archetype pilots that were included in proposed Pilots C and E.

   Cost Effectiveness: Please see the Plan filing, Exhibit M, for a summary of pilot cost effectiveness and Exhibits O and P for details on cost-effectiveness calculations, for quantified costs and benefits, and Exhibit O for discussion of qualitative costs and benefits.

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Avoided Emissions: Please see the Plan filing, Exhibit F, for a discussion of GHG intensity which includes avoided emissions.

Annual Production:

- RNG Archetype Projects:, The different sizes are placeholder assumptions to show a range of RNG purchase volumes. NGIA rules require that at least half of the budget to be for low-carbon fuels, like RNG and hydrogen. These ranges of placeholder production (Dth/year) estimates gave CenterPoint Energy the flexibility to work within the budget and meet requirements for at least 50% of costs for low-carbon fuels in its Plan. Certain types of RNG seemed more favorable from a $/tCO2 perspective in the plan development process, but this analysis was preliminary. Overall, the expectation is that the RFP process will dictate the types and volumes of RNG projects moving forward, so the mix of different archetypes was not intended to be a prediction of final volumes across RNG types. Thus, the mix intended to set expectations for budget and emission reductions, but leave flexibility to pursue the best RNG projects identified through the RFP process.

- Green Hydrogen Archetype for Industrial or Large Commercial Facility: The 5 MW electrolyzer capacity assumed for this archetype was developed with a goal of being large enough to have a significant impact on GHG emissions but small enough that there would be a significant number of CenterPoint Energy customers expected to be large enough to be eligible candidates for the pilot. The assumed 5 MW electrolyzer was estimated by ICF to have a hypothetical maximum production capacity of 13 MMBtu of hydrogen per hour, and it was in turn estimated that there are more than 50 CenterPoint Energy customers that consume enough natural gas to be eligible candidates. This did not screen candidates for suitability from other perspectives, and CenterPoint Energy would be open to funding potentially larger or smaller projects once actual suitable and interested candidates are identified. The annual production from this archetype was then calculated based on this capacity and a series of other operating assumptions, such as an assumed average annual capacity factor of 38%, which are available in the spreadsheet in Exhibit N of the Plan filing.

- Carbon Capture Archetype for Industrial or Large Commercial Facility: The assumed sizing of carbon capture units for facilities with a natural gas firing rate of 22 MMBtu per hour for this

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archetype was developed with a goal of being large enough for the carbon capture unit to have economies of scale (e.g. expected costs per ton of carbon captured increase significantly as unit sizes decrease) but small enough that there would be a significant number of CenterPoint Energy customers expected to be large enough to be eligible candidates for the pilot. This did not screen candidates for suitability from other perspectives, and CenterPoint Energy would be open to funding potentially larger or smaller projects once actual suitable and interested candidates are identified. The annual production from this archetype was then calculated based on this equipment capacity and a series of other operating assumptions, such as capture efficiency (assumed to be 90%) and facility capacity utilization factor of the capture equipment (assumed 75%), which are available in the spreadsheet in Exhibit N of the Plan filing.

Cost Estimates: Discussion of how ICF developed estimated prices for RNG are included in the Plan filing, Exhibit T, Attachment 1 (ICF February 2023 Memo Re: RNG Pricing in Voluntary and Utility Markets). For the industrial hydrogen and carbon capture pilot archetypes, cost was influenced by assumed pilot size. Once the assumed technology scale and operational details were established as outlined above, ICF broke down capital installation and various operating cost categories and developed assumptions for each of these costs. For example, based on examples in available literature from the Global CCS Institute, ICF's team represented the carbon capture capital expenses as a function of facility size and the partial pressure of the flue gas. ICF referenced third party studies where possible, and the assumptions and calculations are available in the spreadsheet in Exhibit N of the Plan filing. As specific customers to partner with CenterPoint on the Plan have not yet been identified for these archetypes, and the details of the eventual partner facilities will influence operational patterns, types of processes, and scale of the operations, the costs could also vary if CenterPoint Energy customers pursue other technologies, scales, or approaches than what was assumed as a pilot archetype.

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State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/11/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 025 P	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to Pilot C: Renewable Natural Gas Request for Proposal (RFP) Purchase where the Company forecasts it will purchase 408,750 Dekatherms of RNG annually. a. Please explain how CPE came up with the value of 408,750 Dekatherms for this Pilot. b. Does the 408,750 Dekatherms value for the Pilot represent the maximum potential amount to be purchased under this pilot? c. What percentage of 408,750 Dekatherms is CPE expecting to purchase with relatively high level of certainty each year during the life of the pilot? Please provide justification. d. What minimum percentage of 408,750 Dekatherms must the purchased annually over its useful life each year for the pilot to generate positive net benefits from a societal perspective? e. How many Dekatherms of RNG is produced in Minnesota annually that the Company is aware of? f. How many developers has reached out to CPE and expressed interest in participating in this pilot? g. Please provide details of correspondences with developers that show any

Response By: Betsy Lang
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Department: Regulatory Services
Telephone: 612-321-4318

of the identified developers are interested in this pilot.

h. Please provide justification to support the claim that there will be potential developers interested in this pilot.

Response:

a. 408,750 Dth/year is the sum of four archetype pilot estimates that were modeled: wastewater, dairy manure, food waste and landfill gas.

b. It does not represent a maximum potential amount. CenterPoint Energy plans to spend approximately $27.8M on RNG selected through this RFP to satisfy the NGIA requirement that 50 percent or more of the costs in this Plan be for RNG, biogas, hydrogen produced via power-to hydrogen, and ammonia produced via power-to-ammonia. Within that budget, CenterPoint Energy's purchasing choices will be guided by the RFP responses actually submitted and the Company may buy more or less RNG from a given source depending on actual project features as described in Exhibit Q, which may result in purchases above or below 408,750 Dth.

c. CenterPoint Energy's purchasing choices will be guided by the RFP responses actually submitted and the Company may buy more or less RNG from a given source depending on actual project features as described in Exhibit Q of the Innovation Plan filing.

d. In the Commission's June 1, 2022, Order Establishing Frameworks for Implementing Minnesota's Natural Gas Innovation Act, Docket No. G-999/CI-21-566, Order Point 26(d), the Commission defined the "Societal Perspective" as "all the costs and benefits of the resource, including all relevant societal impacts." Order Points 30-32 indicate that costs and benefits include both quantifiable costs and benefits and costs and benefits that are not reasonably practicable to quantify. Quantified and unquantified costs and benefits for each pilot are shown in Exhibit M to CenterPoint Energy's petition. Because the societal perspective includes unquantified costs and benefits, CenterPoint Energy is not able to identify a numerical tipping point where a pilot or measure would no longer have net positive benefits from a societal perspective.

e. CenterPoint Energy provides natural gas service to one project in Minnesota involving several farms that produce RNG but does not currently receive any RNG from them. Because their RNG production is not going onto the Company's system, CenterPoint Energy does not know their annual production. We aim to better understand local

Response By: Betsy Lang
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production volumes and market conditions via our RFP process.

f. In addition to RFI responses used for the design of Pilot A and Pilot B, active and potential producers and developers have reached out to CenterPoint Energy for information about RNG receipt programs, and many of these developers have expressed interest in selling us RNG. We have also talked to developers with existing projects (or projects in development) that would not interconnect to the CenterPoint Energy distribution system but who would be interested in selling their RNG to CenterPoint Energy in long-term contracts.

g. See the following attachments, which correspond to the RFI responses mentioned in f.:

   Attachment 7_RFI Response No. 15
   Attachment 8_RFI Response No. 32
   Attachment 9_RFI Response No. 46
   Attachment 10_RFI Response No. 48

   CenterPoint Energy has designated Attachments 7, 8, 9, and 10 as trade secret. The information meets the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the information was supplied by CenterPoint Energy, the affected organization; (2) we have taken all reasonable efforts to maintain the secrecy of the information, including protecting it from disclosure in this proceeding; and (3) the protected information contains information provided to CenterPoint Energy by potential project partners, which derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means, by other persons who could obtain economic value from its disclosure or use.

h. Based on our interactions with developers detailed in g. we believe there will be several potential developers interested in this pilot.

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Telephone: 612-321-4318

CenterPoint Energy Response to DOC 025 P
Docket No. G-008/M-23-215

Attachment 7 to DOC 025 P_RFI Response No. 15 - EXCISED

CenterPoint Energy has designated this entire document as trade secret. The document meets the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the document was supplied by CenterPoint Energy, the affected organization; (2) CenterPoint Energy has taken all reasonable efforts to maintain the secrecy of the document, including protecting it from disclosure in this proceeding; and (3) the document derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.

In accordance with Minn. Rule 7829.0500, Subp. 3, CenterPoint Energy furnishes the following description of the document:

Nature of the Material: *Response to CenterPoint Energy's NGIA RFI*

Author: *Respondent to CenterPoint Energy's RFI; details of the RFI response, including the identity of the respondent, have been designated as trade secret.*

General Import: *One page response to CenterPoint Energy's NGIA RFI regarding RNG pilots*

Date the Document was Prepared: 4/26/2022

CenterPoint Energy Response to DOC 025 P
Docket No. G-008/M-23-215

Attachment 8 to DOC 025 P_RFI Response No. 32 - EXCISED

CenterPoint Energy has designated this entire document as trade secret. The document meets the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the document was supplied by CenterPoint Energy, the affected organization; (2) CenterPoint Energy has taken all reasonable efforts to maintain the secrecy of the document, including protecting it from disclosure in this proceeding; and (3) the document derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.

In accordance with Minn. Rule 7829.0500, Subp. 3, CenterPoint Energy furnishes the following description of the document:

Nature of the Material: *Response to CenterPoint Energy's NGIA RFI*

Author: *Respondent to CenterPoint Energy's RFI; details of the RFI response, including the identity of the respondent, have been designated as trade secret.*

General Import: *One page email response to CenterPoint Energy's NGIA RFI regarding RNG pilots*

Date the Document was Prepared: *4/27/2022*

CenterPoint Energy Response to DOC 025 P
Docket No. G-008/M-23-215

Attachment 9 to DOC 025 P_RFI Response No. 46 - EXCISED

CenterPoint Energy has designated this entire document as trade secret. The document meets the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the document was supplied by CenterPoint Energy, the affected organization; (2) CenterPoint Energy has taken all reasonable efforts to maintain the secrecy of the document, including protecting it from disclosure in this proceeding; and (3) the document derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.

In accordance with Minn. Rule 7829.0500, Subp. 3, CenterPoint Energy furnishes the following description of the document:

Nature of the Material: *Response to CenterPoint Energy's NGIA RFI*

Author: *Respondent to CenterPoint Energy's RFI; details of the RFI response, including the identity of the respondent, have been designated as trade secret.*

General Import: *Two page response to CenterPoint Energy's NGIA RFI regarding RNG pilots*

Date the Document was Prepared: *4/27/2022*

CenterPoint Energy Response to DOC 025 P
Docket No. G-008/M-23-215

Attachment 10 to DOC 025 P_RFI Response No. 48 - EXCISED

CenterPoint Energy has designated this entire document as trade secret. The document meets the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the document was supplied by CenterPoint Energy, the affected organization; (2) CenterPoint Energy has taken all reasonable efforts to maintain the secrecy of the document, including protecting it from disclosure in this proceeding; and (3) the document derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.

In accordance with Minn. Rule 7829.0500, Subp. 3, CenterPoint Energy furnishes the following description of the document:

Nature of the Material: *Response to CenterPoint Energy's NGIA RFI*

Author: *Respondent to CenterPoint Energy's RFI; details of the RFI response, including the identity of the respondent, have been designated as trade secret.*

General Import: *Four page response to CenterPoint Energy's NGIA RFI regarding RNG pilots*

Date the Document was Prepared: *4/27/2022*

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/11/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 027	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to Pilot C: Renewable Natural Gas Request for Proposal (RFP) Purchase where the Company forecasts it will purchase 408,750 Dekatherms of RNG annually. a. Please provide a list of RNG developers who produce RNG from dairy manure in Minnesota. b. Please provide annual potential of Dekatherms of RNG production from dairy manure in Minnesota. c. Please provide a list of RNG developers who produce RNG from Food waste in Minnesota. d. Please provide annual potential of Dekatherms of RNG production from food waste in Minnesota. e. Please provide a list of RNG developers who produce RNG from landfills in Minnesota. f. Please provide annual potential of Dekatherms of RNG production from landfills in Minnesota. **Response:**

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

a. The RNG Coalition (https://www.rngcoalition.com) provides a database of current and in-progress RNG facilities on their webpage. The database currently includes three agricultural waste facilities in Minnesota, of which one is operational.

b. In a 2019 report prepared for the American Gas Foundation, available at https://gasfoundation.org/wp-content/uploads/2019/12/AGF-2019-RNG-Study-Full-Report-FINAL-12-18-19.pdf, ICF estimated the following annual potential production by 2040:

   Low: 6.789 tBtu = 6,789,000 Dth
   High: 13.579 tBtu = 13,789,000 Dth
   Technical: 22.632 tBtu = 22,632,000 Dth

   Note this is for anaerobic digestion of general "Animal Manure," not specifically dairy manure.

c. The RNG Coalition (https://www.rngcoalition.com) provides a database of current and in-progress RNG facilities on their webpage. The database currently includes one planned food waste RNG project in Minnesota.

d. In a 2019 report prepared for the American Gas Foundation, available at https://gasfoundation.org/wp-content/uploads/2019/12/AGF-2019-RNG-Study-Full-Report-FINAL-12-18-19.pdf, ICF estimated the following annual potential production by 2040:

   Low: 0.307 tBtu = 307,000 Dth
   High: 0.438 tBtu = 438,000 Dth
   Technical: 1.046 tBtu = 1,046,000 Dth

e. The RNG Coalition (https://www.rngcoalition.com) provides a database of current and in-progress RNG facilities on their webpage. One municipal solid waste facility is listed as operational in Minnesota.

f. In a 2019 report prepared for the American Gas Foundation, available at https://gasfoundation.org/wp-content/uploads/2019/12/AGF-2019-RNG-Study-Full-Report-FINAL-12-18-19.pdf, ICF estimated the following annual potential production by 2040:

   Low: 4.661 tBtu = 4,661,000 Dth
   High: 7.683 tBtu = 7,683,000 Dth
   Technical: 11.664 tBtu = 11,664,000 Dth

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 9/12/2023
Response Due: 9/22/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 059 P	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to Pilot C a. Please provide a list of third-party developers who have expressed a desire to sell RNG made specifically from Dairy Manure to CPE. b. For each developer identified in part a, please provide relevant emails/proposals or other forms of communication. c. Please provide a list of third-party developers who have expressed a desire to sell RNG made specifically at a Landfill to CPE. d. For each developer identified in part c, please provide relevant emails/proposals or other forms of communication. e. For each developer who have expressed a desire to sell RNG from Wastewater Resource Recovery Facilities to CPE, please provide relevant emails/proposals or other forms of communication. **Response:** CenterPoint Energy Minnesota Gas has designated information in this document as trade secret. The information meets the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the information was

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

supplied by CenterPoint Energy Minnesota Gas, the affected organization; (2) CenterPoint Energy Minnesota Gas has taken all reasonable efforts to maintain the secrecy of the information; and (3) the protected information contains operating information which derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.

a. Two developers (**[TRADE SECRET DATA BEGINS...** Vanguard Renewables and Amp Americas **...TRADE SECRET DATA ENDS])** have expressed interest in selling RNG made specifically from dairy manure, although no arrangements have been made to sell to CenterPoint Energy.

b. A compilation of email correspondence between the developers cited in (a) and CenterPoint Energy is included as:

[TRADE SECRET DATA BEGINS... Attachment 1: Vanguard Renewables
Attachment 2: Amp Americas **...TRADE SECRET DATA ENDS]**

c. and d. CenterPoint Energy Minnesota Gas has not had conversations with any developers making landfill RNG, which would include the commodity gas and environmental attributes, who want to sell RNG to CenterPoint Energy.

e. CenterPoint Energy Minnesota Gas has not had conversations with any developers making Wastewater RNG, which would include the commodity gas and environmental attributes, who want to sell RNG to CenterPoint Energy.

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 11/15/2023
Response Due: 11/27/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 084 P	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Topic: Food Waste Archetype Reference(s): Exhibit P The following questions pertain to Pilot 5: a. Please provide a list of third-party developers who have expressed an interest in selling RNG made specifically from Food Waste other than Hennepin County and Ramsey/Washington Counties. b. For each developer identified in part a, please provide relevant emails/proposals or other forms of communication. c. Provide the support for identifying the Food Waste Archetype facility as being designated as a medium sized facility (B) in the NGIA budget. **Response:** **Contains Trade Secret Information:** CenterPoint Energy Minnesota Gas has designated information in this document as trade secret. The information meets the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the information was supplied by CenterPoint Energy Minnesota Gas, the affected organization; (2) CenterPoint Energy Minnesota Gas has taken all reasonable efforts to maintain the secrecy of the information; and (3) the protected information contains operating information which derives independent economic value, actual or potential, from not being generally known to, and not being readily

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.

a. Two developers (**[TRADE SECRET DATA BEGINS... ...TRADE SECRET DATA ENDS]**) have expressed interest in selling RNG made specifically from food waste, although no arrangements have been made to sell to CenterPoint Energy.

b. A compilation of email correspondence between the first developer cited in (a) and CenterPoint Energy is included as Attachment 1. Attachment 2 is the data request spreadsheet submitted by the developer.

   Please see Attachment CenterPoint Energy's response to Department of Commerce Information Request 059 for the compiled email correspondence with the second developer cited in (a).

c. CenterPoint Energy would like to clarify that the purchased Dth assumed for size B of pilot concept CNP05 would not necessarily be sourced from a single facility. Rather, size B represents an estimated total Dth of RNG from projects using foodwaste as a feedstock purchased by CenterPoint Energy – in addition to the RNG purchased from Pilots A and B. As described in Exhibit D, Pilot C, under "Additional Information," this size was selected as part of the process of developing an assumed full portfolio of RNG purchases for the purposes of estimating GHG reductions and cost, but CenterPoint Energy does not anticipate that the RNG projects actually selected will exactly mirror those modeled. CenterPoint Energy's purchasing choices will be guided by the RFP responses actually submitted and the Company may buy more or less RNG from a given source depending on actual project-specific pricing, GHG intensity, and other project features as described in the RNG RFP (Exhibit Q).

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

RESPONSE OF CENTERPOINT ENERGY TO DOC 084 P

CenterPoint Energy has designated the following attachments as trade secret in their entirety. The documents meet the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the documents were supplied by CenterPoint Energy, the affected organization; (2) CenterPoint Energy has taken all reasonable efforts to maintain the secrecy of the documents, including protecting them from disclosure in this proceeding; and (3) the documents derive independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from their disclosure or use.

In accordance with Minn. Rule 7829.0500, Subp. 3, CenterPoint Energy furnishes the following description of the document:

Nature of the Material: *There are two documents included as attachments, as follows:*

- *Attachment 1: 58-page pdf document: Email correspondence between CenterPoint Energy and a potential project developer*
- *Attachment 2: Excel spreadsheet from a potential project developer*

Author:

- *Attachment 1: CenterPoint Energy*
- *Attachment 2: ICF*

General Import: *See each individual attachment. Email correspondence shows the interactions between CenterPoint Energy and a potential project developer.*

Date the Documents were Prepared: See each individual attachment.

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/31/2023
Response Due: 9/11/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 050	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to Pilot D, Green Hydrogen Blending into Natural Gas Distribution System. Please provide CPE's estimate of the levelized cost of Hydrogen produced from this pilot per Dth. Please provide live spreadsheets with relevant calculations, with formulas and links intact. **Response:** See Attachment 1 for the Levelized Cost of Hydrogen per Dth.

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

Capital Investment

Year*	Plant	Accum Depreciation	Deferred Tax**	Net Plant	Average Plant		Return + Tax***	Depreciation Expense	Tax Depreciation	10 Year Table		Property Tax		Revenue Requirement	Life (yr)
1	$3,500,000	-$102,941	-$71,005	$3,326,054	$1,663,027		$142,688	$102,941	$350,000	10.0%	-$71,005	$124,727		$370,356	
2	$3,500,000	-$308,824	-$192,896	$2,998,280	$3,162,167		$271,314	$205,882	$630,000	18.0%	-$121,891	$112,436		$589,632	
3	$3,500,000	-$514,706	-$278,575	$2,706,719	$2,852,500		$244,744	$205,882	$504,000	14.4%	-$85,679	$101,502		$552,129	17
4	$3,500,000	-$720,588	-$335,284	$2,444,128	$2,575,423		$220,971	$205,882	$403,200	11.5%	-$56,709	$91,655		$518,508	
5	$3,500,000	-$926,471	-$368,858	$2,204,672	$2,324,400		$199,433	$205,882	$322,700	9.2%	-$33,573	$82,675		$487,991	
6	$3,500,000	-$1,132,353	-$383,822	$1,983,825	$2,094,249		$179,687	$205,882	$257,950	7.4%	-$14,964	$74,393		$459,962	
7	$3,500,000	-$1,338,235	-$390,538	$1,771,227	$1,877,526		$161,092	$205,882	$229,250	6.6%	-$6,716	$66,421		$433,395	
8	$3,500,000	-$1,544,118	-$397,254	$1,558,629	$1,664,928		$142,851	$205,882	$229,250	6.6%	-$6,716	$58,449		$407,182	
9	$3,500,000	-$1,750,000	-$404,070	$1,345,930	$1,452,279		$124,606	$205,882	$229,600	6.6%	-$6,816	$50,472		$380,960	
10	$3,500,000	-$1,955,882	-$410,786	$1,133,332	$1,239,631		$106,360	$205,882	$229,250	6.6%	-$6,716	$42,500		$354,743	
11	$3,500,000	-$2,161,765	-$384,609	$953,626	$1,043,479		$89,531	$205,882	$114,800	3.3%	$26,177	$35,761		$331,174	
12	$3,500,000	-$2,367,647	-$325,438	$806,915	$880,271		$75,527	$205,882	$0		$59,171	$30,259		$311,669	
13	$3,500,000	-$2,573,529	-$266,268	$660,203	$733,559		$62,939	$205,882	$0		$59,171	$24,758		$293,579	
14	$3,500,000	-$2,779,412	-$207,097	$513,491	$586,847		$50,351	$205,882	$0		$59,171	$19,256		$275,490	
15	$3,500,000	-$2,985,294	-$147,926	$366,779	$440,135		$37,764	$205,882	$0		$59,171	$13,754		$257,400	
16	$3,500,000	-$3,191,176	-$88,756	$220,068	$293,424		$25,176	$205,882	$0		$59,171	$8,253		$239,311	
17	$3,500,000	-$3,397,059	-$29,585	$73,356	$146,712		$12,588	$205,882	$0		$59,171	$2,751		$221,221	
18	$3,500,000	-$3,500,000	$0	$0	$36,678		$3,147	$102,941	$0		$29,585	$0		$106,088	
Total							**$2,150,769**							**$6,590,790**	
Source:	Analysis Assumption	Calculated		Calculated	Calculated		2021 Rate Case Se	Calculated				New Area Surcharge Model		Calculation	

1,578,894

NPV **$1,480,444** ROR of 6.65% from 2021 rate case

***Assumes Implementation in halfwa through Year 1**
****Deferred Tax Calculation - This has been added, calculated in the green columns.**
*****Uses 8.58%**

Avg Annual Capital Payment		$366,155
Annual O&M	$	108,636
Electricity	$	925,710
Total annual cost		$1,400,501
Annual Production (dekatherms)		21,160
Levelized Cost ($ per dekatherm)	**$**	**66.19**
Levelized Cost ($ per kg)	$	7.55
Levelized Cost ($ per MWh)	$	225.84

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 9/5/2023
Response Due: 9/15/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 052	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions are related to the Green Hydrogen Blending Pilot in Mankato where the Company forecasts it will produce 21,160 Dekatherms of Hydrogen annually. a. Does CPE have experience operating electrolyzers of similar capacity to produce Hydrogen? If yes, please provide details of all such projects. b. If the answer to part a above is yes, what are the main learnings the Company has acquired from those pilots? c. Please provide monthly output (in Dth) from existing Hydrogen pilots since their inception. **Response:** a. Yes, CenterPoint Energy is operating a 1 MW green hydrogen blending facility in Minneapolis. b. We have validated that our blending design and integration into our gas distribution system works very well. The electrolyzer and power supply combined design operates as expected with very fast response to

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

changes, which has helped us learn how to improve our hydrogen drying process design.

c. See Attachment 1 for monthly output in Dth of the Minneapolis facility.

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

Monthly Output of CenterPoint Energy's Minneapolis Hydrogen Facility

H2 Produced (Dth)	Month of Production
199.5	22-Aug
296.5	22-Sep
74.8	22-Oct
11.9	22-Nov
8	22-Dec
0.3	23-Jan
0	23-Feb
28.6	23-Mar
54.5	23-Apr
155.3	23-May
433.4	23-Jun
198.7	23-Jul
566.4	23-Aug

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 8/9/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 014 P	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to the Green Hydrogen Archetype Pilot for Industrial or Large Commercial Facility proposed by the company. CPE forecasted this pilot will produce a total of 42,851 Dekatherms of Hydrogen annually. a. Please identify a list of Industrial or Large Commercial Facilities that the Company has shortlisted as potential candidates for this pilot. b. Please provide details of correspondences with customers that show any of the identified customers are interested in this pilot. c. Please provide justification to support the claim that there will be potential participants interested in this pilot. d. Does the 42,851 Dekatherms value for the Green Hydrogen Archetype Pilot represent the maximum design capacity of the unit? e. What percentage of this design capacity of 42,851 Dekatherms is CPE expecting to achieve each year during the life of the pilot? f. What percentage of this design capacity of 42,851 Dekatherms must the unit be forecasted to produce annually over its useful life each year for the pilot to generate positive net benefits from a societal perspective? g. How often does the company expect the electrolyzer to be offline each

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

year during the life of the project? Please provide justifications.

h. Please provide a list of possible reasons why the electrolyzer might be offline at this facility?

i. Please identify any and all natural gas or combined electric and natural gas utilities in the United States that are currently engaged in a similar Green Hydrogen Archetype Pilot for Industrial or Large Commercial Facility. Where possible provide identifying information for those proceeding by company and jurisdiction.

Response:

a. CenterPoint Energy has not yet identified specific facilities as candidates for this pilot. A scoping study is proposed as a first step in Pilot E (Industrial or Large Commercial Hydrogen and Carbon Capture Incentives) to aid in identifying and selecting viable projects. This study would occur in the first year of Plan implementation.

b. As noted in a., CenterPoint Energy has not shortlisted specific customers but has corresponded with one or more customers who have expressed interest as detailed in Attachment 3. CenterPoint Energy has designated information in Attachment 3 as trade secret. The information meets the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the information was supplied by CenterPoint Energy, the affected organization; (2) we have taken all reasonable efforts to maintain the secrecy of the information, including protecting it from disclosure in this proceeding; and (3) the protected information contains customer information provided to CenterPoint Energy by potential project partners, which derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means, by other persons who could obtain economic value from its disclosure or use.

c. CenterPoint Energy is aware that a number of its customers have set aggressive GHG reduction goals, and this pilot may assist a variety of Minnesota businesses in meeting these goals. Additionally, federal incentives from the Inflation Reduction Act have resulted in increased interest in green hydrogen production.

d. As noted in a., CenterPoint has not yet identified specific customers for the projects, so detailed design factors have not been developed.

The 42,851 Dekatherms used in the Innovation Plan represents an assumed annual energy production for a representative ‘archetype’

Response By: Betsy Lang
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Department: Regulatory Services
Telephone: 612-321-4318

project. A 5 MW electrolyzer was chosen to assess to the pilot, considering that a number of existing customers should be large enough for that size of electrolyzer (some could utilize larger sizes). A 38% annual capacity utilization factor was chosen to align with that of wind electricity generation. This represents a conservative estimate as selected projects may use grid electricity to increase the electrolyzer capacity factor, depending on specific guidance on requirements for procured electricity that a customer would need to adhere to in order to claim incentives under the Inflation Reduction Act.

e. The Innovation Plan assumes that 42,851 Dth is produced each year during the life of the pilot.

f. In the Commission's June 1, 2022, Order Establishing Frameworks for Implementing Minnesota's Natural Gas Innovation Act, Docket No. G-999/CI-21-566, Order Point 26(d), the Commission defined the "Societal Perspective" as "all the costs and benefits of the resource, including all relevant societal impacts." Order Points 30-32 indicate that costs and benefits include both quantifiable costs and benefits and costs and benefits that are not reasonably practicable to quantify. Quantified and unquantified costs and benefits for each pilot are shown in Exhibit M to CenterPoint Energy's petition. Because the societal perspective includes unquantified costs and benefits, CenterPoint Energy is not able to identify a numerical tipping point where a pilot or measure would no longer have net positive benefits from a societal perspective.

g. The specific project is not yet identified or designed so these details are not available. For the purposes of the Innovation Plan, as noted in d., we assume a 38% capacity factor for the electrolyzer; the electrolyzer would be offline for 62% of the year or approximately 5,431 hours.

h. As with any complex facility operation there are a number of possible reasons a system may be down including, but not limited to, routine maintenance, power failures, communication failures, equipment or component malfunctions, software changes, design changes, personal availability, repairs, testing, etc. Additionally, a customer may choose to operate the electrolyzer only during times where on-site renewable electricity is being generated, or when procured electricity satisfies requirements to claim incentives under the Inflation Reduction Act.

i. CenterPoint Energy asked ICF to complete a national search for regulatory filings by gas or combined electric and gas utilities mentioning or proposing projects similar to the Green Hydrogen

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

Archetype for Industrial or Large Commercial Facility pilot, but ICF did not identify any similar projects by other gas or combined electric and gas utilities. There may be projects similar to the Green Hydrogen Archetype for Industrial or Large Commercial Facility pilot of which CenterPoint Energy is not aware.

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

Request Number	Request	Trade Secret Supplement to Answer
14 b	Green Hydrogen Archetype Pilot for Industrial or Large Commercial Facility. Please provide details of correspondences with customers that show any of the identified customers are interested in this pilot.	**[TRADE SECRET BEGINS…**
15 b	Industrial Methane and Refrigerant Leak Reduction Program Pilot. Please provide details of correspondences with customers that show any of the identified customers are interested in this pilot.	
16 b	Carbon Capture Archetype for Industrial or Large Commercial Facility. Please provide details of correspondences with customers that show any of the identified customers are interested in this pilot.	
17 b	Carbon Capture Rebate Pilot for Commercial Buildings. Please provide details of correspondences with customers that show any of the identified customers are interested in this pilot.	
19 a	Decarbonizing Existing District Energy Systems. Please identify the two participants CPE has in mind for this pilot.	
19 b	Decarbonizing Existing District Energy Systems. Please provide details of correspondences with customers that show the identified customers are interested in this pilot.	
20 a	New District Energy System Pilot. Please identify the two participants CPE has in mind for this pilot.	
20 b	New District Energy System Pilot. Please provide details of correspondences with customers that show the identified customers are interested in this pilot.	
22 d	Commercial hybrid heating pilot. Please provide details of correspondences with customers that show the identified customers are interested in this pilot.	**…TRADE SECRET ENDS]**

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 8/9/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 015	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to the Industrial Methane and Refrigerant Leak Reduction Program Pilot. The Company stated that it forecasts 50 customers to enroll in this pilot each of whom can reduce their annual methane leak by 301 Dekatherms per year for 5 years. a. Please identify a list of Industrial Facilities that the Company has shortlisted as potential candidates for this pilot. b. Please provide details of correspondences with customers that show any of the identified customers are interested in this pilot. c. Please provide justification to support the claim that there will be potential participants interested in this pilot. d. How did the Company come up with the value that 301 Dekatherms of methane leakage can be reduced on average for each of these industrial facilities? e. What proportion of total methane leakage on average per facility does 301 Dekatherms represent? f. What is the average total cost per customer to reduce their methane leakage by 301 Dekatherms? g. What proportion of the average total cost per customer identified above

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

going to be covered by CPE through this filing?

h. On average, how many dekatherms of methane leakage must each facility reduce annually for the pilot to generate positive net benefits from a societal perspective?

i. Please identify any and all natural gas or combined electric and natural gas utilities in the United States that are currently engaged in an Industrial Methane and Refrigerant Leak Reduction Program Pilot. Where possible provide identifying information for those proceeding by company and jurisdiction.

Response:

a. CenterPoint Energy has not yet identified specific facilities as candidates for this pilot. Customer identification and recruitment would be completed as part of implementation of the pilot.

b. As noted in a., CenterPoint Energy has not shortlisted specific customers but has corresponded with one or more customers who have expressed interest as detailed in CenterPoint Energy's response to Department of Commerce Information Request 14, Attachment 3.

c. In addition to customer interaction detailed in b., an RFI respondent indicated that it has included the Methane and Refrigerant Leak Reduction as a measure in current utility program offerings in seven states.

d. CenterPoint Energy used the following assumptions:

   - Customer baseline consumption = 120,562 Dth per year. This is the average consumption for CenterPoint Energy's 200 largest customers.
   - Level of reduction in methane leaks = 0.25%.

   See Innovation Plan Exhibit N, CNP09 Tab, Rows 252-255.

e. See part d.

f. CenterPoint Energy assumed $5,000 as an average cost per customer in Year 1 of the plan, with an annual escalation rate of 3.82%. See Exhibit N, CNP09 tab, row 173.

g. CenterPoint Energy proposed an incentive of $0.50 per therm. This incentive level applied to the estimated average savings would cover 30%

Response By: Betsy Lang
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of the assumed average cost per customer in year 1 and 26% of the assumed average customer cost in year 5.

h. In the Commission's June 1, 2022, Order Establishing Frameworks for Implementing Minnesota's Natural Gas Innovation Act, Docket No. G-999/CI-21-566, Order Point 26(d), the Commission defined the "Societal Perspective" as "all the costs and benefits of the resource, including all relevant societal impacts." Order Points 30-32 indicate that costs and benefits include both quantifiable costs and benefits and costs and benefits that are not reasonably practicable to quantify. Quantified and unquantified costs and benefits for each pilot are shown in Exhibit M to CenterPoint Energy's petition. Because the societal perspective includes unquantified costs and benefits, CenterPoint Energy is not able to identify a numerical tipping point where a pilot or measure would no longer have net positive benefits from a societal perspective.

i. CenterPoint Energy asked ICF to complete a national search for regulatory filings by gas or combined electric and natural gas utilities mentioning or proposing projects similar to the Industrial Methane and Refrigerant Leak Reduction pilot, but ICF did not identify any similar projects by other gas or combined electric and natural gas utilities utilities. As mentioned in c., an RFI respondent noted that they include Methane and Refrigerant Leak Reduction as a single measure in current utility program offerings in seven states, but it has not offered a similar stand-alone program. There may be projects similar to the stand-alone Industrial Methane and Refrigerant Leak Reduction pilot of which CenterPoint Energy is not aware.

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
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Telephone: 612-321-4318

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 8/9/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 019	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to the pilot aimed at Decarbonizing Existing District Energy Systems. CPE forecasts that this pilot will save a total of 50,000 Dekatherms of natural gas annually per participant. a. Please identify the two participants CPE has in mind for this pilot. b. Please provide details of correspondences with customers that show the identified customers are interested in this pilot. c. Please provide justification to support the company's assumption of 50,000 Dekatherms of natural gas savings annually per participant. d. What is the average total cost per customer to reduce their gas consumption by 50,000 Dekatherms annually? e. What proportion of the average total cost per customer identified above is going to be covered by CPE through this filing? f. What percentage of this design capacity of 50,000 Dekatherms must each participant be forecasted to save annually over its useful life each year for the pilot to generate positive net benefits from a societal perspective? g. Please identify any and all natural gas or combined electric and natural gas utilities in the United States that are currently engaged in a

Response By: Betsy Lang
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Decarbonizing Existing District Energy Systems Pilot. Where possible provide identifying information for those proceeding by company and jurisdiction

Response:

a. See CenterPoint Energy's response to Department Information Request No. 14, Attachment 3.

b. See CenterPoint Energy's response to Department Information Request No. 14, Attachment 3.

c. This level was based on a high-level estimates for the two potential projects identified by the two participants noted in part a.

d. CenterPoint Energy assumed a total cost per customer of $2,475,000, but expects total costs to vary significantly between projects depending on specific project scope, design and size.

e. CenterPoint Energy proposes to pay 20 percent of feasibility study costs up to $30,000. For customers implementing GHG reduction projects, CenterPoint Energy proposes to pay $25/Dth of expected annual natural gas savings up to $1.5 million per project.

f. In the Commission's June 1, 2022, Order Establishing Frameworks for Implementing Minnesota's Natural Gas Innovation Act, Docket No. G-999/CI-21-566, Order Point 26(d), the Commission defined the "Societal Perspective" as "all the costs and benefits of the resource, including all relevant societal impacts." Order Points 30-32 indicate that costs and benefits include both quantifiable costs and benefits and costs and benefits that are not reasonably practicable to quantify. Quantified and unquantified costs and benefits for each pilot are shown in Exhibit M to CenterPoint Energy's petition. Because the societal perspective includes unquantified costs and benefits, CenterPoint Energy is not able to identify a numerical tipping point where a pilot or measure would no longer have net positive benefits from a societal perspective.

g. CenterPoint Energy asked ICF to complete a national search for regulatory filings by gas or combined electric and natural gas utilities mentioning or proposing projects similar to the Decarbonizing Existing District Energy Systems pilot, but ICF did not identify any similar projects by other gas or combined electric and gas utilities. There may be projects similar to the Decarbonizing Existing District Energy Systems

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pilot of which CenterPoint Energy is not aware. CenterPoint Energy notes that it is possible that some utilities provide support for measures that would be supported by the proposed pilot, but the Company did not identify any targeted pilots for decarbonizing district energy systems similar to the proposed pilot.

Response By: Betsy Lang
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Telephone: 612-321-4318

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/9/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 020	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to the New District Energy System Pilot. CPE forecasts this pilot will save a total of 10,465 Dekatherms of natural gas annually per participant. a. Please identify the two participants CPE has in mind for this pilot. b. Please provide details of correspondences with customers that show the identified customers are interested in this pilot. c. Please provide justification to support the company's assumption of 10,465 Dekatherms of natural gas savings annually per participant. d. What is the average total cost per customer to reduce their gas consumption by 10,465 Dekatherms annually? e. What proportion of the average total cost per customer identified above is going to be covered by CPE through this filing? f. What percentage of this design capacity of 10,465 Dekatherms must each participant be forecasted to save annually over its useful life each year for the pilot to generate positive net benefits from a societal perspective? g. Please identify any and all natural gas or combined electric and natural gas utilities in the United States that are currently engaged in a New

Response By: Betsy Lang
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District Energy System Pilot. Where possible provide identifying information for those proceeding by company and jurisdiction.

Response:

a. See Attachment 3 to CenterPoint Energy's response to Department Information Request No. 14.

b. See Attachment 3 to CenterPoint Energy's response to Department Information Request No. 14.

c. The 10,465 Dth/year of natural gas savings assumed for each participant in this pilot was provided by an RFI respondent. These are the expected savings for a specific project that would replace an existing steam system with a hot water system, allowing for electric heating of the water, but also maintaining some gas boiler capacity to support higher heating loads. The RFI respondent also provided the estimate of a net increase in electricity use of 116,117 kWh/year for the project.

d. CenterPoint Energy expects total costs to vary significantly between projects for this type of system, depending on specific project scope, design and size.

   For the purposes of our NGIA Innovation Plan, we assumed a total per participant incremental cost of $10,265,000 based on the example project from the RFI respondent. See Exhibit N, CNP16 tab, rows 146–148.

e. CenterPoint Energy proposes to pay 50 percent of the cost of an engineering study, up to $10,000. For customers developing district energy systems, the Company proposes to pay $25/Dth of expected natural gas savings up to $1.5 million per project. CenterPoint Energy assumed an incentive payment of $261,635 per participant, which would be equivalent to 2.5% of the total incremental cost noted in part d.

f. In the Commission's June 1, 2022, Order Establishing Frameworks for Implementing Minnesota's Natural Gas Innovation Act, Docket No. G-999/CI-21-566, Order Point 26(d), the Commission defined the "Societal Perspective" as "all the costs and benefits of the resource, including all relevant societal impacts." Order Points 30-32 indicate that costs and benefits include both quantifiable costs and benefits and costs and benefits that are not reasonably practicable to quantify. Quantified and unquantified costs and benefits for each pilot are shown in Exhibit

Response By: Betsy Lang
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M to CenterPoint Energy's petition. Because the societal perspective includes unquantified costs and benefits, CenterPoint Energy is not able to identify a numerical tipping point where a pilot or measure would no longer have net positive benefits from a societal perspective.

g. CenterPoint Energy asked ICF to complete a national search for regulatory filings by gas or combined electric and gas utilities mentioning or proposing projects similar to the New District Energy Systems pilot, but ICF did not identify any similar projects by other gas or combined electric and gas utilities. There may be projects similar to the New District Energy Systems pilot of which CenterPoint Energy is not aware.

Response By: Betsy Lang
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State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/31/2023
Response Due: 9/11/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 038	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to Pilot K, the New District Energy System pilot. a. Does CPE envision Pilot K would incentivize systems that utilize waste heat that is recovered and converted into electricity or used as thermal energy? b. Please explain why Pilot K is not eligible under CPE's 2024-2026 ECO Triennial Plan. **Response:** a. As described in Exhibit D of the Innovation Plan filing, Pilot K is designed to support projects that would qualify as a district energy system under the NGIA definition, or projects that intend to use similar systems in a single building that would otherwise qualify as district energy systems under the NGIA statute. "'District energy' means a heating or cooling system that is solar thermal powered or that uses the constant temperature of the earth or underground aquifers as a thermal exchange medium to heat or cool multiple buildings connected through a

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piping network." (Minn. Stat. § 216B.2427, subd. 1.)

Projects that utilize waste heat that is recovered and converted into electricity or used as thermal energy would not meet the NGIA statutory definition of district energy. This type of project could be potentially incentivized under Pilot J, Decarbonizing Existing District Energy Systems, or under Pilot R, Industrial and Large Commercial GHG Audit Pilot.

b. If costs are low enough, it is theoretically possible that certain similar projects as those envisioned for Pilot K would be eligible for custom rebates under CPE's 2024-2026 Eco Triennial plan.

As described in Exhibit D of the Innovation Plan filing, in order to coordinate incentives through this pilot with CIP/ECO incentives, the Company proposes to evaluate NGIA projects being considered for Pilot K to first determine whether the measure could qualify for CIP/ECO as a custom measure or otherwise. If it can, the measure will be processed through CIP/ECO and no NGIA rebate will be paid for that measure.

Response By: Betsy Lang
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State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/9/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 021	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to the Industrial Electrification Incentive Program. CPE forecasts this pilot will save a total of 3,135 Dekatherms of natural gas annually per participant. a. Please identify the three participants CPE has in mind for this pilot. b. Please provide details of correspondences with customers that show the identified customers are interested in this pilot. c. What is the average total cost per customer to reduce their gas consumption by 3,135 Dekatherms annually? d. What proportion of the average total cost per customer identified above is going to be covered by CPE through this filing? e. What percentage of this design capacity of 3,135 Dekatherms must each participant be forecasted to save annually over its useful life each year for the pilot to generate positive net benefits from a societal perspective? f. Please identify any and all natural gas or combined electric and natural gas utilities in the United States that are currently engaged in an Industrial Electrification Incentive Program Pilot. Where possible provide identifying information for those proceeding by company and jurisdiction.

Response By: Betsy Lang
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Department: Regulatory Services
Telephone: 612-321-4318

Response:

a. CenterPoint Energy has not yet identified specific facilities as candidates for this pilot. A scoping study is proposed as a first step to aid in identifying and selecting viable participants. This study would occur in the first year of the plan implementation.

b. The CenterPoint Energy NGIA team has not talked to any specific customers about potential participation in this program.

c. CenterPoint Energy assumed an average per-facility project cost (including equipment and installation costs) to be $133,333.

d. CenterPoint Energy proposes to cover 100% of project costs, up to $1.5 million per facility.

e. In the Commission's June 1, 2022, Order Establishing Frameworks for Implementing Minnesota's Natural Gas Innovation Act, Docket No. G-999/CI-21-566, Order Point 26(d), the Commission defined the "Societal Perspective" as "all the costs and benefits of the resource, including all relevant societal impacts." Order Points 30-32 indicate that costs and benefits include both quantifiable costs and benefits and costs and benefits that are not reasonably practicable to quantify. Quantified and unquantified costs and benefits for each pilot are shown in Exhibit M to CenterPoint Energy's petition. Because the societal perspective includes unquantified costs and benefits, CenterPoint Energy is not able to identify a numerical tipping point where a pilot or measure would no longer have net positive benefits from a societal perspective.

f. CenterPoint Energy asked ICF to complete a national search for regulatory filings by gas or combined electric and gas utilities utilities mentioning or proposing projects similar to the Industrial Electrification Incentives pilot, but ICF did not identify any similar projects by other gas or combined electric and gas utilities. There may be projects similar to the Industrial Electrification Incentives pilot of which CenterPoint Energy is not aware.

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 8/9/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 022 P	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to the Commercial hybrid heating pilot. CPE forecasts this pilot will save a total of 198 Dekatherms of natural gas annually per participant. a. Please identify the RFI respondent who provided estimates of energy savings for this pilot. Please include their RFI response. b. What specific equipment is being installed as part of this pilot? c. Please explain how the Company came up with the estimate of 135 participants for this pilot? d. Please provide details of correspondences with customers that show the identified customers are interested in this pilot. e. What is the average total cost per customer to reduce their gas consumption by 198 Dekatherms annually? f. What proportion of the average total cost per customer identified above is going to be covered by CPE through this filing? g. What percentage of this design capacity of 198 Dekatherms must each participant be forecasted to save annually over its useful life each year for the pilot to generate positive net benefits from a societal perspective? h. Please identify any and all natural gas or combined electric and natural

Response By: Betsy Lang
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Telephone: 612-321-4318

gas utilities in the United States that are currently engaged in a Commercial Hybrid Heating Pilot. Where possible provide identifying information for those proceeding by company and jurisdiction.

Response:

a. The energy savings were based on RFI response 50, see Attachment 4.

CenterPoint Energy has designated information in Attachment 4 as trade secret. The information meets the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the information was supplied by CenterPoint Energy, the affected organization; (2) we have taken all reasonable efforts to maintain the secrecy of the information, including protecting it from disclosure in this proceeding; and (3) the protected information contains customer information provided to CenterPoint Energy by potential project partners, which derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means, by other persons who could obtain economic value from its disclosure or use.

b. The pilot would focus on dual-fuel rooftop units but may support installation of other hybrid heating systems (e.g., split system hybrid heat pumps).

c. This was the suggested level of participation recommended by the primary RFI respondent.

d. CenterPoint Energy has not identified specific customers but has corresponded with one or more customers who have expressed interest as detailed in CenterPoint Energy's response to Department Information Request No. 14, Attachment 3.

e. The average cost per customer could be considered from different perspectives. The average total equipment and installation costs are assumed to be $81,000 per customer. However, some participating customers might be replacing equipment at the end of its life and need to purchase new equipment regardless of this pilot, so the incremental costs for these customers would be lower than the total costs quoted above. See Exhibit N, tab CNP 18, rows 138, 139 and 147 for the relevant costs for average pilot participants.

f. CenterPoint Energy proposes to cover 40% of the $81,000.

Response By: Betsy Lang
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Department: Regulatory Services
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g. In the Commission's June 1, 2022, Order Establishing Frameworks for Implementing Minnesota's Natural Gas Innovation Act, Docket No. G-999/CI-21-566, Order Point 26(d), the Commission defined the "Societal Perspective" as "all the costs and benefits of the resource, including all relevant societal impacts." Order Points 30-32 indicate that costs and benefits include both quantifiable costs and benefits and costs and benefits that are not reasonably practicable to quantify. Quantified and unquantified costs and benefits for each pilot are shown in Exhibit M to CenterPoint Energy's petition. Because the societal perspective includes unquantified costs and benefits, CenterPoint Energy is not able to identify a numerical tipping point where a pilot or measure would no longer have net positive benefits from a societal perspective.

h. CenterPoint Energy asked ICF to complete a national search for regulatory filings by gas or combined electric and gas utilities mentioning or proposing projects similar to the Commercial Hybrid Heating pilot. The projects ICF identified are listed in CenterPoint Energy's response to Department of Commerce Information Request 13, Attachment 1. CenterPoint Energy and ICF did not verify that all projects identified in Attachment 1 are in fact operational or ultimately received regulatory approval. There may be projects similar to the Commercial Hybrid Heating pilot of which CenterPoint Energy is not aware.

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/31/2023
Response Due: 9/11/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 042	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to Pilot M, Commercial Hybrid Heating. Please provide an exhaustive list of measures/technologies included in this Pilot and for each measure please indicate: a. The amount of customer rebate for that measure through CPE's 2024-2026 ECO Triennial Plan b. The amount of customer rebate for that measure through CPE's NGIA Plan c. The cost effectiveness of the measure using the MN Test. Please provide spreadsheets with detailed calculations and formulas intact. **Response:** Through this pilot, CenterPoint Energy proposes to provide technical support, direct installation services and financial incentives for commercial buildings interested in replacing existing Heating, Ventilation and Air Conditioning ("HVAC") systems with any hybrid heating system that employs both electric air source heat pumps and gas backup. The pilot would focus on dual-fuel rooftop units, but may support installation of other

Response By: Betsy Lang
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hybrid heating systems (e.g., split system hybrid heat pumps, variable refrigerant flow ("VRF") systems, etc.).

a. The NGIA Innovation Plan proposes a holistic investment in downstream efforts (i.e., technical support, direct installation services, and customer incentives to cover the cost of equipment and installation). The 2024–2026 ECO plan could potentially support the equipment and installation component of commercial hybrid heating projects through custom efficient fuel switching ("EFS") rebates. Custom EFS rebates are typically $5 per saved dekatherm, and would only be available to a customer if the energy modeling shows that the specific project passes the four EFS criteria.

   Additionally, the 2024–2026 ECO plan will support upstream and midstream market transformation activities for commercial hybrid heating through its contribution to the Minnesota Energy Technology Accelerator ("META"), which includes high-performance rooftop units ("RTUs") in its starter portfolio.

   The NGIA pilot is designed to offer holistic support because CenterPoint Energy believes that significant downstream market transformation efforts–beyond rebate levels typically offered through CIP–are necessary to support broader adoption of commercial hybrid heating systems. Accordingly, customers participating in the holistic NGIA pilot would be eligible to receive NGIA incentives, which are likely to be significantly higher than potential custom rebates provided through CIP/ECO. The goal of these efforts would be to advance the market while gathering data, with the hopes of creating a robust prescriptive rebate program for this nascent technology, potentially for future inclusion in CIP/ECO.

b. CenterPoint Energy proposes to cover 100 percent of the cost of the site assessment and then pay customer incentives equal to 40 percent of total hybrid heating system costs, up to $100,000. CenterPoint Energy may consider higher incentives for large systems on a case-by-case basis. CenterPoint Energy estimates the total cost of the heating system conversion will be approximately $81,000 for an average participant and so the average rebate amount will be approximately $32,400.

c. See Attachment 1, Minnesota CIP Gas Utilities' Cost-Effectiveness Model for the measure, which includes the full suite of holistic programmatic support services proposed to be offered through NGIA.

Response By: Betsy Lang
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CenterPoint Energy Response to DOC 042 - Attachment 1
Docket No. G-008/M-23-215
Page 1 of 1

Welcome to the Minnesota CIP Gas Utilities' Cost-Effectiveness Model.

The purpose of this model is to accurately represent various perspectives from which the cost-effectiveness of a Conservation Improvement Program (CIP) project can be viewed.

The following five cost-effectiveness tests are included in the model:

1) Minnesota Test
2) Societal Cost Test (SCT)
3) Utility Cost Test (UCT)
4) Participant Cost Test (PCT)
5) Ratepayer Impact Measure Test (RIM)

The model provides cost-effectiveness estimates based upon user inputs. Inputs can be broken down into two categories -- General and Project Specific. General inputs apply to all projects for a particular Utility, while Project-Specific inputs may vary by project. The inputs are as follows:

General	Project-Specific
Commodity Cost	Retail Rate
Variable O&M	Non-Gas Fuel Retail Rate
Non-Gas Fuel Cost	Demand Cost
Non-Gas Fuel Loss Factor	Direct Utility Project Costs
Environmental Damage Factor	Administrative Costs
Growth and Escalation Factors	Incentive Costs
Participant Discount Rate	Direct Participant Project Costs
Utility Discount Rate	Participant Non-Energy Costs
Societal Discount Rate	Participant Non-Energy Savings
General Input Data Year	Project Life
Project Analysis Year	Avg Non-Gas Fuel Units/Part
Environmental Compliance	Avg Additional Non-Gas Fuel Units/ Part
Factors 27-36 (0 values)*	Number of Participants
* Factor 32 (Utility Performance Incentives) is project-specific	Total Annual Dth Saved
	Utility Performance Incentives

Conservation Improvement Program (CIP) BENEFIT COST FOR GAS CIPS -- Cost-Effectiveness Analysis

Company: **CenterPoint Energy**
Project: **C&I Market Segment Programs**

Input Data	
1) Retail Rate ($/Dth) =	$6.75
Escalation Rate =	see input 1
2) Non-Gas Fuel Retail Rate ($/Fuel Unit) =	$0.045
Escalation Rate =	see input 2a
Non-Gas Fuel Units (e.g.. kWh,Gallons, etc.) =	kWh
3) Commodity Cost ($/Dth) =	$4.52
Escalation Rate =	See input 1
4) Demand Cost ($/Dth/Yr) =	$194.36
Escalation Rate =	see input 1
5) Peak Reduction Factor =	1.00%
6) Variable O&M ($/Dth) =	$0.0500
Escalation Rate =	see input 1
7) Non-Gas Fuel Cost ($/kWh) =	$0.04414
Escalation Rate =	see input 7
8) Non-Gas Fuel Loss Factor	8.22%
9) Gas Environmental Damage Factor ($/Dth) =	$3.83
Escalation Rate =	see Input 9
10) Non Gas Fuel Enviro. Damage Factor ($/kWh) =	$0.02536
Escalation Rate =	see input 10
11) Participant Discount Rate =	5.39%
12) CIP Utility Discount Rate =	5.39%
13) Societal Discount Rate =	3.30%

	First Year	Second Year	Third Year
16 Utility Project Costs			
16 a) Administrative & Operating Costs =	$427,000.00	$574,310.00	$581,689.00
16 b) Incentive Costs =	$486,000.00	$972,000.00	$972,000.00
16 c) Total Utility Project Costs =	$913,000.00	$1,546,310.00	$1,553,689.00
17) Direct Participant Costs ($/Part.) =	$5,150.00	$5,150.00	$5,150.00
18) Participant Non-Energy Costs (Annual $/Part.) =	$0.00	$0.00	$0.00
Escalation Rate =	See input 2b	See input 2b	See input 2b
19) Participant Non-Energy Savings (Annual $/Part) =	$0.00	$0.00	$0.00
Escalation Rate =	See input 2b	See input 2b	See input 2b
20) Project Life (Years) =	15.00	15.00	15.00
21) Avg. Dth/Part. Saved =	198.00	198.00	198.00
22) Avg Non-Gas kWh/Part. Saved =	2,600 kWh	2,600 kWh	2,600 kWh
22a) Avg Additional Non-Gas kWh/ Part. Used =	10,600 kWh	10,600 kWh	10,600 kWh
23) Number of Participants =	15	30	30
24) Total Annual Dth Saved =	2,970	5,940	5,940
25) Incentive/Participant =	$32,400.00	$32,400.00	$32,400.00
26) Environmental Compliance (% or $/Dth)	1.40%		
27) Market Price Effects (% or $/Dth)	0.00		
28) Other Environmental	0.00		
29) Economic and Jobs (Macroeconomic)	0.00		
30) Energy Security	0.00		

14) General Input Data Year =	2023				
		31) Energy Equity	0.00		
15a) Project Analysis Year 1 =	2024				
15b) Project Analysis Year 2 =	2025	32) Utility Performance Incentives	$0.00	$0.00	$0.00
15c) Project Analysis Year 3 =	2026				
		33) Credit and Collection Costs	0.00		
		34) Risk	0.00		
		35) Reliability	0.00		
		36) Resilience	0.00		

Cost Summary	1st Yr	2nd Yr	3rd Yr
Utility Cost per Participant =	$60,866.67	$51,543.67	$51,789.63
Cost per Participant per Dth =	$333.42	$286.33	$287.57
Lifetime Energy Reduction (Dth)	222,750		
Societal Cost per Dth	$12.16		

Test Results	Triennial NPV	Triennial B/C
Ratepayer Impact Measure Test	($3,809,804)	0.24
Utility Cost Test	($2,578,041)	0.32
Societal Test	($326,763)	0.88
Participant Test	$2,844,001	4.69
Minnesota Test	($2,293,028)	0.51

Table 1
Ratepayer Impact Measure Test

Company:
Project:

		Benefits												Costs					
t	Year	Total Energy Reduction (A)	Commodity Cost (B) a	Variable O & M Savings (C)	Peak Demand Reduction (D)	Demand Savings (E)	Environmental Compliance Costs (E1)	Market Price Effects (E2)	Credit and Collection Costs (E3)	Risk (E4)	Reliability (E5)	Resilience (E6)	Total Benefits (F)	Retail Rate (G)	Bill Costs (H)	Utility Project Costs (I)	Utility Performance Incentives (I1)	Total Costs (J)	Savings Less Cost (K)
1	2024	2,970	$4.43	$145.42	29.70	$190	$184	$0	$0	$0	$0	$0	$19,141	$6.61	$19,631	$913,000	$0	$932,631	($913,490)
2	2025	8,910	$4.42	$435.38	89.10	$190	$552	$0	$0	$0	$0	$0	$57,309	$6.60	$58,776	$1,546,310	$0	$1,605,086	($1,547,777)
3	2026	14,850	$4.53	$743.90	148.50	$195	$942	$0	$0	$0	$0	$0	$97,919	$6.76	$100,426	$1,553,689	$0	$1,654,115	($1,556,196)
4	2027	14,850	$4.72	$774.48	148.50	$203	$981	$0	$0	$0	$0	$0	$101,945	$7.04	$104,554	$0	$0	$104,554	($2,610)
5	2028	14,850	$4.97	$815.89	148.50	$214	$1,034	$0	$0	$0	$0	$0	$107,396	$7.42	$110,146	$0	$0	$110,146	($2,749)
6	2029	14,850	$5.23	$858.51	148.50	$225	$1,088	$0	$0	$0	$0	$0	$113,005	$7.80	$115,898	$0	$0	$115,898	($2,893)
7	2030	14,850	$5.43	$890.76	148.50	$233	$1,128	$0	$0	$0	$0	$0	$117,251	$8.10	$120,253	$0	$0	$120,253	($3,002)
8	2031	14,850	$5.63	$924.42	148.50	$242	$1,171	$0	$0	$0	$0	$0	$121,682	$8.40	$124,797	$0	$0	$124,797	($3,115)
9	2032	14,850	$5.78	$947.82	148.50	$248	$1,201	$0	$0	$0	$0	$0	$124,762	$8.62	$127,956	$0	$0	$127,956	($3,194)
10	2033	14,850	$5.97	$979.21	148.50	$256	$1,241	$0	$0	$0	$0	$0	$128,893	$8.90	$132,193	$0	$0	$132,193	($3,300)
11	2034	14,850	$6.11	$1,003.46	148.50	$263	$1,271	$0	$0	$0	$0	$0	$132,086	$9.12	$135,468	$0	$0	$135,468	($3,381)
12	2035	14,850	$6.22	$1,020.46	148.50	$267	$1,293	$0	$0	$0	$0	$0	$134,323	$9.28	$137,762	$0	$0	$137,762	($3,439)
13	2036	14,850	$6.35	$1,041.33	148.50	$273	$1,319	$0	$0	$0	$0	$0	$137,071	$9.47	$140,580	$0	$0	$140,580	($3,509)
14	2037	14,850	$6.51	$1,068.46	148.50	$280	$1,354	$0	$0	$0	$0	$0	$140,642	$9.71	$144,242	$0	$0	$144,242	($3,600)
15	2038	14,850	$6.66	$1,092.76	148.50	$286	$1,384	$0	$0	$0	$0	$0	$143,841	$9.93	$147,523	$0	$0	$147,523	($3,682)
16	2039	11,880	$6.80	$893.34	118.80	$292	$1,132	$0	$0	$0	$0	$0	$117,591	$10.15	$120,601	$0	$0	$120,601	($3,010)
17	2040	5,940	$6.97	$457.81	59.40	$300	$580	$0	$0	$0	$0	$0	$60,261	$10.40	$61,804	$0	$0	$61,804	($1,543)
18	2041	0	$7.14	$0.00	0.00	$307	$0	$0	$0	$0	$0	$0	$0	$10.65	$0	$0	$0	$0	$0
19	2042	0	$7.27	$0.00	0.00	$312	$0	$0	$0	$0	$0	$0	$0	$10.85	$0	$0	$0	$0	$0
20	2043	0	$7.44	$0.00	0.00	$320	$0	$0	$0	$0	$0	$0	$0	$11.10	$0	$0	$0	$0	$0
21	2044	0	$7.56	$0.00	0.00	$325	$0	$0	$0	$0	$0	$0	$0	$11.27	$0	$0	$0	$0	$0
22	2045	0	$7.70	$0.00	0.00	$331	$0	$0	$0	$0	$0	$0	$0	$11.48	$0	$0	$0	$0	$0
	NPV = (first)			$9,124			$11,559	$0	$0	$0	$0	$0	$1,201,017		$1,231,763	$3,779,058	$0	$5,010,821	($3,809,804)
	NPV = (second)			$9,463			$11,988	$0	$0	$0	$0	$0	$1,245,579		$1,277,466	$3,020,538	$0	$4,298,004	($3,052,425)
	NPV = (third)			$9,514			$12,053	$0	$0	$0	$0	$0	$1,252,318		$1,284,377	$1,553,689	$0	$2,838,066	($1,585,749)
	NPV = (Triennial)			$9,124			$11,559	$0	$0	$0	$0	$0	$1,201,017		$1,231,763	$3,779,058	$0	$5,010,821	($3,809,804)
	Total NPV =			($3,809,804)	Triennial														
	Benefit/Cost Ratio =			0.24	Values														

Benefit = (A * B) + C + (D * E) + E1 + E2 + E3 + E4 + E5 + E6 = F

Cost = H [A*G] + I = J

Benefit/Cost = F/J

Where:

A = Total Energy Reduction - Project Life (20) * Average Dth / participant saved (21) * Number of Participants (23)
Note · (I) = Total Utility Project Costs (16c)

(J) = (H) + (I)
B = C (K) = (F) - (J)
C = Variable O&M (6)
D = Demand Reduction (5 * A)
Note – So, demand reductions are calculated to align with the values from A and are based on project lifetime.
E = Demand Savings (4)
Note – Demand savings is separate from Demand Reduction and is based on the Demand Cost in $/Dth/year supplied by utilities.
E1=Environmental Compliance Costs (UCT A * 26) [NEW]
Explain – Gas Utility environmental costs not captured in Societal Gas Environmental Damage Factor (9).
Value – Set to 1.40% of Commodity Costs (B) for 2024-2026 Triennial
E2=Market Price Effects (27) [NEW]
Explain – Gas Utility market price effects not otherwise captured.
Value – Set to 0 for 2024-2026 Triennial
E3=Credit and Collection Costs (28) [NEW]
Explain – Gas Utility credit and collection costs not otherwise captured.
Value – Set to 0 for 2024-2026 Triennial
E4=Risk (29) [NEW]
Explain – Gas Utility risk costs not otherwise captured.
Value – Set to 0 for 2024-2026 Triennial
E5=Reliability (30) [NEW]
Explain – Gas Utility reliability costs not otherwise captured.
Value – Set to 0 for 2024-2026 Triennial
E6=Resilience (31) [NEW]
Explain – Gas Utility resilience costs not otherwise captured.
Value – Set to 0 for 2024-2026 Triennial
F=Total Benefits E+E1+E2+E3+E4+E5+E6)
Explain – Gas Utility resilience costs not otherwise captured.
Value – Set to 0 for 2024-2026 Triennial
G=Retail Rate (1) - for relevant customer)
H=Bill Costs (A*G)
I=Utility Project Costs (16c)
Note – Is calculated for first three years and uses utility costs for 2024 in Year 1, 2025 in Year 2, and 2026 in Year 3
I1=Utility Performance Incentives [NEW]
Explain – Utility Performance (shareholder) Incentives are captured as a Utility cost.
Value – Set by utilities based on projected Performance Incentives for 2024, 2025, 2026
J=Total Costs (H+I)

Table 2
Utility Cost Test

This test quantifies incremental decreases and increases to revenue requirements as a direct result of the project.

Company:
Project:

	Benefits										Costs			
Year	Gas Energy Savings (A)	Variable O & M Savings (B)	Peak Demand Savings (C)	Environmental Compliance Costs (E1)	Market Price Effects (E2)	Credit and Collection Costs (E3)	Risk (E4)	Reliability (E5)	Resilience (E6)	Total Benefits (D)	Utility Program Costs (E)	Utility Performance Incentives (E1)	Total Costs (F)	Net Change (G)
2024	$13,159	$145	$5,653	$184	$0	$0	$0	$0	$0	$19,141	$913,000	$0	$913,000	($893,859)
2025	$39,398	$435	$16,924	$552	$0	$0	$0	$0	$0	$57,309	$1,546,310	$0	$1,546,310	($1,489,001)
2026	$67,316	$744	$28,917	$942	$0	$0	$0	$0	$0	$97,919	$1,553,689	$0	$1,553,689	($1,455,770)
2027	$70,083	$774	$30,105	$981	$0	$0	$0	$0	$0	$101,945	$0	$0	$0	$101,945
2028	$73,831	$816	$31,715	$1,034	$0	$0	$0	$0	$0	$107,396	$0	$0	$0	$107,396
2029	$77,687	$859	$33,372	$1,088	$0	$0	$0	$0	$0	$113,005	$0	$0	$0	$113,005
2030	$80,606	$891	$34,626	$1,128	$0	$0	$0	$0	$0	$117,251	$0	$0	$0	$117,251
2031	$83,652	$924	$35,934	$1,171	$0	$0	$0	$0	$0	$121,682	$0	$0	$0	$121,682
2032	$85,770	$948	$36,844	$1,201	$0	$0	$0	$0	$0	$124,762	$0	$0	$0	$124,762
2033	$88,610	$979	$38,064	$1,241	$0	$0	$0	$0	$0	$128,893	$0	$0	$0	$128,893
2034	$90,805	$1,003	$39,007	$1,271	$0	$0	$0	$0	$0	$132,086	$0	$0	$0	$132,086
2035	$92,343	$1,020	$39,667	$1,293	$0	$0	$0	$0	$0	$134,323	$0	$0	$0	$134,323
2036	$94,232	$1,041	$40,479	$1,319	$0	$0	$0	$0	$0	$137,071	$0	$0	$0	$137,071
2037	$96,687	$1,068	$41,533	$1,354	$0	$0	$0	$0	$0	$140,642	$0	$0	$0	$140,642
2038	$98,886	$1,093	$42,478	$1,384	$0	$0	$0	$0	$0	$143,841	$0	$0	$0	$143,841
2039	$80,840	$893	$34,726	$1,132	$0	$0	$0	$0	$0	$117,591	$0	$0	$0	$117,591
2040	$41,428	$458	$17,796	$580	$0	$0	$0	$0	$0	$60,261	$0	$0	$0	$60,261
2041	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2042	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2043	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2044	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2045	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NPV = (first)	$825,659	$9,124	$354,675	$11,559	$0	$0	$0	$0	$0	$1,201,017	$3,779,058	$0	$3,779,058	($2,578,041)
NPV = (second)	$856,293	$9,463	$367,834	$11,988	$0	$0	$0	$0	$0	$1,245,579	$3,020,538	$0	$3,020,538	($1,774,960)
NPV = (third)	$860,926	$9,514	$369,825	$12,053	$0	$0	$0	$0	$0	$1,252,318	$1,553,689	$0	$1,553,689	($301,371)
NPV = (Triennial)	$825,659	$9,124	$354,675	$11,559	$0	$0	$0	$0	$0	$1,201,017	$3,779,058	$0	$3,779,058	($2,578,041)

Total NPV = #########
Benefit/Cost Ratio = 0.318 Triennial Values

Benefit = A + B + C + C1 + C2 + C3 + C4 + C5 + C6 = D

Cost = E + E1 = F

Benefit/Cost = D/F

Where:

A=Gas Energy Savings (RIM Test A* RIM Test B)
B=Variable O&M (RIM Test C)
C=Peak Demand Savings (RIM Test D * RIM Test E)
C1=Environmental Compliance Costs (RIM Test E1)
C2=Market Price Effects (RIM Test E2)
C3=Credit and Collection Costs (RIM Test E3)
C4=Risk (RIM Test E4)
C5=Reliability (RIM Test E5)
C6=Resilience (RIM Test E6)
D=Total Benefits (SUM of A:C6)
E=Utility Program Costs (16c)
E1=Utility Performance Incentives (RIM Test I1)
F=Total Costs (SUM of E:E1)

Table 3
Societal Cost Test

Company:
Project:

		Benefits																
	Year	Gas Energy Savings (A)	Variable O & M Savings (B)	Total Demand Savings (C)	Non-Gas Energy Savings (D)	Avoided Environmental Damage Savings (E)	Other Savings (F)	Environmental Compliance Costs (F1)	Market Price Effects (F2)	Other Environment (F3)	Economic and Jobs (F4)	Energy Security (F5)	Energy Equity (F6)	Credit and Collection Costs (F7)	Risk (F8)	Reliability (F9)	Resilience (F10)	Total Benefits (G)
	2024	$13,159	$145	$5,653	$1,870	$12,705	$0	$184	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,717
	2025	$39,398	$435	$16,924	$5,710	$38,860	$0	$552	$0	$0	$0	$0	$0	$0	$0	$0	$0	$101,878
	2026	$67,316	$744	$28,917	$9,764	$66,007	$0	$942	$0	$0	$0	$0	$0	$0	$0	$0	$0	$173,691
	2027	$70,083	$774	$30,105	$9,994	$67,262	$0	$981	$0	$0	$0	$0	$0	$0	$0	$0	$0	$179,200
	2028	$73,831	$816	$31,715	$10,158	$68,503	$0	$1,034	$0	$0	$0	$0	$0	$0	$0	$0	$0	$186,057
	2029	$77,687	$859	$33,372	$10,268	$69,745	$0	$1,088	$0	$0	$0	$0	$0	$0	$0	$0	$0	$193,018
	2030	$80,606	$891	$34,626	$10,381	$70,986	$0	$1,128	$0	$0	$0	$0	$0	$0	$0	$0	$0	$198,618
	2031	$83,652	$924	$35,934	$10,567	$72,227	$0	$1,171	$0	$0	$0	$0	$0	$0	$0	$0	$0	$204,476
	2032	$85,770	$948	$36,844	$10,762	$73,468	$0	$1,201	$0	$0	$0	$0	$0	$0	$0	$0	$0	$208,992
	2033	$88,610	$979	$38,064	$10,963	$74,710	$0	$1,241	$0	$0	$0	$0	$0	$0	$0	$0	$0	$214,566
	2034	$90,805	$1,003	$39,007	$11,175	$75,951	$0	$1,271	$0	$0	$0	$0	$0	$0	$0	$0	$0	$219,212
	2035	$92,343	$1,020	$39,667	$11,380	$77,192	$0	$1,293	$0	$0	$0	$0	$0	$0	$0	$0	$0	$222,895
	2036	$94,232	$1,041	$40,479	$11,602	$78,433	$0	$1,319	$0	$0	$0	$0	$0	$0	$0	$0	$0	$227,107
	2037	$96,687	$1,068	$41,533	$11,845	$79,675	$0	$1,354	$0	$0	$0	$0	$0	$0	$0	$0	$0	$232,162
	2038	$98,886	$1,093	$42,478	$12,067	$80,916	$0	$1,384	$0	$0	$0	$0	$0	$0	$0	$0	$0	$236,823
	2039	$80,840	$893	$34,726	$9,746	$65,737	$0	$1,132	$0	$0	$0	$0	$0	$0	$0	$0	$0	$193,074
	2040	$41,428	$458	$17,796	$4,939	$33,365	$0	$580	$0	$0	$0	$0	$0	$0	$0	$0	$0	$98,565
	2041	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2042	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2043	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2044	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2045	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	NPV = (first)	$968,778	$10,706	$416,154	$124,973	$847,013	$0	$13,563	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,381,187
	NPV = (second)	$987,143	$10,909	$424,043	$127,164	$861,829	$0	$13,820	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,424,908
	NPV = (third)	$979,009	$10,819	$420,549	$125,461	$850,118	$0	$13,706	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,399,661
	NPV = (Triennial)	$968,778	$10,706	$416,154	$124,973	$847,013	$0	$13,563	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,381,187
Total NPV =		($326,763)	Triennial															
Benefit/Cost Ratio =		0.879	Values															

Benefit = A + B + C + D + E + F + F1 + F2 + F3 + F4 + F5 + F6 + F7 + F8 + F9 + F10 = G

Cost = H + I + J + K - L + L1 = M

Benefit/Cost = G/M

Costs							
Non-Gas Energy Costs (H)	Additional Environmental Damage Costs (I)	Utility Program Costs (J)	Total Participants' Costs (K)	Incentives Paid to Participants (L)	Utility Performance Incentives (L1)	Total Costs (M)	Net Change (N)
$7,625	$4,481	$913,000	$77,250	$486,000	$0	$516,356	($482,640)
$23,278	$13,706	$1,546,310	$154,500	$972,000	$0	$765,794	($663,916)
$39,809	$23,280	$1,553,689	$154,500	$972,000	$0	$799,278	($625,587)
$40,743	$23,723	$0	$0	$0	$0	$64,466	$114,734
$41,412	$24,161	$0	$0	$0	$0	$65,573	$120,484
$41,861	$24,599	$0	$0	$0	$0	$66,459	$126,558
$42,323	$25,036	$0	$0	$0	$0	$67,359	$131,259
$43,080	$25,474	$0	$0	$0	$0	$68,554	$135,921
$43,875	$25,912	$0	$0	$0	$0	$69,787	$139,205
$44,695	$26,350	$0	$0	$0	$0	$71,045	$143,521
$45,559	$26,787	$0	$0	$0	$0	$72,346	$146,866
$46,396	$27,225	$0	$0	$0	$0	$73,622	$149,274
$47,301	$27,663	$0	$0	$0	$0	$74,964	$152,143
$48,292	$28,101	$0	$0	$0	$0	$76,393	$155,769
$49,195	$28,539	$0	$0	$0	$0	$77,734	$159,090
$39,733	$23,185	$0	$0	$0	$0	$62,918	$130,156
$20,136	$11,768	$0	$0	$0	$0	$31,903	$66,662
$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0
$509,507	$298,736	$3,865,972	$371,606	$2,337,871	$0	$2,707,950	($326,763)
$518,437	$303,962	$3,050,383	$304,066	$1,912,960	$0	$2,263,889	$161,019
$511,493	$299,831	$1,553,689	$154,500	$972,000	$0	$1,547,513	$852,147
$509,507	$298,736	$3,865,972	$371,606	$2,337,871	$0	$2,707,950	($326,763)

Where:

A=Gas Energy Savings (RIM Test A* RIM Test B)

B=Variable O&M (RIM Test C)

C=Total Demand Savings (Utility Cost Test C – Same as RIM Test D * RIM Test E)

D=Non-Gas Energy Savings - Project Life (20) * Average Non-Gas Fuel Units / participant saved <assumed to be kWh> (22) * Number of Participants (23)

Note 1 – Formulas uses values for all three triennial years and counts every year until reaches end of project life. (See similar calculations in RIM Test A – Total Energy Reduction)

Note 2 - This Non-Gas Energy Savings is not the same as Non-Gas Energy Savings in the Participant Test.
This criterion uses Non-Gas Fuel Cost (Input 7) while the Participant Test uses retail rate.

E=Avoided Environmental Damage Savings – Project Life (20) * Average Non-Gas Fuel Units / participant saved <assumed to be kWh> (22) * Number of Participants (23)*Non Gas Fuel Enviro. Damage Factor (9) / Non-Gas Fuel Loss Factor (8)

F=Other Savings - Participant Non-Energy Savings (19) * Escalation Rate * Project Life (20)

F1=Environmental Compliance Costs (Uses UCT A * 26)

F2=Market Price Effects (Uses UCT A * 27)

F3=Other Environmental [NEW] (UCT A * 28)

Explain – Other Environmental costs not included in Environmental Damage Savings and not otherwise captured.

Value – Set to 0 for 2024-2026 Triennial

F4=Economics and Jobs [NEW] (UCT A * 29)

Explain – Economic and Jobs impacts not otherwise captured.

Value – Set to 0 for 2024-2026 Triennial

F5=Energy Security [NEW] (UCT A * 30)

Explain – Energy Security impacts not otherwise captured.

Value – Set to 0 for 2024-2026 Triennial

F6=Energy Equity[NEW] (UCT A * 31)

Explain – Energy Equity impacts not otherwise captured.

Value – Set to 0 for 2024-2026 Triennial

F7=Credit and Collection Costs (RIM Test E3)

F8=Risk (RIM Test E4)

F9=Reliability (RIM Test E5)

F10=Resilience (RIM Test E6)

G=Total Benefits (SUM of A:F10)

H=Non-Gas Energy Costs - Project Life (20) * Avg Additional Non-Gas Fuel Units/ Part. Used <assumed to be kWh> (22a) * Number of Participants (23) * Non-Gas Fuel Cost (7) / Non-Gas Fuel Loss Factor (8)

Note - This Non-Gas Energy Costs is different from the Non-Gas Energy Costs in the Participant Cost test.
In this test, the variable calculates costs using Input 7 Non-Gas Fuel Cost while the Participant Cost test uses Input 2 - Non-Gas Fuel Retail Rate.

I=Additional Environmental Damage Costs - Non-Gas Fuel Loss Factor (8) * Project Life (20) * Average Additional Non-Gas Fuel Units / participant saved <assumed to be kWh> (22a) * Number of Participants (23)*Non Gas Fuel Enviro. Damage Factor (10)*Escalation Rate

J=Utility Program Costs (16c)

K=Total Participants' Costs (PCT H*PCT J)

L=Incentives Paid to Participants (16b)

Note – Formulas only use value for the three triennial years with zeros in all other years.

L1=Utility Performance Incentives (RIM Test I1)

M=Total Costs (H+I+J+K-L+L1)

Table 5
Minnesota Test

Company:
Project:

	Benefits																	Costs					
Year	Gas Energy Savings (A)	Variable O & M Savings (B)	Total Demand Savings (C)	Non-Gas Energy Savings (D)	Avoided Environmental Damage Savings (E)	Other Savings (F)	Environmental Compliance Costs (F1)	Market Price Effects (F2)	Other nmenta (F3)	mic Jobs (F4)	Energy y (F5)	Energy Equity (F6)	and on Costs (F7)	Risk (F8)	Reliability (F9)	Resilience (F10)	Total Benefits (G)	Non-Gas Energy Costs (H)	Additional Environmental Damage Cost (I)	Utility Program Costs (J)	Utility Performance Incentives (K)	Total Costs (L)	Net Change (M)
2024	$13,159	$145	$5,653	$1,870	$12,705	$0	$184	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,717	$7,625	$4,481	########	$0	$925,106	($891,390)
2025	$39,398	$435	$16,924	$5,710	$38,860	$0	$552	$0	$0	$0	$0	$0	$0	$0	$0	$0	$101,878	$23,278	$13,706	########	$0	########	#########
2026	$67,316	$744	$28,917	$9,764	$66,007	$0	$942	$0	$0	$0	$0	$0	$0	$0	$0	$0	$173,691	$39,809	$23,280	########	$0	########	#########
2027	$70,083	$774	$30,105	$9,994	$67,262	$0	$981	$0	$0	$0	$0	$0	$0	$0	$0	$0	$179,200	$40,743	$23,723	$0	$0	$64,466	$114,734
2028	$73,831	$816	$31,715	$10,158	$68,503	$0	$1,034	$0	$0	$0	$0	$0	$0	$0	$0	$0	$186,057	$41,412	$24,161	$0	$0	$65,573	$120,484
2029	$77,687	$859	$33,372	$10,268	$69,745	$0	$1,088	$0	$0	$0	$0	$0	$0	$0	$0	$0	$193,018	$41,861	$24,599	$0	$0	$66,459	$126,558
2030	$80,606	$891	$34,626	$10,381	$70,986	$0	$1,128	$0	$0	$0	$0	$0	$0	$0	$0	$0	$198,618	$42,323	$25,036	$0	$0	$67,359	$131,259
2031	$83,652	$924	$35,934	$10,567	$72,227	$0	$1,171	$0	$0	$0	$0	$0	$0	$0	$0	$0	$204,476	$43,080	$25,474	$0	$0	$68,554	$135,921
2032	$85,770	$948	$36,844	$10,762	$73,468	$0	$1,201	$0	$0	$0	$0	$0	$0	$0	$0	$0	$208,992	$43,875	$25,912	$0	$0	$69,787	$139,205
2033	$88,610	$979	$38,064	$10,963	$74,710	$0	$1,241	$0	$0	$0	$0	$0	$0	$0	$0	$0	$214,566	$44,695	$26,350	$0	$0	$71,045	$143,521
2034	$90,805	$1,003	$39,007	$11,175	$75,951	$0	$1,271	$0	$0	$0	$0	$0	$0	$0	$0	$0	$219,212	$45,559	$26,787	$0	$0	$72,346	$146,866
2035	$92,343	$1,020	$39,667	$11,380	$77,192	$0	$1,293	$0	$0	$0	$0	$0	$0	$0	$0	$0	$222,895	$46,396	$27,225	$0	$0	$73,622	$149,274
2036	$94,232	$1,041	$40,479	$11,602	$78,433	$0	$1,319	$0	$0	$0	$0	$0	$0	$0	$0	$0	$227,107	$47,301	$27,663	$0	$0	$74,964	$152,143
2037	$96,687	$1,068	$41,533	$11,845	$79,675	$0	$1,354	$0	$0	$0	$0	$0	$0	$0	$0	$0	$232,162	$48,292	$28,101	$0	$0	$76,393	$155,769
2038	$98,886	$1,093	$42,478	$12,067	$80,916	$0	$1,384	$0	$0	$0	$0	$0	$0	$0	$0	$0	$236,823	$49,195	$28,539	$0	$0	$77,734	$159,090
2039	$80,840	$893	$34,726	$9,746	$65,737	$0	$1,132	$0	$0	$0	$0	$0	$0	$0	$0	$0	$193,074	$39,733	$23,185	$0	$0	$62,918	$130,156
2040	$41,428	$458	$17,796	$4,939	$33,365	$0	$580	$0	$0	$0	$0	$0	$0	$0	$0	$0	$98,565	$20,136	$11,768	$0	$0	$31,903	$66,662
2041	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2042	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2043	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2044	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2045	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NPV = (first)	$968,778	$10,706	$416,154	########	$ 847,012.53	$0	$13,563	$0	$0	$0	$0	$0	$0	$0	$0	$0	#########	########	$298,736	########	$0	########	#########
NPV = (second)	$987,143	$10,909	$424,043	########	$861,829	$0	$13,820	$0	$0	$0	$0	$0	$0	$0	$0	$0	#########	########	$303,962	########	$0	########	#########
NPV = (third)	$979,009	$10,819	$420,549	########	$850,118	$0	$13,706	$0	$0	$0	$0	$0	$0	$0	$0	$0	#########	########	$299,831	########	$0	########	$34,647
NPV = (Triennial)	$968,778	$10,706	$416,154	########	$847,013	$0	$13,563	$0	$0	$0	$0	$0	$0	$0	$0	$0	#########	########	$298,736	########	$0	########	#########

Total NPV = ######## Triennial Values
Benefit/Cost = 0.509

Benefit = A+B+C+D+E+F+F1+F2+F3+F4+F5+F6+F7+F8+F9+F10=G
Cost = H+I+J+K=L

Benefit Cost = G/L

Where:

A=Gas Energy Savings (UCT A)

B=Variable O&M Savings (UCT B)

C=Total Demand Savings (UCT C)

D=Non-Gas Energy Savings (SCT D)

E=Avoided Environmental Damage Savings (SCT E)

F=Other Savings (SCT F)

F1=Environmental Compliance Costs

F2=Market Price Effects

F3=Other Environmental (SCT F3)

F4=Economics and Jobs (SCT F4)

F5=Energy Security (SCT F5)

F6=Energy Equity (SCT F6)

F7=Credit and Collection Costs (SCT F7)

F8=Risk (SCT F8)

F9=Reliability (SCT F9)

F10=Resilience (SCT F10)

G=Total Benefits (SUM A:F10)

H=Non-Gas Energy Costs (SCT H)

I=Additional Environmental Damage Costs (SCT I)

J=Utility Program Costs (UCT E)

K=Utility Performance Incentives (UCT E1)

L=Total Costs (SUM of H:K)

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/31/2023
Response Due: 9/11/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 043	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to Pilot M, Commercial Hybrid Heating. The Company stated, "The modeled archetype project used to develop estimates for the pilot would achieve a 72 percent reduction in total energy usage for heating, combining gas savings with increased electricity usage." Given the large energy savings aspect of this pilot, please explain why is this pilot not fit for consideration in the Company's 2024-2026 ECO Triennial Plan? **Response:** Please see CenterPoint Energy's reply to Information Request DOC 042 and Exhibit I – CIP/NGIA Coordination from the Innovation Plan filing. The Minnesota CIP Gas Utilities' Cost-Effectiveness Model (submitted as Attachment 1 to DOC IR 042) demonstrates that the measure, which includes holistic programmatic support services to support market transformation, is not cost-effective using the Minnesota Test.

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 8/9/2023
Response Due: 8/21/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 023 P	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to the Residential Deep Energy Retrofits and Electric Air Source Heat Pump pilot. CPE forecasts this pilot will save a total of 135 Dekatherms of natural gas annually per participant. a. Please identify the RFI respondent who provided estimates of energy savings for this pilot. Please include their RFI response. b. Please provide detailed calculations of energy savings for this pilot. c. Please provide a list of equipments that are being installed as part of this pilot? d. Please explain how the Company came up with the estimate of 238 participants for this pilot? e. Please provide details of correspondences with customers that show the identified customers are interested in this pilot. f. What is the average total cost per customer to reduce their gas consumption by 198 Dekatherms annually? g. What proportion of the average total cost per customer identified above is going to be covered by CPE through this filing? h. What percentage of this design capacity of 135 Dekatherms must each participant be forecasted to save annually over its useful life each year

Response By: Betsy Lang
Title: Lead Analyst Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

for the pilot to generate positive net benefits from a societal perspective?

i. Please identify any and all natural gas or combined electric and natural gas utilities in the United States that are currently engaged in a Residential Deep Energy Retrofits and Electric Air Source Heat Pump Pilot. Where possible provide identifying information for those proceeding by company and jurisdiction.

Response:

a. The following RFI responses included estimates of energy savings:

RFI Response 29 - included as Attachment 5 to this response.

RFI Response 89 - included as Attachment 6 to this response.

CenterPoint Energy has designated information in Attachments 5 and 6 as trade secret. The information meets the definition of trade secret in Minn. Stat. § 13.37, subd. 1(b), as follows: (1) the information was supplied by CenterPoint Energy, the affected organization; (2) we have taken all reasonable efforts to maintain the secrecy of the information, including protecting it from disclosure in this proceeding; and (3) the protected information contains information provided to CenterPoint Energy by potential project partners, which derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means, by other persons who could obtain economic value from its disclosure or use.

b. The gas consumption reduction of 135 Dth represents a weighted average of savings for single family home and multi-family home participants for different estimated retrofit tiers. See Exhibit N, tab CNP 19, rows 239-255 for details on how energy savings were calculated.

c. This has not been determined at this time. Phases 1 and 2 of the pilot would inform the decision of what gets installed in Phases 2 and 3, respectively.

d. CenterPoint Energy selected participation levels based on experience implementing programs and expectations for realistic participation levels. See Exhibit N, tab CNP19, rows 46-52 for details on participation breakdown by building type and year for each pilot size analyzed. CenterPoint Energy selected Size B for inclusion in the final NGIA portfolio.

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e. CenterPoint Energy has not talked to any specific customers about potential participation in this program specifically; however, CenterPoint Energy's Conservation Improvement Program has seen strong participation with weatherization measures and the Company is aware that many customers are interested in air source heat pumps.

f. The assumed average per-participant gas consumption reduction is 135 Dth. The assumed average total cost to achieve this reduction is $123,769, which represents a weighted average of cost to retrofit single family home and multi-family home participants. See Exhibit N, tab CNP 19, rows 139-141 and rows 152-154.

g. CenterPoint Energy proposes to cover 100% of costs for Phase 2 of the pilot. Incentive levels for Phase 3 will be informed by results of Phase 2, but for the purposes of the NGIA filing have been estimated as covering 25% of customer project costs.

h. In the Commission's June 1, 202, Order Establishing Frameworks for Implementing Minnesota's Natural Gas Innovation Act, Docket No. G-999/CI-21-566, Order Point 26(d), the Commission defined the "Societal Perspective" as "all the costs and benefits of the resource, including all relevant societal impacts." Order Points 30-32 indicate that costs and benefits include both quantifiable costs and benefits and costs and benefits that are not reasonably practicable to quantify. Quantified and unquantified costs and benefits for each pilot are shown in Exhibit M to CenterPoint Energy's petition. Because the societal perspective includes unquantified costs and benefits, CenterPoint Energy is not able to identify a numerical tipping point where a pilot or measure would no longer have net positive benefits from a societal perspective.

i. CenterPoint Energy asked ICF to complete a national search for regulatory filings by gas or combined electric and gas utilities mentioning or proposing projects similar to the Residential Deep Energy Retrofits and Electric Air Source Heat Pump pilot, but ICF did not identify any similar projects by other gas or combined electric and gas utilities. There may be projects similar to the Residential Deep Energy Retrofits and Electric Air Source Heat Pump pilot of which CenterPoint Energy is not aware. CenterPoint Energy is aware of other utilities that offer incentives for air source heat pumps, and for weatherization measures, but is not aware of utilities offering a combined program similar to the proposed pilot.

Response By: Betsy Lang
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State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/31/2023
Response Due: 9/11/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 041	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to Pilot N (Residential Deep Energy Retrofits and Electric Air Source Heat Pumps). The Company stated, "CenterPoint Energy's current Triennial Plan and proposed Triennial Plan do include insulation and other envelope measures as stand-alone rebate offerings" a. Please explain how the design of this pilot will prevent customer confusion about similar rebates and measures available through ECO and those available through NGIA. b. Please provide customer rebate amounts for every measure included in this pilot through CPE's 2024-2026 ECO Triennial Plan. c. Please provide customer rebate amounts for every measure included in this pilot through CPE's NGIA Plan. d. Please explain how the design of this Pilot will prevent the movement of customers from programs under CPE's 2024-2026 ECO Triennial Plan to CPE's NGIA Plan **Response:**

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

a. CenterPoint Energy envisions this pilot incentivizing new measures, i.e., measures not currently available through ECO. However, measures will be in the same technology class (e.g., insulation, other weatherization, air source heat pumps) as measures available through CIP. Accordingly, avoiding customer confusion between similar offerings will be a consideration during the design of Phase 3. While specific measures eligible for NGIA rebates through this pilot have not yet been determined, CenterPoint Energy envisions significant coordination on customer outreach for this NGIA pilot and customer outreach for related weatherization or air source heat pump rebates in CIP.

b. Specific measures eligible for customer rebates have not yet been determined for this pilot, so we are unable to provide a list of measures within CenterPoint Energy's 2024-2026 ECO Triennial Plan that will be included in Pilot N. A comprehensive list of all customer rebate amounts for the 2024-2026 ECO Triennial Plan was provided in the filing. See *In the Matter of CenterPoint Energy's 2024-2026 Natural Gas Energy Conservation and Optimization Triennial Plan*, Docket No. G-008/CIP-23-95, pg. 55 (June 30, 2023).

c. Specific measures eligible for customer rebates during Phase 3 of this pilot have not yet been determined. As described in Exhibit D in the Innovation Plan filing, CenterPoint Energy proposes to finalize details of the incentive program after Phase 1 is completed and Phase 2 is underway. CenterPoint Energy proposes to provide more details on Phase 3 program design in its first annual NGIA status report anticipated to be filed during year 2 of Plan implementation.

d. This pilot is intended to incentivize customers who are motivated to invest in deeper energy retrofits than would be incentivized through ECO offerings. It is not intended to offer higher NGIA rebates for the same project that would be completed using only ECO rebates. The technologies eligible for rebates from each program (ECO, NGIA) differ and provide opportunities for access to different levels of energy efficiency.

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
Telephone: 612-321-4318

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 8/31/2023
Response Due: 9/11/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 047	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Reference(s): In the Matter of the Application of CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas, (CPE, CenterPoint Energy, or Company), Natural Gas Innovation Act (NGIA) Filing The following questions pertain to Pilot R, Industrial and Large Commercial GHG Audit. The Company stated, "Through that CIP project, CenterPoint Energy caps on project cost coverage generally lead to incentives that do not exceed $10/Dth with many projects receiving lower amounts if a lower amount is sufficient to spur action by the customer. For this pilot, the Company believes that higher rebate amounts are likely necessary to drive customer action as measures will be less cost-effective in terms of natural gas bill savings." a. Please explain why CPE caps the incentive amount to $10/Dth for projects under its CIP Commercial & Industrial Custom Rebates Program? b. Given the Department has started using the MN Test as the primary cost benefit test for screening, has the Company determined if higher rebate levels would still be cost effective for this program? If yes, please provide live spreadsheets with relevant calculations, with formulas and links intact. **Response:**

Response By: Betsy Lang
Title: Lead Analyst, Regulatory & Legislative
Department: Regulatory Services
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a. The incentive is not capped, but uses general guidelines of $5-$10/Dth for custom rebates, depending on the project.

b. CenterPoint Energy did not develop its CIP/ECO Triennial Plan, nor its NGIA Innovation Plan, including programs, designs, goals and budgets, primarily around the MN Test. For CIP/ECO, CenterPoint Energy made efforts to file programs that have positive cost-effectiveness test scores for the primary MN Test and the relevant secondary cost-effectiveness tests, excluding the ratepayer cost-effectiveness tests. In support of the overall performance of the portfolio, CenterPoint Energy justified exceptions to positive secondary cost-effectiveness tests such as for audit and other indirect impact programs that deliver energy savings to other cost-effective programs. For NGIA, each custom project will vary in savings and cost. See Exhibit M from the Innovation Plan Filing for the Commission Cost-Benefit Framework.

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State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 10/3/2023
Response Due: 10/13/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 075	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Topic: Revenues associated with the sale of Environmental Attributes Reference(s): Filing, Excel Spreadsheet 20236-196995-11, Tabs CNP01 through CNP25 In the Description section of the template spreadsheet the Company states: "Environmental Attributes would be retired on behalf of CenterPoint Energy customers." a. Please provide the support for this statement. b. Has the Company modeled scenarios in which some percentage of the Environmental Attributes CenterPoint Energy receives via these NGIA projects are sold? c. If so, please provide that analysis and its support. d. If not, why didn't the Company develop a scenario or scenarios in which this variable is tested to determine its effect on the different project's Total Incremental Costs? **Response:** a. through d. Retirement of environmental attributes is envisioned solely for the pilots in which CenterPoint Energy would generate or assume ownership of the environmental attributes associated with renewable thermal fuels registered on M-RETS, specifically Pilots A, B, C and D.

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Retiring environmental attributes on behalf of CenterPoint Energy customers is consistent with NGIA's purpose of reducing gas utilities' emissions associated with customer natural gas end uses to contribute to the State of Minnesota's GHG reduction goals. Based on established GHG accounting protocols and principles, selling environmental attributes to other parties outside of CenterPoint Energy customers or parties outside of Minnesota would preclude CenterPoint Energy or State of Minnesota, respectively, to credibly claim the associated GHG reductions. CenterPoint Energy managing the resale of environmental attributes to those other parties would introduce complexity to program administration, as well as risk for ratepayers (if the resale price is lower than purchase price of environmental attributes), as compared to achieving the same GHG reduction benefits to CenterPoint Energy and Minnesota by simply purchasing less RNG. Accordingly, the company has not modeled scenarios in which some percentage of the environmental attributes that CenterPoint Energy generates or receives are sold.

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Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 10/3/2023
Response Due: 10/13/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 077	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Topic: Proposed Total Incremental Costs Being in Excess of Cost Cap Reference(s): Filing, Pages 18 and 19, Letter Correction, Exhibit 1, page 1 The Company identifies the Annual Cost Cap for the first NGIA filing as $18,118,180 annually or $90,590,000 over five years. CenterPoint Energy also calculates a bonus amount associated with RNG production of $3,022,742 annual which sums to $15,113,710 over five years. The sum of those two amounts results in a Total Five-Year Cost Cap of $105,704,610. In its filing dated July 13, 2023, in this same docket, the Company corrects certain cost recovery figures and estimates the corrected total costs over the five-years covered by the plan to be $111,980,000. The difference between the Total Five-Year Cost Cap and the Costs forecasted to be recovered by CPE related to these programs is $6,275,390. Why did the Company propose a NGIA portfolio whose estimated costs exceed the cost cap? **Response:** For purposes of calculating NGIA recoveries from the Purchased Gas Adjustment ("PGA"), the Innovation Act Charge ("IAC"), and Innovation Act Adjustment ("IAA"), as shown in the Company's July 13, 2023,

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correction letter, CenterPoint Energy did not back out expected savings from avoidance of purchases of natural gas produced from conventional geologic sources. The lower costs from purchasing less geologic natural gas commodity will flow to customers through the normal purchased gas adjustment and annual automatic adjustment mechanisms. However, the Natural Gas Innovation Act, subd. 1(r), specifies that "total incremental cost" is net of those savings, and certain other revenues and value sources. The cost cap set in subd. 3 is based on "total incremental cost". At the time of the correction letter, CenterPoint Energy estimated five-year savings in excess of $6,275,390.

As described in CenterPoint Energy's email to the Department of Commerce and other parties on October 10, 2023, CenterPoint Energy has discovered an error in its calculation of commodity cost savings for Pilots A, B and C which does result in estimated "total incremental costs" exceeding the cost cap by approximately $550,000. In reply comments, CenterPoint Energy will propose changes to its plan that will reduce estimated total incremental costs to be below the cost cap.

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State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 10/3/2023
Response Due: 10/13/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 071	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Topic: Forecasted gas price per dekatherm for Year 1 Reference(s): Filing, Excel Spreadsheet 20236-196995-11, Tabs CNP01 through CNP25 Provide the analysis that supports the $5.41/dekatherm commodity price for geologic gas in the model in year 1. **Response:** The initial geologic gas commodity cost used was $5.41/Dth based on 24 months average costs per Dth of gas sales to non-exempt customers between May 2021 and April 2023. This calculation is shown in Attachment 1.

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Weighted average of two years (leading up to NGIA filing) of monthly data on gas purchase volumes and prices by CenterPoint.

Date	Commodity Cost ($/Dth)	Total Gas Sales to Non-Exempt Customers (Dth)	Total Cost
May-21	$ 2.78	5,058,581	$ 14,061,843
June-21	$ 2.89	3,681,366	$ 10,648,719
July-21	$ 3.50	3,556,073	$ 12,461,191
August-21	$ 3.91	3,742,598	$ 14,640,669
September-21	$ 4.29	4,241,149	$ 18,181,382
October-21	$ 5.70	8,798,744	$ 50,169,558
November-21	$ 5.42	16,587,905	$ 89,957,868
December-21	$ 4.92	25,391,548	$ 124,944,190
January-22	$ 4.15	28,010,278	$ 116,234,251
February-22	$ 4.47	25,144,928	$ 112,500,922
March-22	$ 4.45	16,669,811	$ 74,120,648
April-22	$ 4.96	11,450,531	$ 56,838,146
May-22	$ 6.98	5,177,986	$ 36,118,006
June-22	$ 8.61	3,675,087	$ 31,628,166
July-22	$ 6.29	3,675,087	$ 23,111,152
August-22	$ 8.56	3,649,215	$ 31,250,053
September-22	$ 8.78	3,745,793	$ 32,875,701
October-22	$ 5.56	5,087,653	$ 28,295,491
November-22	$ 5.62	8,621,271	$ 48,476,545
December-22	$ 7.77	16,785,881	$ 130,434,688
January-23	$ 7.13	22,872,242	$ 163,117,968
February-23	$ 6.91	21,500,954	$ 148,562,992
March-23	$ 4.64	20,319,534	$ 94,382,203
April-23	$ 4.21	14,555,280	$ 61,239,885
	Total	**281,999,495**	**$ 1,524,252,238**
	5.41		

State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 10/3/2023
Response Due: 10/13/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 072	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Topic: Escalation rate in gas commodity costs Reference(s): Filing, Excel Spreadsheet 20236-196995-11, Tabs CNP01 through CNP25 The Company uses an annual escalation rate for natural gas commodity costs of -5.25% for years 2 through 5. a. Provide the analysis (including workpapers) that supports this annual escalation rate. b. If the Company calculated the annual escalation rate using the most recently available information, would it be different from the -5.25% included in the spreadsheet? c. lease provide the support for the analysis described in part b. **Response:** a. CenterPoint Energy developed the escalation rate in compliance with the Commission's June 1, 2022, Order in Docket No. G-999/CI-21-566 ("Frameworks Order"), Order Point 28. –5.250% is the average percent change in the price of natural gas between 2023 through 2027 to all users in the North Central Region as estimated in the Energy Information Administration's 2023 Annual Energy Outlook. This calculation is shown in Attachment 1.

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b. The annual escalation rate would not be different if calculated using the same approach described above, with the latest available information. This is because the source of the inputs driving this calculation is the Energy Information Administration's 2023 Annual Energy Outlook, and there is not a more recent version of the Annual Energy Outlook available at the time of this response.

c. N/A

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Following prescribed methodology, rate of change is based on change in Annual Energy Outlook's forecast for the West North Central Region for the 'average price to all users' for natural gas.

Table 3. Energy Prices by Sector and Source West North Central

https://www.eia.gov/outlooks/aeo/data/browser/#/?id=3-AEO2023&region=1-4&cases=ref2023&start=2021&end=2050&f=A&linechart=ref2023-d020623a.3-3-AEO2023.1-4&map=ref2023-d020623a.4-3-AEO2023.1-4&sourcekey=0
Tue May 02 2023 16:28:15 GMT-0400 (Eastern Daylight Time)
Source: U.S. Energy Information Administration

	2023	2024	2025	2026	2027
Natural Gas (nom $/MMBtu)	8.39	7.59	7.20	6.85	6.75
		-9.6%	-5.2%	-4.9%	-1.4%
					-5.25%

State of Minnesota
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Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
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Date of Request: 10/3/2023
Response Due: 10/13/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 073	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Topic: Forecasted gas prices per dekatherm for Years 1 through 5 Reference(s): Filing, Excel Spreadsheet 20236-196995-11, Tabs CNP01 through CNP25 Please re-run the analysis using the monthly NYMEX futures prices as of October 2, 2023, adjusted for delivery to CenterPoint Energy as the monthly commodity prices for geologic gas in the model for years 1 through 5. Please do not include any annual escalation factors for the NYMEX prices used. **Response:** See Attachment 1 for the development of a geologic gas price forecast based on NYMEX prices and a summary table showing how key results would change using this alternative forecast in the analysis of the proposed NGIA portfolio. This attachment also includes results for Department of Commerce Information Request 74. These changes to the commodity price forecast result in lower gas commodity costs than were used in the NGIA analysis in the short-term, but higher commodity costs than used in the NGIA plan starting in 2028 (year 5 of plan). The net utility incremental costs against the NGIA cost cap for the 5-Year Plan, in nominal dollars, would increase from $106,248,857 (per

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email correction sent to the Department of Commerce and other parties on October 10, 2023) to $107,018,976 based on this change to the commodity price forecast. Using the NYMEX futures price forecast for 2029 for all subsequent years out to 2050 (price stays flat after end of futures forecast period), the Net Utility Cost Test Lifetime Costs, in Real 2023 dollars, would decrease from $188,144,593 to $180,959,077 based on these changes to the commodity price forecast.

It is worth noting that there is significant fluctuation in the difference between natural gas prices at Henry Hub and the Ventura pricing point where CenterPoint Energy purchases most of its gas. In warmer months Henry Hub prices are often lower than Ventura, while in colder months the opposite is often true. For the purposes of this analysis a very small adjustment for delivery was included, making Ventura $0.03/Dth less expensive than Henry Hub. This was based on historical differences between the two pricing hubs over the same two-year period used to establish NGIA's base year commodity price. However, a higher basis that makes Ventura more expensive than Henry Hub in future years is also possible.

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The green tab in this file shows the results of the two additional sensitivity analyses that were requested (a summary of results with different gas price forecasts).

The rest of the tabs in this file show how the alternative gas price forecasts were built up based on Information Requests for additional sensitivity analysis.

Summary table

	Net Utility Incremental Costs vs. Cost-Cap for 5-Year Plan ($Nominal)	Net UCT Costs Lifetime ($2023)	Net Quantified Costs Lifetime ($2023)	
Original NGIA FILING	$105,701,533	$186,915,163	$255,163,542	
Original NGIA Plan - with RNG commodity cost fix (currently exceeding cost-cap)	$106,248,857	$188,144,593	$256,392,972	These updated values per email correction sent to the Department of Commerce and other parties on October 10, 2023.
Sensitivity scenario 1: Assuming commodity cost as the EIA Annual Energy Outlook 2023 forecast for Henry Hub ($/MMBtu nominal) adjusted by historical basis from Henry Hub to Ventura	$109,776,483	$182,887,965	$251,136,344	
Sensitivity scenario 2: Assuming commodity cost as a weighted annual average of NYMEX Futures Forecast for Henry Hub gas prices ($/MMBtu nominal) from 2024-2029 and keeping forward prices flat at 2029 level - adjusted by historical basis from Henry Hub to Ventura	$107,018,976	$180,959,077	$249,207,457	

Original NGIA FILING

Pilot	Net Utility Incremental Costs vs. Cost-Cap for 5-Year Plan ($Nominal)	Net UCT Costs Lifetime ($2023)	Net Quantified Costs Lifetime ($2023)
RNG Produced from Hennepin County Organic Waste	$2,856,759	$7,384,330	$6,233,262
RNG Produced from Ramsey & Washington Counties' Organic Waste	$10,160,058	$26,322,323	$19,801,962
Renewable Natural Gas RFP Purchase	$32,368,811	$63,675,702	$48,308,149
Green Hydrogen Blending into Natural Gas Distribution System	$5,073,067	$22,444,767	$22,019,473
Industrial or Large Commercial Hydrogen and Carbon Capture Incentives	$3,793,770	$2,333,865	$64,458,919
Industrial Methane and Refrigerant Leak Reduction	$1,247,651	$10,05,465	($822,905)
Urban Tree Carbon Offsets	$329,301	$266,387	$54,958
Carbon Capture Rebates for Commercial Buildings	$1,303,022	($10,9,387)	($1,671,919)
New Networked Geothermal Systems	$11,625,764	$41,039,753	$43,129,796
Decarbonizing Existing District Energy Systems	$597,909	($3,483,080)	($4,165,816)
New District Energy System	$215,644	($806,364)	$15,170,736
Industrial Electrification Incentives	$503,821	$61,105	$23,502
Commercial Hybrid Heating	$7,067,270	$4,823,050	$5,213,143
Residential Deep Energy Retrofits and Electric Air Source Heat Pumps	$13,616,532	$9,197,981	$26,052,423
Small/Medium Business GHG Audit	$2,291,206	$1,664,533	$1,825,299
Residential Gas Heat Pumps	$380,759	$305,058	$319,060
Gas Heat Pumps for Commercial Buildings	$749,442	$558,792	$446,748
Industrial and Large Commercial GHG Audit	$950,286	($339,580)	($1,803,711)
Research and Development	$10,570,462	$10,570,462	$10,570,462
Total Portfolio	**$105,701,533**	**$186,915,163**	**$255,163,542**

Updated values below per email correction sent to the Department of Commerce and other parties on October 10, 2023.

Original NGIA Plan - with RNG commodity cost fix (currently exceeding cost-cap)

Pilot	Net Utility Incremental Costs vs. Cost-Cap for 5-Year Plan ($Nominal)	Net UCT Costs Lifetime ($2023)	Net Quantified Costs Lifetime ($2023)
RNG Produced from Hennepin County Organic Waste	$2,886,823	$7,467,229	$6,316,162
RNG Produced from Ramsey & Washington Counties' Organic Waste	$10,270,777	$26,627,623	$20,107,262
Renewable Natural Gas RFP Purchase	$32,775,352	$64,516,932	$49,149,380
Green Hydrogen Blending into Natural Gas Distribution System	$5,073,067	$22,444,767	$22,019,473
Industrial or Large Commercial Hydrogen and Carbon Capture Incentives	$3,793,770	$2,333,865	$64,458,919
Industrial Methane and Refrigerant Leak Reduction	$1,247,651	$10,05,465	($822,905)
Urban Tree Carbon Offsets	$329,301	$266,387	$54,958
Carbon Capture Rebates for Commercial Buildings	$1,303,022	($10,9,387)	($1,671,919)
New Networked Geothermal Systems	$11,625,764	$41,039,753	$43,129,796
Decarbonizing Existing District Energy Systems	$597,909	($3,483,080)	($4,165,816)
New District Energy System	$215,644	($806,364)	$15,170,736
Industrial Electrification Incentives	$503,821	$61,105	$23,502
Commercial Hybrid Heating	$7,067,270	$4,823,050	$5,213,143
Residential Deep Energy Retrofits and Electric Air Source Heat Pumps	$13,616,532	$9,197,981	$26,052,423
Small/Medium Business GHG Audit	$2,291,206	$1,664,533	$1,825,299
Residential Gas Heat Pumps	$380,759	$305,058	$319,060
Gas Heat Pumps for Commercial Buildings	$749,442	$558,792	$446,748
Industrial and Large Commercial GHG Audit	$950,286	($339,580)	($1,803,711)
Research and Development	$10,570,462	$10,570,462	$10,570,462
Total Portfolio	**$106,248,857**	**$188,144,593**	**$256,392,972**

Sensitivity scenario 1: Assuming commodity cost as the EIA Annual Energy Outlook 2023 forecast for Henry Hub ($/MMBtu nominal) adjusted by historical basis from Henry Hub to Ventura

Pilot	Net Utility Incremental Costs vs. Cost-Cap for 5-Year Plan ($Nominal)	Net UCT Costs Lifetime ($2023)	Net Quantified Costs Lifetime ($2023)
RNG Produced from Hennepin County Organic Waste	$3,027,231	$7,810,981	$6,664,609
RNG Produced from Ramsey & Washington Counties' Organic Waste	$10,789,537	$27,893,583	$21,392,186
Renewable Natural Gas RFP Purchase	$34,643,751	$68,006,951	$52,726,121
Green Hydrogen Blending into Natural Gas Distribution System	$5,126,354	$21,971,463	$21,530,158
Industrial or Large Commercial Hydrogen and Carbon Capture Incentives	$3,844,956	$1,910,050	$64,024,237
Industrial Methane and Refrigerant Leak Reduction	$1,321,447	$10,73,539	($752,844)
Urban Tree Carbon Offsets	$327,775	$266,387	$53,432
Carbon Capture Rebates for Commercial Buildings	$1,391,432	($782,794)	($2,342,144)
New Networked Geothermal Systems	$11,657,343	$38,149,613	$40,194,127
Decarbonizing Existing District Energy Systems	$1,018,115	($5,548,032)	($6,192,250)
New District Energy System	$303,177	($1,737,646)	$14,247,096
Industrial Electrification Incentives	$546,913	($117,152)	($152,655)
Commercial Hybrid Heating	$7,121,302	$4,520,989	$4,886,805
Residential Deep Energy Retrofits and Electric Air Source Heat Pumps	$13,609,944	$7,426,276	$24,223,141
Small/Medium Business GHG Audit	$2,298,765	$1,581,870	$1,733,793
Residential Gas Heat Pumps	$379,996	$302,982	$315,317
Gas Heat Pumps for Commercial Buildings	$756,454	$543,222	$428,729
Industrial and Large Commercial GHG Audit	$1,041,529	($954,778)	($2,413,975)
Research and Development	$10,570,462	$10,570,462	$10,570,462
Total Portfolio	**$109,776,483**	**$182,887,965**	**$251,136,344**

Sensitivity scenario 2: Assuming commodity cost as a weighted annual average of NYMEX Futures Forecast for Henry Hub gas prices ($/MMBtu nominal) from 2024-2029 and keeping forward prices flat at 2029 level - adjusted by historical basis from Henry Hub to Ventura

Pilot	Net Utility Incremental Costs vs. Cost-Cap for 5-Year Plan ($Nominal)	Net UCT Costs Lifetime ($2023)	Net Quantified Costs Lifetime ($2023)
Hennepin County Anaerobic Digestion of Organic Materials	$2,904,190	$7,448,923	$6,298,645
Ramsey and Washington Counties Anaerobic Digestion of Organic Materials	$10,335,292	$26,560,205	$20,043,311
Renewable Natural Gas RFP Purchase	$33,303,851	$64,679,814	$49,361,137
Green Hydrogen Blending into Natural Gas Distribution System	$5,074,635	$22,079,479	$21,647,288
Industrial or Large Commercial Hydrogen and Carbon Capture Incentives	$3,796,331	$2,006,772	$64,126,807
Industrial Methane and Refrigerant Leak Reduction	$1,276,366	$10,28,548	($798,674)
Urban Tree Offset	$328,792	$266,387	$54,449
Carbon Capture Rebates for Commercial Buildings	$1,320,436	($612,695)	($2,175,291)
New Networked Geothermal Systems	$11,609,057	$39,268,213	$41,340,414
Decarbonizing Existing District Energy Systems	$684,436	($5,108,339)	($5,783,219)
New District Energy System	$233,615	($1,408,193)	$14,570,412
Industrial Electrification Incentive	$515,309	($82,457)	($119,607)
Commercial Hybrid Heating	$7,074,067	$4,533,554	$4,914,502
Residential Deep Energy Retrofit and Electric Air Source Heat Pump	$13,595,974	$8,092,986	$24,926,431
Small/Medium Business GHG Audit	$2,291,966	$1,594,588	$1,752,244
Residential Gas Heat Pump	$380,377	$302,759	$316,193
Gas Heat Pump for Commercial Buildings	$751,115	$539,842	$426,924
Industrial and Large Commercial GHG Audit	$972,705	($801,769)	($2,264,971)
Research and Development	$10,570,462	$10,570,462	$10,570,462
Total Portfolio	**$107,018,976**	**$180,959,077**	**$249,207,457**

* 2024-2029 Monthly NYMEX futures prices as of October 2nd, 2023

Notes		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5																							
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
Gas Price Forecast used in NGIA Filing	NGIA Commodity price ($/Dth)	$ 5.41	$ 5.13	$ 4.86	$ 4.60	$ 4.36	$ 4.13	$ 3.91	$ 3.71	$ 3.51	$ 3.33	$ 3.15	$ 2.99	$ 2.83	$ 2.68	$ 2.54	$ 2.41	$ 2.28	$ 2.16	$ 2.05	$ 1.94	$ 1.84	$ 1.74	$ 1.65	$ 1.57	$ 1.48	$ 1.41	$ 1.33	$ 1.33	
	Annual escalation rate		-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%		
	Sensitivity Analysis from NGIA Filing (Results in Exhibit E)																													
Assuming a commodity cost annual escalation rate of 103%	Sensitivity scenario 1	$ 5.41	$ 5.5	$ 5.5	$ 5.6	$ 5.6	$ 5.7	$ 5.8	$ 5.8	$ 5.9	$ 5.9	$ 6.0	$ 6.1	$ 6.1	$ 6.2	$ 6.2	$ 6.3	$ 6.4	$ 6.4	$ 6.5	$ 6.6	$ 6.6	$ 6.7	$ 6.8	$ 6.8	$ 6.9	$ 7.0	$ 7.1	$ 7.1	
Assuming a flat commodity cost of $2.8/Dth	Sensitivity scenario 2	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	
Assuming a flat commodity cost of $8.8/Dth	Sensitivity scenario 3	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	
	Prices based on IRs																													
NYMEX has monthly prices through end of 2029. NGIA calculations are based on annual costs. Two years of CenterPoint gas volumes by month used to weight the monthly NYMEX values into a weighted average by year. Keep values in 2030 and onwards fixed, but futures do not stretch that far out.	Weighted Annual Average of NYMEX Futures Forecast for Henry Hub Gas Prices ($/MMBtu Nominal) - Before Adjustment for Delivery to CenterPoint Energy Minnesota		3.84	4.11	4.24	4.25	4.30	4.37																						
	Assumed Continuation of NYMEX frozen at 2029 level							4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	
This is the reference case forecast from EIA 2023 AEO (values available on annual basis).	EIA Annual Energy Outlook 2023 Forecast for Henry Hub Gas Prices ($/MMBtu Nominal) - Before Adjustment for Delivery to CenterPoint Energy Minnesota	$ 5.48	$ 4.34	$ 3.80	$ 3.41	$ 3.24	$ 3.25	$ 3.35	$ 3.54	$ 3.78	$ 4.07	$ 4.44	$ 4.75	$ 5.02	$ 5.15	$ 5.33	$ 5.63	$ 5.64	$ 5.99	$ 6.26	$ 6.39	$ 6.43	$ 6.52	$ 6.66	$ 6.81	$ 6.91	$ 7.04	$ 7.08	$ 7.23	
This is the assumed adjustment for Delivery to CenterPoint Energy in Minnesota (at the Ventura receipt point where CenterPoint gets most of its gas). Note, this basis shifts around a lot - and is often a positive value (higher cost in Ventura than Henry Hub) in the colder months of the year	Assumed Henry Hub to Ventura Basis	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	
	Adjusted NYMEX Futures Forecast		$ 3.81	$ 4.08	$ 4.21	$ 4.22	$ 4.27	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	
	Adjusted EIA Annual Energy Outlook 2023 Forecast	$ 5.45	$ 4.31	$ 3.77	$ 3.38	$ 3.21	$ 3.22	$ 3.32	$ 3.50	$ 3.75	$ 4.04	$ 4.41	$ 4.72	$ 4.99	$ 5.12	$ 5.30	$ 5.60	$ 5.61	$ 5.96	$ 6.23	$ 6.36	$ 6.40	$ 6.49	$ 6.63	$ 6.78	$ 6.88	$ 7.01	$ 7.05	$ 7.20	
	Adjusted NYMEX Futures Forecast		$ 3.81	$ 4.08	$ 4.21	$ 4.22	$ 4.27	$ 4.34																						
	Continuation of Adjusted NYMEX Frozen at 2019 Levels							$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	

NYMEX futures prices as of October 2nd, 2023, as requested. This data is available at a monthly level, but NGIA calculations use an annual value.

NYMEX futures prices as of October 2nd, 2023, as requested. This data is available at a monthly level, but NGIA calculations use an annual value.

Source:Argus
Henry Hub Forwards in $/MMBtu (Nom)

tradedate	year	forwardperiod	Henry Hub
2/10/2023	2023	3	2.51
2/10/2023	2023	4	2.61
2/10/2023	2023	5	2.78
2/10/2023	2023	6	2.97
2/10/2023	2023	7	3.12
2/10/2023	2023	8	3.16
2/10/2023	2023	9	3.12
2/10/2023	2023	10	3.20
2/10/2023	2023	11	3.60
2/10/2023	2023	12	3.97
2/10/2023	2024	1	4.21
2/10/2023	2024	2	4.08
2/10/2023	2024	3	3.67
2/10/2023	2024	4	3.26
2/10/2023	2024	5	3.23
2/10/2023	2024	6	3.32
2/10/2023	2024	7	3.41
2/10/2023	2024	8	3.44
2/10/2023	2024	9	3.40
2/10/2023	2024	10	3.47
2/10/2023	2024	11	3.83
2/10/2023	2024	12	4.27
2/10/2023	2025	1	4.54
2/10/2023	2025	2	4.38
2/10/2023	2025	3	3.96
2/10/2023	2025	4	3.47
2/10/2023	2025	5	3.43
2/10/2023	2025	6	3.51
2/10/2023	2025	7	3.61
2/10/2023	2025	8	3.65
2/10/2023	2025	9	3.64
2/10/2023	2025	10	3.71
2/10/2023	2025	11	4.08
2/10/2023	2025	12	4.52
2/10/2023	2026	1	4.78
2/10/2023	2026	2	4.58
2/10/2023	2026	3	4.13
2/10/2023	2026	4	3.53
2/10/2023	2026	5	3.48
2/10/2023	2026	6	3.56
2/10/2023	2026	7	3.65
2/10/2023	2026	8	3.68
2/10/2023	2026	9	3.67
2/10/2023	2026	10	3.75
2/10/2023	2026	11	4.13
2/10/2023	2026	12	4.57
2/10/2023	2027	1	4.81
2/10/2023	2027	2	4.59
2/10/2023	2027	3	4.14
2/10/2023	2027	4	3.53
2/10/2023	2027	5	3.50
2/10/2023	2027	6	3.58
2/10/2023	2027	7	3.66
2/10/2023	2027	8	3.70
2/10/2023	2027	9	3.69
2/10/2023	2027	10	3.77
2/10/2023	2027	11	4.13
2/10/2023	2027	12	4.57
2/10/2023	2028	1	4.83
2/10/2023	2028	2	4.61
2/10/2023	2028	3	4.20
2/10/2023	2028	4	3.59
2/10/2023	2028	5	3.57
2/10/2023	2028	6	3.65
2/10/2023	2028	7	3.73
2/10/2023	2028	8	3.76

Weighting by Month from Original NGIA Gas Price

January	18%
February	17%
March	13%
April	9%
May	4%
June	3%
July	3%
August	3%
September	3%
October	5%
November	9%
December	15%

Year	Estimated Annual Equivalent Price from NYMEX Futures Monthly Values ($/MMBtu Nom)
2024	3.84
2025	4.11
2026	4.24
2027	4.25
2028	4.30
2029	4.37

2/10/2023	2028	9	3.76
2/10/2023	2028	10	3.84
2/10/2023	2028	11	4.20
2/10/2023	2028	12	4.62
2/10/2023	2029	1	4.87
2/10/2023	2029	2	4.66
2/10/2023	2029	3	4.26
2/10/2023	2029	4	3.68
2/10/2023	2029	5	3.67
2/10/2023	2029	6	3.73
2/10/2023	2029	7	3.81
2/10/2023	2029	8	3.84
2/10/2023	2029	9	3.85
2/10/2023	2029	10	3.93
2/10/2023	2029	11	4.29
2/10/2023	2029	12	4.71

Table 13. Natural Gas Supply, Disposition, and Prices
https://www.eia.gov/outlooks/aeo/data/browser/#/?id=13-AEO2023&cases=ref2023&sourcekey=0
Fri Oct 06 2023 20:13:15 GMT-0400 (Eastern Daylight Time)
Source: U.S. Energy Information Administration

	full name	api key	units	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	Growth (2022-2050)
Production																																	
Dry Gas Production	Natural Gas:	AEO.2023.REF2023.SUP	Tcf		36.46507	36.48585	35.56702	35.72548	36.18347	36.13615	36.43782	36.67969	37.03574	37.4669	37.9731	38.55103	39.04591	39.49739	39.85736	40.21932	40.49105	40.73346	40.87089	40.98983	41.16486	41.2772	41.3545	41.50578	41.34065	41.54499	41.61325	41.69295	42.06538	0.50%
Supplemental Natural Gas	Natural Gas:	AEO.2023.REF2023.SUP	Tcf		0.066783	0.068295	0.06721	0.066134	0.065053	0.063973	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	- 0.20%
Net Imports	Natural Gas:	AEO.2023.REF2023.TRA	Tcf		- 4.18425	- 5.13503	- 5.47192	- 5.96914	- 6.56669	- 7.05044	- 7.55539	- 7.9423	- 8.55359	- 9.25342	- 9.89504	- 10.5485	- 11.117	- 11.524	- 11.8195	- 12.0314	- 12.0891	- 12.1492	- 12.0553	- 12.02	- 12.0162	- 11.9762	- 11.9364	- 11.8474	- 11.8002	- 11.7534	- 11.7111	- 11.6598	- 11.6139	3.70%
Pipeline	Natural Gas:	AEO.2023.REF2023.TRA	Tcf		- 0.25118	- 0.65654	- 0.92837	- 1.13738	- 1.29554	- 1.41805	- 1.61505	- 1.71669	- 1.72799	- 1.82782	- 1.88547	- 1.92285	- 1.99136	- 2.09843	- 2.17918	- 2.20575	- 2.26352	- 2.22357	- 2.11494	- 2.09439	- 2.09062	- 2.05059	- 1.99607	- 1.92176	- 1.87459	- 1.82776	- 1.77071	- 1.73417	- 1.68826	7.00%
Liquefied Natural Gas	Natural Gas:	AEO.2023.REF2023.TRA	Tcf		- 3.93307	- 4.47849	- 4.54355	- 4.83176	- 5.27115	- 5.63239	- 5.94035	- 6.2256	- 6.82561	- 7.4256	- 8.04035	- 8.66256	- 9.19256	- 9.4256	- 9.64035	- 9.82256	- 9.9256	- 9.94035	- 9.9256	- 9.9256	- 9.9256	- 9.94035	- 9.9256	- 9.9256	- 9.94035	- 9.9256	- 9.9256	- 9.94035	- 9.9256	- 9.9256	3.40%
Total Supply	Natural Gas:	AEO.2023.REF2023.SUP	Tcf		32.3476	31.49112	30.16232	29.82248	29.68183	29.34969	28.94532	28.80029	28.54504	28.27637	28.14095	28.06548	27.99184	28.03625	28.10073	28.25086	28.46481	28.64719	28.87851	29.03273	29.2154	29.3639	29.48098	29.72132	29.60335	29.85452	29.96509	30.09607	30.51441	- 0.20%
Consumption by Sector	Natural Gas:	AEO.2023.REF2023.SUP	Tcf		32.0019	30.83448	29.64611	29.36544	29.27512	28.78844	28.62392	28.47846	28.2309	27.95797	27.82668	27.74048	27.67651	27.77949	27.93288	28.15677	28.33716	28.56429	28.7157	28.90385	29.06794	29.18913	29.33363	29.31538	29.43948	29.64043	29.79003	30.00979	- 0.20%
Residential	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		4.956103	4.991772	4.758877	4.787258	4.812247	4.827975	4.836563	4.83274	4.822402	4.807221	4.791358	4.783406	4.772306	4.761995	4.754158	4.747469	4.739067	4.733147	4.728353	4.723671	4.719968	4.718853	4.720119	4.719804	4.71269	4.708236	4.70734	4.707267	4.705333	- 0.20%
Commercial	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		3.467453	3.474621	3.371255	3.408176	3.444571	3.463666	3.492099	3.507773	3.518465	3.527853	3.534745	3.535379	3.533345	3.529708	3.527303	3.523382	3.514469	3.507703	3.499254	3.490335	3.482872	3.47906	3.478466	3.474299	3.463223	3.456198	3.454088	3.4524	3.44776	0.00%
Industrial	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		10.48015	10.22686	10.13164	10.27806	10.35756	10.6549	10.79082	10.84859	10.89515	10.93869	10.98439	11.02349	11.0926	11.14965	11.23708	11.30991	11.372	11.46501	11.52156	11.59612	11.67868	11.76481	11.84744	11.90782	11.9959	12.00333	12.11517	12.20997	12.33111	0.60%
Other Industrial	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		8.49547	8.208763	8.124475	8.262086	8.473062	8.609991	8.749133	8.767846	8.803032	8.841925	8.852177	8.873966	8.926038	8.972638	9.032281	9.087664	9.140488	9.218684	9.277225	9.343618	9.409446	9.478456	9.536632	9.58894	9.59.0158	9.673329	9.757198	9.837563	9.950478	0.60%
Lease and Plant Fuel	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		1.984676	2.018099	2.007162	2.015972	2.044499	2.044909	2.075882	2.080745	2.092096	2.10376	2.132209	2.149524	2.166565	2.177007	2.204795	2.222246	2.231516	2.251329	2.25034	2.2525	2.269236	2.286354	2.310805	2.318879	2.328533	2.329997	2.357975	2.372407	2.380637	0.70%
Natural Gas-to-Liquids Heat and Powe	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	- -	
Natural Gas to Liquids Production	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	- -	
Transportation	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		1.298378	1.266994	1.225015	1.213742	1.231016	1.222495	1.214443	1.239322	1.28755	1.338387	1.394878	1.451291	1.498329	1.52884	1.552042	1.571726	1.589475	1.596188	1.612993	1.626597	1.640996	1.654405	1.669935	1.683864	1.697575	1.71881 2	1.742685	1.759869	1.780975	1.10%
Motor Vehicles	Trains	and Ships	Natural Gas:	AEO.2023.RE	Tcf		0.104304	0.111244	0.120881	0.118723	0.1297	0.131696	0.136779	0.140379	0.141662	0.142376	0.143415	0.144205	0.146421	0.15001 8	0.153519	0.160994	0.165954	0.173789	0.180587	0.189002	0.197866	0.208548	0.218929	0.230091	0.238662	0.252568	0.268154	0.284226	0.300612	3.90%
Pipeline and Distribution Fuel	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		0.873416	0.791266	0.733831	0.700822	0.671122	0.630651	0.592023	0.590196	0.586854	0.590064	0.595722	0.603939	0.608261	0.618775	0.611882	0.610384	0.615074	0.619552	0.622765	0.629148	0.634683	0.63741	0.643364	0.645326	0.650466	0.657796	0.664489	0.667796	0.671916	- 0.90%
Fuel Used to Liquefy Gas for Export	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		0.320659	0.364485	0.370303	0.394198	0.430338	0.460147	0.485641	0.508747	0.557347	0.605947	0.655741	0.703147	0.743647	0.767947	0.785341	0.800347	0.808447	0.808447	0.809641	0.808447	0.808447	0.808447	0.809641	0.808447	0.808447	0.808447	0.809641	0.808447	0.808447	3.40%
Electric Power	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		1.179982	1.087423	1.015932	9.678199	9.269681	8.619404	8.289996	8.050027	7.707353	7.365824	7.121314	6.946913	6.77484	6.706319	6.708906	6.78039	6.944749	7.035107	7.202128	7.278445	7.381327	7.45081	7.473168	7.547843	7.522304	7.55291 3	7.621141	7.660525	7.744609	- 1.50%
Discrepancy	Natural Gas:	AEO.2023.REF2023.UNC	Tcf		0.345703	0.584641	0.516209	0.457045	0.406712	0.361244	0.321404	0.321831	0.314142	0.318394	0.31427	0.324993	0.320419	0.359745	0.321245	0.317987	0.308048	0.310028	0.314213	0.31756	0.30769	0.295959	0.291849	0.387688	0.28797	0.415039	0.324659	0.306042	0.504618	- -
Natural Gas Prices																																	
Natural Gas Spot Price at Henry Hub (2022 dollars per million Btu)	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/MMBtu		6.523997	5.266376	4.072381	3.489514	3.065508	2.853001	2.799904	2.825097	2.91248	3.043758	3.208004	3.416918	3.56943	3.688224	3.694155	3.737596	3.866561	3.78878	3.938065	4.022155	4.014737	3.950616	3.913768	3.910706	3.907083	3.870706	3.849094	3.783895	3.771015	- 1.90%
Delivered Prices (2022 dollars per thousand cubic feet)																																	
Residential	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		14.85139	14.61131	13.32067	12.56854	11.93853	11.51671	11.24464	11.29737	11.34184	11.44815	11.54293	11.69535	11.82053	11.93212	11.98545	12.07236	12.21761	12.2245	12.32065	12.42099	12.44702	12.43357	12.38942	12.45129	12.774	12.75781	12.72381	12.72862	12.76448	- 0.50%
Commercial	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		11.41529	10.72811	9.689114	9.192108	8.786163	8.566701	8.477146	8.510685	8.536977	8.619786	8.694034	8.833133	8.936175	9.027164	9.064223	9.135649	9.26419	9.26075	9.346378	9.434954	9.451041	9.430367	9.382954	9.433675	9.638147	9.596008	9.55143	9.551454	9.584112	- 0.60%
Industrial	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		7.616823	6.534565	5.361677	4.77115	4.321446	4.073116	3.986617	4.002231	4.062998	4.172425	4.287567	4.451732	4.582922	4.698439	4.781014	4.76441	4.893519	4.836315	4.960828	5.040644	5.034396	4.981189	4.929628	4.927132	4.889997	4.854081	4.818973	4.775721	4.771768	- 1.70%
Transportation	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		18.2337	16.93409	15.468	14.86204	14.14035	13.77544	13.55674	13.37985	13.30359	13.29213	13.2704	13.34108	13.33082	13.28156	13.34487	13.40376	13.45217	12.84661	12.79195	12.72971	12.58805	12.40715	12.22541	12.15086	12.17782	12.60935	12.44909	12.32189	12.23544	- 1.40%
Electric Power	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		7.258743	5.812993	4.63491	3.999119	3.500111	3.390961	3.068681	3.063734	3.101904	3.175818	3.259538	3.393531	3.506565	3.630531	3.666931	3.715862	3.860356	3.830414	3.974774	4.050839	4.031197	3.977907	3.906839	3.898304	3.873679	3.840307	3.823201	3.766449	3.764557	- 2.30%
Average	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		9.209998	8.271177	7.106081	6.526754	6.06689	5.83237	5.730124	5.772043	5.850703	5.979175	6.097002	6.262642	6.397126	6.512626	6.539738	6.584328	6.695644	6.649044	6.744039	6.813235	6.795757	6.742805	6.682416	6.686844	6.760439	6.778736	6.676045	6.635656	6.628702	- 1.20%
Natural Gas Spot Price at Henry Hub (nominal dollars per million Btu)	Natural Gas:	AEO.2023.REF2023.PRC	nom $/MMBtu		6.523997	5.484048	4.344237	3.803406	3.4125	3.244545	3.252955	3.354208	3.535144	3.779019	4.074234	4.442329	4.751782	5.016179	5.148898	5.326049	5.631648	5.639552	5.992483	6.257671	6.387211	6.429273	6.516381	6.663004	6.818882	6.910819	7.036972	7.083812	7.230118	0.40%
Delivered Prices (nominal dollars per thousand cubic feet)																																	
Residential	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		14.85139	15.21719	14.20991	13.69912	13.28987	13.09726	13.06412	13.41325	13.76663	14.2136	14.65977	15.20151	15.73601	16.25653	16.70528	17.20304	17.79496	18.19601	18.74812	19.32458	19.80248	20.23452	20.62824	21.21433	22.27762	22.77799	23.26187	23.8292	24.47317	1.80%
Commercial	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		11.41529	11.17159	10.33592	10.01799	9.780688	9.74239	9.842553	10.10465	10.36211	10.70201	11.04161	11.48816	11.89623	12.29876	12.63368	13.01824	13.4933	13.78451	14.22222	14.67891	15.03605	15.34708	15.62252	16.07296	16.80876	17.13287	17.46204	17.88123	18.3755	1.70%
Industrial	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		7.616823	6.783866	5.719601	5.200292	4.81106	4.632108	4.631688	4.753106	4.933633	5.180331	5.445302	5.787689	6.100988	6.401233	6.576075	6.789239	7.127412	7.198794	7.548803	7.842237	8.009428	8.106438	8.207777	8.394775	8.528066	8.666553	8.81012	8.940605	9.148849	0.70%
Transportation	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		18.2337	17.63412	16.50058	16.19892	15.74093	15.66597	15.70387	15.88576	16.14778	16.50302	16.85369	17.30961	17.71995	18.09502	18.32127	18.5701 7	18.97117	19.07439	19.46528	19.80488	20.02685	20.19153	20.35517	20.70245	22.28429	22.51293	22.75962	23.067	23.45886	0.90%
Electric Power	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		7.258743	6.053293	4.944318	4.358852	3.896295	3.628886	3.565222	3.637538	3.765066	3.94298	4.139684	4.419122	4.668094	4.946298	5.110954	5.295079	5.622611	5.701523	6.048342	6.302299	6.413398	6.473688	6.504844	6.641873	6.755627	6.856544	6.989635	7.051152	7.217737	0.00%
Average	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		9.209998	8.613094	7.580453	7.118855	6.755852	6.632801	6.657331	6.853085	7.103535	7.423525	7.743322	8.142049	8.516135	8.872911	9.115061	9.382624	9.752209	9.897018	10.26228	10.60004	10.81165	10.97331	11.12615	11.39295	11.79009	11.99574	12.20525	12.42258	12.70913	1.20%

Weighted average of two years (leading up to NGIA filing) of monthly data on gas purchase volumes and prices by CenterPoint.

Date	Commodity Cost ($/Dth)	Total Gas Sales to Non-Exempt Customers (Dth)	Total Cost
May-21	$ 2.78	5,058,581	$ 14,061,843
June-21	$ 2.89	3,681,366	$ 10,648,719
July-21	$ 3.50	3,556,073	$ 12,461,191
August-21	$ 3.91	3,742,598	$ 14,640,669
September-21	$ 4.29	4,241,149	$ 18,181,382
October-21	$ 5.70	8,798,744	$ 50,169,558
November-21	$ 5.42	16,587,905	$ 89,957,868
December-21	$ 4.92	25,391,548	$ 124,944,190
January-22	$ 4.15	28,010,278	$ 116,234,251
February-22	$ 4.47	25,144,928	$ 112,500,922
March-22	$ 4.45	16,669,811	$ 74,120,648
April-22	$ 4.96	11,450,531	$ 56,838,146
May-22	$ 6.98	5,177,986	$ 36,118,006
June-22	$ 8.61	3,675,087	$ 31,628,166
July-22	$ 6.29	3,675,087	$ 23,111,152
August-22	$ 8.56	3,649,215	$ 31,250,053
September-22	$ 8.78	3,745,793	$ 32,875,701
October-22	$ 5.56	5,087,653	$ 28,295,491
November-22	$ 5.62	8,621,271	$ 48,476,545
December-22	$ 7.77	16,785,881	$ 130,434,688
January-23	$ 7.13	22,872,242	$ 163,117,968
February-23	$ 6.91	21,500,954	$ 148,562,992
March-23	$ 4.64	20,319,534	$ 94,382,203
April-23	$ 4.21	14,555,280	$ 61,239,885
	Total	**281,999,495**	**$ 1,524,252,238**
	5.41		

Weighted average of two years (leading up to NGIA filing) basis (price difference) between Ventura and Henry Hub. The same historical time period was used for consistency - but the basis can fluctaute significantly.

Basis Ventura-HH ($/MMBtu)
(0.19)
(0.14)
(0.25)
(0.20)
(0.33)
(0.28)
(0.18)
(0.09)
0.11
(0.12)
(0.38)
(0.19)
(0.41)
(0.46)
(0.38)
(0.62)
(0.92)
(0.68)
(0.18)
1.45
0.32
(0.06)
0.03
(0.20)
-0.03

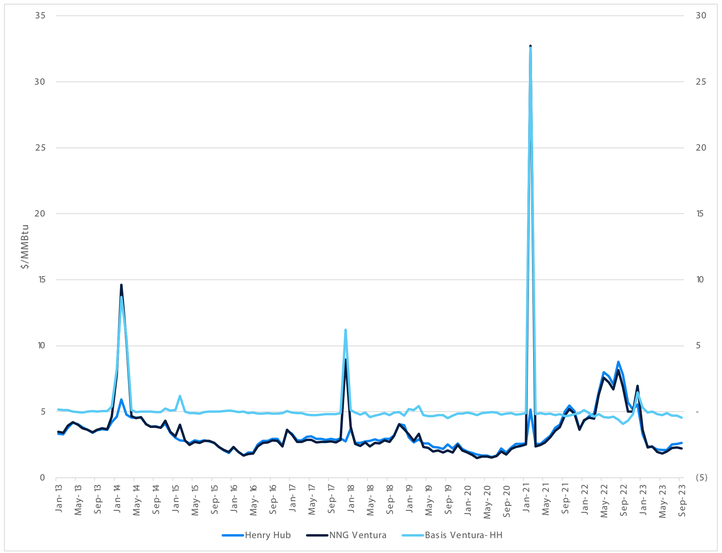
	Two year total	
January	50,882,520	18.0%
February	46,645,882	16.5%
March	36,989,345	13.1%
April	26,005,811	9.2%
May	10,236,567	3.6%
June	7,356,453	2.6%
July	7,231,160	2.6%
August	7,391,813	2.6%
September	7,986,942	2.8%
October	13,886,397	4.9%
November	25,209,176	8.9%
December	42,177,429	15.0%
	281,999,495	100.0%

Historical prices are from Platts and Argus Media
Prices in $/MMBtu (Nom)

Historical/Forecast	Year	Month	Date	Henry Hub	NNG Ventura	Basis Ventura- HH	Season
Historical	2013	1	Jan- 13	3.34	3.50	0.16	Winter
Historical	2013	2	Feb- 13	3.30	3.41	0.11	Winter
Historical	2013	3	Mar- 13	3.80	3.93	0.13	Winter
Historical	2013	4	Apr- 13	4.16	4.19	0.03	Summer
Historical	2013	5	May- 13	4.04	4.01	(0.03)	Summer
Historical	2013	6	Jun- 13	3.83	3.75	(0.08)	Summer
Historical	2013	7	Jul- 13	3.63	3.64	0.01	Summer
Historical	2013	8	Aug- 13	3.41	3.45	0.04	Summer
Historical	2013	9	Sep- 13	3.61	3.63	0.02	Summer
Historical	2013	10	Oct- 13	3.67	3.74	0.06	Winter
Historical	2013	11	Nov- 13	3.62	3.69	0.07	Winter
Historical	2013	12	Dec- 13	4.22	4.61	0.39	Winter
Historical	2014	1	Jan- 14	4.62	7.85	3.23	Winter
Historical	2014	2	Feb- 14	5.92	14.61	8.69	Winter
Historical	2014	3	Mar- 14	4.78	10.42	5.64	Winter
Historical	2014	4	Apr- 14	4.54	4.68	0.13	Summer
Historical	2014	5	May- 14	4.55	4.51	(0.04)	Summer
Historical	2014	6	Jun- 14	4.57	4.58	0.01	Summer
Historical	2014	7	Jul- 14	4.06	4.07	0.02	Summer
Historical	2014	8	Aug- 14	3.87	3.88	0.01	Summer
Historical	2014	9	Sep- 14	3.90	3.87	(0.03)	Summer
Historical	2014	10	Oct- 14	3.78	3.77	(0.01)	Winter
Historical	2014	11	Nov- 14	4.09	4.33	0.24	Winter
Historical	2014	12	Dec- 14	3.40	3.49	0.09	Winter
Historical	2015	1	Jan- 15	3.03	3.14	0.11	Winter
Historical	2015	2	Feb- 15	2.83	4.03	1.20	Winter
Historical	2015	3	Mar- 15	2.81	2.82	0.01	Winter
Historical	2015	4	Apr- 15	2.58	2.47	(0.11)	Summer
Historical	2015	5	May- 15	2.82	2.72	(0.10)	Summer
Historical	2015	6	Jun- 15	2.75	2.63	(0.13)	Summer
Historical	2015	7	Jul- 15	2.82	2.78	(0.04)	Summer
Historical	2015	8	Aug- 15	2.77	2.79	0.02	Summer
Historical	2015	9	Sep- 15	2.65	2.65	(0.00)	Summer
Historical	2015	10	Oct- 15	2.32	2.35	0.02	Winter
Historical	2015	11	Nov- 15	2.07	2.11	0.04	Winter
Historical	2015	12	Dec- 15	1.87	1.94	0.07	Winter
Historical	2016	1	Jan- 16	2.28	2.34	0.06	Winter
Historical	2016	2	Feb- 16	1.95	1.94	(0.01)	Winter
Historical	2016	3	Mar- 16	1.69	1.69	0.00	Winter
Historical	2016	4	Apr- 16	1.89	1.80	(0.09)	Summer
Historical	2016	5	May- 16	1.89	1.83	(0.07)	Summer
Historical	2016	6	Jun- 16	2.52	2.37	(0.15)	Summer
Historical	2016	7	Jul- 16	2.80	2.64	(0.15)	Summer
Historical	2016	8	Aug- 16	2.79	2.69	(0.10)	Summer
Historical	2016	9	Sep- 16	2.96	2.81	(0.15)	Summer
Historical	2016	10	Oct- 16	2.93	2.81	(0.12)	Winter
Historical	2016	11	Nov- 16	2.47	2.36	(0.11)	Winter
Historical	2016	12	Dec- 16	3.57	3.62	0.05	Winter
Historical	2017	1	Jan- 17	3.32	3.27	(0.05)	Winter
Historical	2017	2	Feb- 17	2.84	2.73	(0.11)	Winter
Historical	2017	3	Mar- 17	2.84	2.73	(0.11)	Winter
Historical	2017	4	Apr- 17	3.08	2.88	(0.21)	Summer
Historical	2017	5	May- 17	3.13	2.88	(0.25)	Summer
Historical	2017	6	Jun- 17	2.93	2.68	(0.25)	Summer
Historical	2017	7	Jul- 17	2.96	2.72	(0.23)	Summer
Historical	2017	8	Aug- 17	2.87	2.70	(0.17)	Summer
Historical	2017	9	Sep- 17	2.95	2.76	(0.19)	Summer
Historical	2017	10	Oct- 17	2.87	2.69	(0.18)	Winter
Historical	2017	11	Nov- 17	2.97	2.89	(0.09)	Winter
Historical	2017	12	Dec- 17	2.76	8.96	6.20	Winter
Historical	2018	1	Jan- 18	3.71	3.85	0.14	Winter
Historical	2018	2	Feb- 18	2.65	2.57	(0.08)	Winter
Historical	2018	3	Mar- 18	2.65	2.41	(0.24)	Winter
Historical	2018	4	Apr- 18	2.76	2.69	(0.07)	Summer
Historical	2018	5	May- 18	2.78	2.37	(0.41)	Summer
Historical	2018	6	Jun- 18	2.93	2.62	(0.30)	Summer
Historical	2018	7	Jul- 18	2.80	2.60	(0.20)	Summer
Historical	2018	8	Aug- 18	2.93	2.82	(0.11)	Summer
Historical	2018	9	Sep- 18	2.95	2.70	(0.25)	Summer
Historical	2018	10	Oct- 18	3.23	3.18	(0.05)	Winter
Historical	2018	11	Nov- 18	4.06	4.05	(0.01)	Winter
Historical	2018	12	Dec- 18	3.96	3.68	(0.28)	Winter
Historical	2019	1	Jan- 19	3.07	3.28	0.21	Winter
Historical	2019	2	Feb- 19	2.67	2.79	0.12	Winter
Historical	2019	3	Mar- 19	2.90	3.31	0.42	Winter
Historical	2019	4	Apr- 19	2.60	2.35	(0.25)	Summer
Historical	2019	5	May- 19	2.59	2.26	(0.33)	Summer
Historical	2019	6	Jun- 19	2.34	1.99	(0.35)	Summer
Historical	2019	7	Jul- 19	2.30	2.05	(0.25)	Summer
Historical	2019	8	Aug- 19	2.17	1.92	(0.25)	Summer
Historical	2019	9	Sep- 19	2.52	2.05	(0.47)	Summer
Historical	2019	10	Oct- 19	2.24	1.92	(0.31)	Winter
Historical	2019	11	Nov- 19	2.60	2.48	(0.12)	Winter
Historical	2019	12	Dec- 19	2.19	2.06	(0.13)	Winter
Historical	2020	1	Jan- 20	2.01	1.93	(0.08)	Winter
Historical	2020	2	Feb- 20	1.87	1.72	(0.15)	Winter
Historical	2020	3	Mar- 20	1.75	1.49	(0.26)	Winter
Historical	2020	4	Apr- 20	1.69	1.59	(0.10)	Summer
Historical	2020	5	May- 20	1.69	1.62	(0.08)	Summer
Historical	2020	6	Jun- 20	1.56	1.52	(0.05)	Summer
Historical	2020	7	Jul- 20	1.69	1.63	(0.07)	Summer
Historical	2020	8	Aug- 20	2.22	2.00	(0.22)	Summer
Historical	2020	9	Sep- 20	1.92	1.77	(0.15)	Summer
Historical	2020	10	Oct- 20	2.29	2.20	(0.09)	Winter
Historical	2020	11	Nov- 20	2.56	2.33	(0.23)	Winter
Historical	2020	12	Dec- 20	2.57	2.41	(0.16)	Winter
Historical	2021	1	Jan- 21	2.61	2.51	(0.11)	Winter
Historical	2021	2	Feb- 21	5.15	32.73	27.58	Winter
Historical	2021	3	Mar- 21	2.57	2.37	(0.19)	Winter
Historical	2021	4	Apr- 21	2.57	2.47	(0.11)	Summer
Historical	2021	5	May- 21	2.88	2.69	(0.19)	Summer
Historical	2021	6	Jun- 21	3.19	3.05	(0.14)	Summer
Historical	2021	7	Jul- 21	3.79	3.54	(0.25)	Summer
Historical	2021	8	Aug- 21	4.03	3.83	(0.20)	Summer
Historical	2021	9	Sep- 21	5.02	4.69	(0.33)	Summer
Historical	2021	10	Oct- 21	5.47	5.19	(0.28)	Winter
Historical	2021	11	Nov- 21	5.03	4.85	(0.18)	Winter
Historical	2021	12	Dec- 21	3.72	3.64	(0.09)	Winter
Historical	2022	1	Jan- 22	4.27	4.38	0.11	Winter
Historical	2022	2	Feb- 22	4.67	4.55	(0.12)	Winter
Historical	2022	3	Mar- 22	4.86	4.48	(0.38)	Winter
Historical	2022	4	Apr- 22	6.48	6.29	(0.19)	Summer
Historical	2022	5	May- 22	8.00	7.59	(0.41)	Summer
Historical	2022	6	Jun- 22	7.69	7.24	(0.46)	Summer
Historical	2022	7	Jul- 22	7.08	6.71	(0.38)	Summer
Historical	2022	8	Aug- 22	8.79	8.17	(0.62)	Summer
Historical	2022	9	Sep- 22	7.81	6.89	(0.92)	Summer
Historical	2022	10	Oct- 22	5.69	5.01	(0.68)	Winter
Historical	2022	11	Nov- 22	5.17	4.99	(0.18)	Winter
Historical	2022	12	Dec- 22	5.53	6.98	1.45	Winter
Historical	2023	1	Jan- 23	3.30	3.62	0.32	Winter
Historical	2023	2	Feb- 23	2.37	2.31	(0.06)	Winter
Historical	2023	3	Mar- 23	2.33	2.36	0.03	Winter
Historical	2023	4	Apr- 23	2.14	1.94	(0.20)	Summer
Historical	2023	5	May- 23	2.11	1.85	(0.26)	Summer
Historical	2023	6	Jun- 23	2.11	2.00	(0.12)	Summer
Historical	2023	7	Jul- 23	2.53	2.25	(0.28)	Summer
Historical	2023	8	Aug- 23	2.57	2.29	(0.29)	Summer
Historical	2023	9	Sep- 23	2.65	2.21	(0.44)	Summer

Note - these are NOT weighted averages with respect to CNP consumption in each month.

	Annual Average	Winter	Summer
2013	0.08	0.15	(0.00)
2014	1.50	2.98	0.02
2015	0.09	0.24	(0.06)
2016	(0.07)	(0.02)	(0.12)
2017	0.36	0.94	(0.22)
2018	(0.15)	(0.09)	(0.22)
2019	(0.14)	0.03	(0.32)
2020	(0.14)	(0.16)	(0.11)
2021	2.13	4.46	(0.20)
2022	(0.23)	0.03	(0.49)
5 year Average	0.29	0.85	(0.27)



State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 10/3/2023
Response Due: 10/13/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 074	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Topic: Forecasted gas prices per dekatherm for Years 1 through 5 Reference(s): Filing, Excel Spreadsheet 20236-196995-11, Tabs CNP01 through CNP25 Please re-run the analysis using the Henry Hub monthly forecasted natural gas spot prices adjusted for delivery to CenterPoint Energy estimated in the U.S. Energy Information Administration's *Annual Energy Outlook 2023.* Please use the Henry Hub prices forecasted in the EIA's Reference case as the monthly commodity prices for geologic gas in the model for years 1 through 5. Please do not include any annual escalation factors for the EIA prices used. **Response:** See Attachment 1 provided in response to DOC Information Request 73 for the development of a geologic gas price forecast based on the U.S. Energy Information Administration's (EIA) Annual Energy Outlook 2023. The same file includes a summary table showing how key results would change using this alternative forecast in the analysis of the proposed NGIA portfolio. These changes to the commodity price forecast result in lower gas commodity costs than were used in the NGIA analysis in the short-term, but higher commodity costs than used in the NGIA plan starting in 2031. The

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net utility incremental costs against the NGIA cost cap for the 5-Year Plan, in nominal dollars, would increase from $106,248,857 (per email correction sent to the Department of Commerce and other parties on October 10, 2023) to $109,776,483 based on this change to the commodity price forecast. Using this EIA gas price forecast the Net Utility Cost Test Lifetime Costs, in Real 2023 dollars, would decrease from $188,144,593 to $182,887,965 based on these changes to the commodity price forecast.

It is worth noting that there is significant fluctuation in the difference between natural gas prices at Henry Hub and the Ventura pricing point where CenterPoint Energy purchases most of its gas. In warmer months Henry Hub prices are often lower than Ventura, while in colder months the opposite is often true. For the purposes of this analysis a very small adjustment for delivery was included, making Ventura $0.03/Dth less expensive than Henry Hub. This was based on historical differences between the two pricing hubs over the same two-year period used to establish NGIA's base year commodity price. However, a higher basis that makes Ventura more expensive than Henry Hub in future years would not be a surprise.

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Department: Regulatory Services
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The green tab in this file shows the results of the two additional sensitivity analyses that were requested (a summary of results with different gas price forecasts).

The rest of the tabs in this file show how the alternative gas price forecasts were built up based on Information Requests for additional sensitivity analysis.

Summary table

	Net Utility Incremental Costs vs. Cost-Cap for 5-Year Plan ($Nominal)	Net UCT Costs Lifetime ($2023)	Net Quantified Costs Lifetime ($2023)
Original NGIA FILING	$105,701,533	$186,915,163	$255,163,542
Original NGIA Plan - with RNG commodity cost fix (currently exceeding cost-cap)	$106,248,857	$188,144,593	$256,392,972
Sensitivity scenario 1: Assuming commodity cost as the EIA Annual Energy Outlook 2023 forecast for Henry Hub ($/MMBtu nominal) adjusted by historical basis from Henry Hub to Ventura	$109,776,483	$182,887,965	$251,136,344
Sensitivity scenario 2: Assuming commodity cost as a weighted annual average of NYMEX Futures Forecast for Henry Hub gas prices ($/MMBtu nominal) from 2024-2029 and keeping forward prices flat at 2029 level - adjusted by historical basis from Henry Hub to Ventura	$107,018,976	$180,959,077	$249,207,457

These updated values per email correction sent to the Department of Commerce and other parties on October 10, 2023.

Original NGIA FILING

Pilot	Net Utility Incremental Costs vs. Cost-Cap for 5-Year Plan ($Nominal)	Net UCT Costs Lifetime ($2023)	Net Quantified Costs Lifetime ($2023)
RNG Produced from Hennepin County Organic Waste	$2,856,759	$7,384,330	$6,233,262
RNG Produced from Ramsey & Washington Counties' Organic Waste	$10,160,058	$26,322,323	$19,801,962
Renewable Natural Gas RFP Purchase	$32,368,811	$63,675,702	$48,308,149
Green Hydrogen Blending into Natural Gas Distribution System	$5,073,067	$22,444,767	$22,019,473
Industrial or Large Commercial Hydrogen and Carbon Capture Incentives	$3,793,770	$2,333,865	$64,458,919
Industrial Methane and Refrigerant Leak Reduction	$1,247,651	$100,545	($822,905)
Urban Tree Carbon Offsets	$329,301	$266,387	$54,958
Carbon Capture Rebates for Commercial Buildings	$1,303,022	($109,387)	($1,671,919)
New Networked Geothermal Systems	$11,625,764	$41,039,753	$43,129,796
Decarbonizing Existing District Energy Systems	$597,909	($3,483,080)	($4,165,816)
New District Energy System	$215,644	($806,364)	$15,170,736
Industrial Electrification Incentives	$503,821	$61,105	$23,502
Commercial Hybrid Heating	$7,067,270	$4,823,050	$5,213,143
Residential Deep Energy Retrofits and Electric Air Source Heat Pumps	$13,616,532	$9,197,981	$26,052,423
Small/Medium Business GHG Audit	$2,291,206	$1,664,533	$1,825,299
Residential Gas Heat Pumps	$380,759	$305,058	$319,060
Gas Heat Pumps for Commercial Buildings	$749,442	$558,792	$446,748
Industrial and Large Commercial GHG Audit	$950,286	($339,580)	($1,803,711)
Research and Development	$10,570,462	$10,570,462	$10,570,462
Total Portfolio	**$105,701,533**	**$186,915,163**	**$255,163,542**

Updated values below per email correction sent to the Department of Commerce and other parties on October 10, 2023.

Original NGIA Plan - with RNG commodity cost fix (currently exceeding cost-cap)

Pilot	Net Utility Incremental Costs vs. Cost-Cap for 5-Year Plan ($Nominal)	Net UCT Costs Lifetime ($2023)	Net Quantified Costs Lifetime ($2023)
RNG Produced from Hennepin County Organic Waste	$2,886,823	$7,467,229	$6,316,162
RNG Produced from Ramsey & Washington Counties' Organic Waste	$10,270,777	$26,627,623	$20,107,262
Renewable Natural Gas RFP Purchase	$32,775,352	$64,516,932	$49,149,380
Green Hydrogen Blending into Natural Gas Distribution System	$5,073,067	$22,444,767	$22,019,473
Industrial or Large Commercial Hydrogen and Carbon Capture Incentives	$3,793,770	$2,333,865	$64,458,919
Industrial Methane and Refrigerant Leak Reduction	$1,247,651	$100,545	($822,905)
Urban Tree Carbon Offsets	$329,301	$266,387	$54,958
Carbon Capture Rebates for Commercial Buildings	$1,303,022	($109,387)	($1,671,919)
New Networked Geothermal Systems	$11,625,764	$41,039,753	$43,129,796
Decarbonizing Existing District Energy Systems	$597,909	($3,483,080)	($4,165,816)
New District Energy System	$215,644	($806,364)	$15,170,736
Industrial Electrification Incentives	$503,821	$61,105	$23,502
Commercial Hybrid Heating	$7,067,270	$4,823,050	$5,213,143
Residential Deep Energy Retrofits and Electric Air Source Heat Pumps	$13,616,532	$9,197,981	$26,052,423
Small/Medium Business GHG Audit	$2,291,206	$1,664,533	$1,825,299
Residential Gas Heat Pumps	$380,759	$305,058	$319,060
Gas Heat Pumps for Commercial Buildings	$749,442	$558,792	$446,748
Industrial and Large Commercial GHG Audit	$950,286	($339,580)	($1,803,711)
Research and Development	$10,570,462	$10,570,462	$10,570,462
Total Portfolio	**$106,248,857**	**$188,144,593**	**$256,392,972**

Sensitivity scenario 1: Assuming commodity cost as the EIA Annual Energy Outlook 2023 forecast for Henry Hub ($/MMBtu nominal) adjusted by historical basis from Henry Hub to Ventura

Pilot	Net Utility Incremental Costs vs. Cost-Cap for 5-Year Plan ($Nominal)	Net UCT Costs Lifetime ($2023)	Net Quantified Costs Lifetime ($2023)
RNG Produced from Hennepin County Organic Waste	$3,027,231	$7,810,981	$6,664,609
RNG Produced from Ramsey & Washington Counties' Organic Waste	$10,789,537	$27,893,583	$21,392,186
Renewable Natural Gas RFP Purchase	$34,643,751	$68,006,951	$52,726,121
Green Hydrogen Blending into Natural Gas Distribution System	$5,126,354	$21,971,463	$21,530,158
Industrial or Large Commercial Hydrogen and Carbon Capture Incentives	$3,844,956	$1,910,050	$64,024,237
Industrial Methane and Refrigerant Leak Reduction	$1,321,447	$107,539	($752,844)
Urban Tree Carbon Offsets	$327,775	$266,387	$53,432
Carbon Capture Rebates for Commercial Buildings	$1,391,432	($782,794)	($2,342,144)
New Networked Geothermal Systems	$11,657,343	$38,149,613	$40,194,127
Decarbonizing Existing District Energy Systems	$1,018,115	($5,548,032)	($6,192,250)
New District Energy System	$303,177	($1,737,646)	$14,247,096
Industrial Electrification Incentives	$546,913	($117,152)	($152,655)
Commercial Hybrid Heating	$7,121,302	$4,520,989	$4,886,805
Residential Deep Energy Retrofits and Electric Air Source Heat Pumps	$13,609,944	$7,426,276	$24,223,141
Small/Medium Business GHG Audit	$2,298,765	$1,581,870	$1,733,793
Residential Gas Heat Pumps	$379,996	$302,982	$315,317
Gas Heat Pumps for Commercial Buildings	$756,454	$543,222	$428,729
Industrial and Large Commercial GHG Audit	$1,041,529	($954,778)	($2,413,975)
Research and Development	$10,570,462	$10,570,462	$10,570,462
Total Portfolio	**$109,776,483**	**$182,887,965**	**$251,136,344**

Sensitivity scenario 2: Assuming commodity cost as a weighted annual average of NYMEX Futures Forecast for Henry Hub gas prices ($/MMBtu nominal) from 2024-2029 and keeping forward prices flat at 2029 level - adjusted by historical basis from Henry Hub to Ventura

Pilot	Net Utility Incremental Costs vs. Cost-Cap for 5-Year Plan ($Nominal)	Net UCT Costs Lifetime ($2023)	Net Quantified Costs Lifetime ($2023)
Hennepin County Anaerobic Digestion of Organic Materials	$2,904,190	$7,448,923	$6,298,645
Ramsey and Washington Counties Anaerobic Digestion of Organic Materials	$10,335,292	$26,560,205	$20,043,311
Renewable Natural Gas RFP Purchase	$33,303,851	$64,679,814	$49,361,137
Green Hydrogen Blending into Natural Gas Distribution System	$5,074,635	$22,079,479	$21,647,288
Industrial or Large Commercial Hydrogen and Carbon Capture Incentives	$3,796,331	$2,006,772	$64,126,807
Industrial Methane and Refrigerant Leak Reduction	$1,276,366	$102,548	($798,674)
Urban Tree Offset	$328,792	$266,387	$54,449
Carbon Capture Rebates for Commercial Buildings	$1,320,436	($612,695)	($2,175,291)
New Networked Geothermal Systems	$11,609,057	$39,268,213	$41,340,414
Decarbonizing Existing District Energy Systems	$684,436	($5,108,339)	($5,783,219)
New District Energy System	$233,615	($1,408,193)	$14,570,412
Industrial Electrification Incentive	$515,309	($82,457)	($119,607)
Commercial Hybrid Heating	$7,074,067	$4,533,554	$4,911,502
Residential Deep Energy Retrofit and Electric Air Source Heat Pump	$13,595,974	$8,092,986	$24,926,431
Small/Medium Business GHG Audit	$2,291,966	$1,594,588	$1,752,244
Residential Gas Heat Pump	$380,377	$302,759	$316,193
Gas Heat Pump for Commercial Buildings	$751,115	$539,842	$426,924
Industrial and Large Commercial GHG Audit	$972,705	($801,769)	($2,264,971)
Research and Development	$10,570,462	$10,570,462	$10,570,462
Total Portfolio	**$107,018,976**	**$180,959,077**	**$249,207,457**

* 2024-2029 Monthly NYMEX futures prices as of October 2nd, 2023

Notes		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5																							
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
Gas Price Forecast used in NGIA Filing	NGIA Commodity price ($/Dth)	$ 5.41	$ 5.13	$ 4.86	$ 4.60	$ 4.36	$ 4.13	$ 3.91	$ 3.71	$ 3.51	$ 3.33	$ 3.15	$ 2.99	$ 2.83	$ 2.68	$ 2.54	$ 2.41	$ 2.28	$ 2.16	$ 2.05	$ 1.94	$ 1.84	$ 1.74	$ 1.65	$ 1.57	$ 1.48	$ 1.41	$ 1.33	$ 1.33	
	Annual escalation rate		-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%	-5.25%		
	Sensitivity Analysis from NGIA Filing (Results in Exhibit E)																													
Assuming a commodity cost annual escalation rate of 103%	Sensitivity scenario 1	$ 5.41	$ 5.5	$ 5.5	$ 5.6	$ 5.6	$ 5.7	$ 5.8	$ 5.8	$ 5.9	$ 5.9	$ 6.0	$ 6.1	$ 6.1	$ 6.2	$ 6.2	$ 6.3	$ 6.4	$ 6.4	$ 6.5	$ 6.6	$ 6.6	$ 6.7	$ 6.8	$ 6.8	$ 6.9	$ 7.0	$ 7.1	$ 7.1	
Assuming a flat commodity cost of $2.8/Dth	Sensitivity scenario 2	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	$ 2.8	
Assuming a flat commodity cost of $8.8/Dth	Sensitivity scenario 3	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	$ 8.8	
	Prices based on IRs																													
NYMEX has monthly prices through end of 2029. NGIA calculations are based on annual costs. Two years of CenterPoint gas volumes by month used to weight the monthly NYMEX values into a weighted average by year. Keep values in 2030 and onwards fixed, but futures do not stretch that far out.	Weighted Annual Average of NYMEX Futures Forecast for Henry Hub Gas Prices ($/MMBtu Nominal) - Before Adjustment for Delivery to CenterPoint Energy Minnesota		3.84	4.11	4.24	4.25	4.30	4.37																						
	Assumed Continuation of NYMEX frozen at 2029 level							4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	4.37	
This is the reference case forecast from EIA 2023 AEO (values available on annual basis).	EIA Annual Energy Outlook 2023 Forecast for Henry Hub Gas Prices ($/MMBtu Nominal) - Before Adjustment for Delivery to CenterPoint Energy Minnesota	$ 5.48	$ 4.34	$ 3.80	$ 3.41	$ 3.24	$ 3.25	$ 3.35	$ 3.54	$ 3.78	$ 4.07	$ 4.44	$ 4.75	$ 5.02	$ 5.15	$ 5.33	$ 5.63	$ 5.64	$ 5.99	$ 6.26	$ 6.39	$ 6.43	$ 6.52	$ 6.66	$ 6.81	$ 6.91	$ 7.04	$ 7.08	$ 7.23	
This is the assumed adjustment for Delivery to CenterPoint Energy in Minnesota (at the Ventura receipt point where CenterPoint gets most of its gas). Note, this basis shifts around a lot - and is often a positive value (higher cost in Ventura than Henry Hub) in the colder months of the year	Assumed Henry Hub to Ventura Basis	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	$ (0.03)	
	Adjusted NYMEX Futures Forecast		$ 3.81	$ 4.08	$ 4.21	$ 4.22	$ 4.27	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	
	Adjusted EIA Annual Energy Outlook 2023 Forecast	$ 5.45	$ 4.31	$ 3.77	$ 3.38	$ 3.21	$ 3.22	$ 3.32	$ 3.50	$ 3.75	$ 4.04	$ 4.41	$ 4.72	$ 4.99	$ 5.12	$ 5.30	$ 5.60	$ 5.61	$ 5.96	$ 6.23	$ 6.36	$ 6.40	$ 6.49	$ 6.63	$ 6.78	$ 6.88	$ 7.01	$ 7.05	$ 7.20	
	Adjusted NYMEX Futures Forecast		$ 3.81	$ 4.08	$ 4.21	$ 4.22	$ 4.27	$ 4.34																						
	Continuation of Adjusted NYMEX Frozen at 2019 Levels							$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	$ 4.34	

NYMEX futures prices as of October 2nd, 2023, as requested. This data is available at a monthly level, but NGIA calculations use an annual value.

NYMEX futures prices as of October 2nd, 2023, as requested. This data is available at a monthly level, but NGIA calculations use an annual value.

Source:Argus
Henry Hub Forwards in $/MMBtu (Nom)

tradedate	year	forwardperiod	Henry Hub
2/10/2023	2023	3	2.51
2/10/2023	2023	4	2.61
2/10/2023	2023	5	2.78
2/10/2023	2023	6	2.97
2/10/2023	2023	7	3.12
2/10/2023	2023	8	3.16
2/10/2023	2023	9	3.12
2/10/2023	2023	10	3.20
2/10/2023	2023	11	3.60
2/10/2023	2023	12	3.97
2/10/2023	2024	1	4.21
2/10/2023	2024	2	4.08
2/10/2023	2024	3	3.67
2/10/2023	2024	4	3.26
2/10/2023	2024	5	3.23
2/10/2023	2024	6	3.32
2/10/2023	2024	7	3.41
2/10/2023	2024	8	3.44
2/10/2023	2024	9	3.40
2/10/2023	2024	10	3.47
2/10/2023	2024	11	3.83
2/10/2023	2024	12	4.27
2/10/2023	2025	1	4.54
2/10/2023	2025	2	4.38
2/10/2023	2025	3	3.96
2/10/2023	2025	4	3.47
2/10/2023	2025	5	3.43
2/10/2023	2025	6	3.51
2/10/2023	2025	7	3.61
2/10/2023	2025	8	3.65
2/10/2023	2025	9	3.64
2/10/2023	2025	10	3.71
2/10/2023	2025	11	4.08
2/10/2023	2025	12	4.52
2/10/2023	2026	1	4.78
2/10/2023	2026	2	4.58
2/10/2023	2026	3	4.13
2/10/2023	2026	4	3.53
2/10/2023	2026	5	3.48
2/10/2023	2026	6	3.56
2/10/2023	2026	7	3.65
2/10/2023	2026	8	3.68
2/10/2023	2026	9	3.67
2/10/2023	2026	10	3.75
2/10/2023	2026	11	4.13
2/10/2023	2026	12	4.57
2/10/2023	2027	1	4.81
2/10/2023	2027	2	4.59
2/10/2023	2027	3	4.14
2/10/2023	2027	4	3.53
2/10/2023	2027	5	3.50
2/10/2023	2027	6	3.58
2/10/2023	2027	7	3.66
2/10/2023	2027	8	3.70
2/10/2023	2027	9	3.69
2/10/2023	2027	10	3.77
2/10/2023	2027	11	4.13
2/10/2023	2027	12	4.57
2/10/2023	2028	1	4.83
2/10/2023	2028	2	4.61
2/10/2023	2028	3	4.20
2/10/2023	2028	4	3.59
2/10/2023	2028	5	3.57
2/10/2023	2028	6	3.65
2/10/2023	2028	7	3.73
2/10/2023	2028	8	3.76

Weighting by Month from Original NGIA Gas Price

January	18%
February	17%
March	13%
April	9%
May	4%
June	3%
July	3%
August	3%
September	3%
October	5%
November	9%
December	15%

Year	Estimated Annual Equivalent Price from NYMEX Futures Monthly Values ($/MMBtu Nom)
2024	3.84
2025	4.11
2026	4.24
2027	4.25
2028	4.30
2029	4.37

2/10/2023	2028	9	3.76
2/10/2023	2028	10	3.84
2/10/2023	2028	11	4.20
2/10/2023	2028	12	4.62
2/10/2023	2029	1	4.87
2/10/2023	2029	2	4.66
2/10/2023	2029	3	4.26
2/10/2023	2029	4	3.68
2/10/2023	2029	5	3.67
2/10/2023	2029	6	3.73
2/10/2023	2029	7	3.81
2/10/2023	2029	8	3.84
2/10/2023	2029	9	3.85
2/10/2023	2029	10	3.93
2/10/2023	2029	11	4.29
2/10/2023	2029	12	4.71

Table 13. Natural Gas Supply, Disposition, and Prices
https://www.eia.gov/outlooks/aeo/data/browser/#/?id=13-AEO2023&cases=ref2023&sourcekey=0
Fri Oct 06 2023 20:13:15 GMT-0400 (Eastern Daylight Time)
Source: U.S. Energy Information Administration

	full name	api key	units	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	Growth (2022-2050)
Production																																	
Dry Gas Production	Natural Gas:	AEO.2023.REF2023.SUP	Tcf		36.46507	36.48585	35.56702	35.72548	36.18347	36.13615	36.43782	36.67969	37.03574	37.4669	37.9731	38.55103	39.04591	39.49739	39.85736	40.21932	40.49105	40.73346	40.87089	40.98983	41.16486	41.2772	41.3545	41.50578	41.34065	41.54499	41.61325	41.69295	42.06538	0.50%
Supplemental Natural Gas	Natural Gas:	AEO.2023.REF2023.SUP	Tcf		0.066783	0.068295	0.06721	0.066134	0.065053	0.063973	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	0.062892	- 0.20%
Net Imports	Natural Gas:	AEO.2023.REF2023.TRA	Tcf		- 4.18425	- 5.13503	- 5.47192	- 5.96914	- 6.56669	- 7.05044	- 7.55539	- 7.9423	- 8.55359	- 9.25342	- 9.89504	- 10.5485	- 11.117	- 11.524	- 11.8195	- 12.0314	- 12.0891	- 12.1492	- 12.0553	- 12.02	- 12.0162	- 11.9762	- 11.9364	- 11.8474	- 11.8002	- 11.7534	- 11.7111	- 11.6598	- 11.6139	3.70%
Pipeline	Natural Gas:	AEO.2023.REF2023.TRA	Tcf		- 0.25118	- 0.65654	- 0.92837	- 1.13738	- 1.29554	- 1.41805	- 1.61505	- 1.71669	- 1.72799	- 1.82782	- 1.88547	- 1.92285	- 1.99136	- 2.09843	- 2.17918	- 2.20575	- 2.26352	- 2.22357	- 2.11494	- 2.09439	- 2.09062	- 2.05059	- 1.99607	- 1.92176	- 1.87459	- 1.82776	- 1.77071	- 1.73417	- 1.68826	7.00%
Liquefied Natural Gas	Natural Gas:	AEO.2023.REF2023.TRA	Tcf		- 3.93307	- 4.47849	- 4.54355	- 4.83176	- 5.27115	- 5.63239	- 5.94035	- 6.2256	- 6.82561	- 7.4256	- 8.04035	- 8.66256	- 9.19256	- 9.4256	- 9.64035	- 9.82256	- 9.9256	- 9.94035	- 9.9256	- 9.9256	- 9.9256	- 9.94035	- 9.9256	- 9.9256	- 9.94035	- 9.9256	- 9.9256	- 9.94035	- 9.9256	- 9.9256	3.40%
Total Supply	Natural Gas:	AEO.2023.REF2023.SUP	Tcf		32.3476	31.49112	30.16232	29.82248	29.68183	29.34969	28.94532	28.80029	28.54504	28.27637	28.14095	28.06548	27.99184	28.03625	28.10073	28.25086	28.46481	28.64719	28.87851	29.03273	29.2154	29.3639	29.48098	29.72132	29.60335	29.85452	29.96509	30.09607	30.51441	- 0.20%
Consumption by Sector	Natural Gas:	AEO.2023.REF2023.SUP	Tcf		32.0019	30.83448	29.64611	29.36544	29.27512	28.78844	28.62392	28.47846	28.2309	27.95797	27.82668	27.74048	27.67651	27.77949	27.93288	28.15677	28.33716	28.56429	28.7157	28.90385	29.06794	29.18913	29.33363	29.31538	29.43948	29.64043	29.79003	30.00979	- 0.20%
Residential	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		4.956103	4.991772	4.758877	4.787258	4.812247	4.827975	4.836563	4.83274	4.822402	4.807221	4.791358	4.783406	4.772306	4.761995	4.754158	4.747469	4.739067	4.733147	4.728353	4.723671	4.719968	4.718853	4.720119	4.719804	4.71269	4.708236	4.70734	4.707267	4.705333	- 0.20%
Commercial	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		3.467453	3.474621	3.371255	3.408176	3.444571	3.463666	3.492099	3.507773	3.518465	3.527853	3.534745	3.535379	3.533345	3.529708	3.527303	3.523382	3.514469	3.507703	3.499254	3.490335	3.482872	3.47906	3.478466	3.474299	3.463223	3.456198	3.454088	3.4524	3.44776	0.00%
Industrial	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		10.48015	10.22686	10.13164	10.27806	10.35756	10.6549	10.79082	10.84859	10.89515	10.93869	10.98439	11.02349	11.0926	11.14965	11.23708	11.30991	11.372	11.46501	11.52156	11.59612	11.67868	11.76481	11.84744	11.90782	11.9959	12.00333	12.11517	12.20997	12.33111	0.60%
Other Industrial	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		8.49547	8.208763	8.124475	8.262086	8.473062	8.609991	8.749133	8.767846	8.803032	8.841925	8.852177	8.873966	8.926038	8.972638	9.032281	9.087664	9.140488	9.218684	9.277225	9.343618	9.409446	9.478456	9.536632	9.58894	9.59.0158	9.673329	9.757198	9.837563	9.950478	0.60%
Lease and Plant Fuel	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		1.984676	2.018099	2.007162	2.015972	2.044499	2.044909	2.075882	2.080745	2.092096	2.10376	2.132209	2.149524	2.166565	2.177007	2.204795	2.222246	2.231516	2.251329	2.25034	2.2525	2.269236	2.286354	2.310805	2.318879	2.328533	2.329997	2.357975	2.372407	2.380637	0.70%
Natural Gas-to-Liquids Heat and Powe	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	- -	
Natural Gas to Liquids Production	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	- -	
Transportation	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		1.298378	1.266994	1.225015	1.213742	1.231016	1.222495	1.214443	1.239322	1.28755	1.338387	1.394878	1.451291	1.498329	1.52884	1.552042	1.571726	1.589475	1.596188	1.612993	1.626597	1.640996	1.654405	1.669935	1.683864	1.697575	1.71881 2	1.742685	1.759869	1.780975	1.10%
Motor Vehicles	Trains	and Ships	Natural Gas:	AEO.2023.RE	Tcf		0.104304	0.111244	0.120881	0.118723	0.1297	0.131696	0.136779	0.140379	0.141662	0.142376	0.143415	0.144205	0.146421	0.15001 8	0.153519	0.160994	0.165954	0.173789	0.180587	0.189002	0.197866	0.208548	0.218929	0.230091	0.238662	0.252568	0.268154	0.284226	0.300612	3.90%
Pipeline and Distribution Fuel	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		0.873416	0.791266	0.733831	0.700822	0.671122	0.630651	0.592023	0.590196	0.586854	0.590064	0.595722	0.603939	0.608261	0.618775	0.611882	0.610384	0.615074	0.619552	0.622765	0.629148	0.634683	0.63741	0.643364	0.645326	0.650466	0.657796	0.664489	0.667796	0.671916	- 0.90%
Fuel Used to Liquefy Gas for Export	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		0.320659	0.364485	0.370303	0.394198	0.430338	0.460147	0.485641	0.508747	0.557347	0.605947	0.655741	0.703147	0.743647	0.767947	0.785341	0.800347	0.808447	0.808447	0.809641	0.808447	0.808447	0.808447	0.809641	0.808447	0.808447	0.808447	0.809641	0.808447	0.808447	3.40%
Electric Power	Natural Gas:	AEO.2023.REF2023.CNS	Tcf		1.179982	1.087423	1.015932	9.678199	9.269681	8.619404	8.289996	8.050027	7.707353	7.365824	7.121314	6.946913	6.77484	6.706319	6.708906	6.78039	6.944749	7.035107	7.202128	7.278445	7.381327	7.45081	7.473168	7.547843	7.522304	7.55291 3	7.621141	7.660525	7.744609	- 1.50%
Discrepancy	Natural Gas:	AEO.2023.REF2023.UNC	Tcf		0.345703	0.584641	0.516209	0.457045	0.406712	0.361244	0.321404	0.321831	0.314142	0.318394	0.31427	0.324993	0.320419	0.359745	0.321245	0.317987	0.308048	0.310028	0.314213	0.31756	0.30769	0.295959	0.291849	0.387688	0.28797	0.415039	0.324659	0.306042	0.504618	- -
Natural Gas Prices																																	
Natural Gas Spot Price at Henry Hub (2022 dollars per million Btu)	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/MMBtu		6.523997	5.266376	4.072381	3.489514	3.065508	2.853001	2.799904	2.825097	2.91248	3.043758	3.208004	3.416918	3.56943	3.688224	3.694155	3.737596	3.866561	3.78878	3.938065	4.022155	4.014737	3.950616	3.913768	3.910706	3.907083	3.870706	3.849094	3.783895	3.771015	- 1.90%
Delivered Prices (2022 dollars per thousand cubic feet)																																	
Residential	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		14.85139	14.61131	13.32067	12.56854	11.93853	11.51671	11.24464	11.29737	11.34184	11.44815	11.54293	11.69535	11.82053	11.93212	11.98545	12.07236	12.21761	12.2245	12.32065	12.42099	12.44702	12.43357	12.38942	12.45129	12.774	12.75781	12.72381	12.72862	12.76448	- 0.50%
Commercial	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		11.41529	10.72811	9.689114	9.192108	8.786163	8.566701	8.477146	8.510685	8.536977	8.619786	8.694034	8.833133	8.936175	9.027164	9.064223	9.135649	9.26419	9.26075	9.346378	9.434954	9.451041	9.430367	9.382954	9.433675	9.638147	9.596008	9.55143	9.551454	9.584112	- 0.60%
Industrial	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		7.616823	6.534565	5.361677	4.77115	4.321446	4.073116	3.986617	4.002231	4.062998	4.172425	4.287567	4.451732	4.582922	4.698439	4.781014	4.76441	4.893519	4.836315	4.960828	5.040644	5.034396	4.981189	4.929628	4.927132	4.889997	4.854081	4.818973	4.775721	4.771768	- 1.70%
Transportation	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		18.2337	16.93409	15.468	14.86204	14.14035	13.77544	13.55674	13.37985	13.30359	13.29213	13.2704	13.34108	13.33082	13.28156	13.34487	13.40376	13.45217	12.84661	12.79195	12.72971	12.58805	12.40715	12.22541	12.15086	12.17782	12.60935	12.44909	12.32189	12.23544	- 1.40%
Electric Power	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		7.258743	5.812993	4.63491	3.999119	3.500111	3.390961	3.068681	3.063734	3.101904	3.175818	3.259538	3.393531	3.506565	3.630531	3.666931	3.715862	3.860356	3.830414	3.974774	4.050839	4.031197	3.977907	3.906839	3.898304	3.873679	3.840307	3.823201	3.766449	3.764557	- 2.30%
Average	Natural Gas:	AEO.2023.REF2023.PRC	2022 $/Mcf		9.209998	8.271177	7.106081	6.526754	6.06689	5.83237	5.730124	5.772043	5.850703	5.979175	6.097002	6.262642	6.397126	6.512626	6.539738	6.584328	6.695644	6.649044	6.744039	6.813235	6.795757	6.742805	6.682416	6.686844	6.760439	6.778736	6.676045	6.635656	6.628702	- 1.20%
Natural Gas Spot Price at Henry Hub (nominal dollars per million Btu)	Natural Gas:	AEO.2023.REF2023.PRC	nom $/MMBtu		6.523997	5.484048	4.344237	3.803406	3.4125	3.244545	3.252955	3.354208	3.535144	3.779019	4.074234	4.442329	4.751782	5.016179	5.148898	5.326049	5.631648	5.639552	5.992483	6.257671	6.387211	6.429273	6.516381	6.663004	6.818882	6.910819	7.036972	7.083812	7.230118	0.40%
Delivered Prices (nominal dollars per thousand cubic feet)																																	
Residential	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		14.85139	15.21719	14.20991	13.69912	13.28987	13.09726	13.06412	13.41325	13.76663	14.2136	14.65977	15.20151	15.73601	16.25653	16.70528	17.20304	17.79496	18.19601	18.74812	19.32458	19.80248	20.23452	20.62824	21.21433	22.27762	22.77799	23.26187	23.8292	24.47317	1.80%
Commercial	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		11.41529	11.17159	10.33592	10.01799	9.780688	9.74239	9.842553	10.10465	10.36211	10.70201	11.04161	11.48816	11.89623	12.29876	12.63368	13.01824	13.4933	13.78451	14.22222	14.67891	15.03605	15.34708	15.62252	16.07296	16.80876	17.13287	17.46204	17.88123	18.3755	1.70%
Industrial	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		7.616823	6.783866	5.719601	5.200292	4.81106	4.632108	4.631688	4.753106	4.933633	5.180331	5.445302	5.787689	6.100988	6.401233	6.576075	6.789239	7.127412	7.198794	7.548803	7.842237	8.009428	8.106438	8.207777	8.394775	8.528066	8.666553	8.81012	8.940605	9.148849	0.70%
Transportation	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		18.2337	17.63412	16.50058	16.19892	15.74093	15.66597	15.70387	15.88576	16.14778	16.50302	16.85369	17.30961	17.71995	18.09502	18.32127	18.5701 7	18.97117	19.07439	19.46528	19.80488	20.02685	20.19153	20.35517	20.70245	22.28429	22.51293	22.75962	23.067	23.45886	0.90%
Electric Power	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		7.258743	6.053293	4.944318	4.358852	3.896295	3.628886	3.565222	3.637538	3.765066	3.94298	4.139684	4.419122	4.668094	4.946298	5.110954	5.295079	5.622611	5.701523	6.048342	6.302299	6.413398	6.473688	6.504844	6.641873	6.755627	6.856544	6.989635	7.051152	7.217737	0.00%
Average	Natural Gas:	AEO.2023.REF2023.PRC	nom $/Mcf		9.209998	8.613094	7.580453	7.118855	6.755852	6.632801	6.657331	6.853085	7.103535	7.423525	7.743322	8.142049	8.516135	8.872911	9.115061	9.382624	9.752209	9.897018	10.26228	10.60004	10.81165	10.97331	11.12615	11.39295	11.79009	11.99574	12.20525	12.42258	12.70913	1.20%

Weighted average of two years (leading up to NGIA filing) of monthly data on gas purchase volumes and prices by CenterPoint.

Date	Commodity Cost ($/Dth)	Total Gas Sales to Non-Exempt Customers (Dth)	Total Cost
May-21	$ 2.78	5,058,581	$ 14,061,843
June-21	$ 2.89	3,681,366	$ 10,648,719
July-21	$ 3.50	3,556,073	$ 12,461,191
August-21	$ 3.91	3,742,598	$ 14,640,669
September-21	$ 4.29	4,241,149	$ 18,181,382
October-21	$ 5.70	8,798,744	$ 50,169,558
November-21	$ 5.42	16,587,905	$ 89,957,868
December-21	$ 4.92	25,391,548	$ 124,944,190
January-22	$ 4.15	28,010,278	$ 116,234,251
February-22	$ 4.47	25,144,928	$ 112,500,922
March-22	$ 4.45	16,669,811	$ 74,120,648
April-22	$ 4.96	11,450,531	$ 56,838,146
May-22	$ 6.98	5,177,986	$ 36,118,006
June-22	$ 8.61	3,675,087	$ 31,628,166
July-22	$ 6.29	3,675,087	$ 23,111,152
August-22	$ 8.56	3,649,215	$ 31,250,053
September-22	$ 8.78	3,745,793	$ 32,875,701
October-22	$ 5.56	5,087,653	$ 28,295,491
November-22	$ 5.62	8,621,271	$ 48,476,545
December-22	$ 7.77	16,785,881	$ 130,434,688
January-23	$ 7.13	22,872,242	$ 163,117,968
February-23	$ 6.91	21,500,954	$ 148,562,992
March-23	$ 4.64	20,319,534	$ 94,382,203
April-23	$ 4.21	14,555,280	$ 61,239,885
	Total	**281,999,495**	**$ 1,524,252,238**
	5.41		

Weighted average of two years (leading up to NGIA filing) basis (price difference) between Ventura and Henry Hub. The same historical time period was used for consistency - but the basis can fluctaute significantly.

Basis Ventura-HH ($/MMBtu)
(0.19)
(0.14)
(0.25)
(0.20)
(0.33)
(0.28)
(0.18)
(0.09)
0.11
(0.12)
(0.38)
(0.19)
(0.41)
(0.46)
(0.38)
(0.62)
(0.92)
(0.68)
(0.18)
1.45
0.32
(0.06)
0.03
(0.20)
-0.03

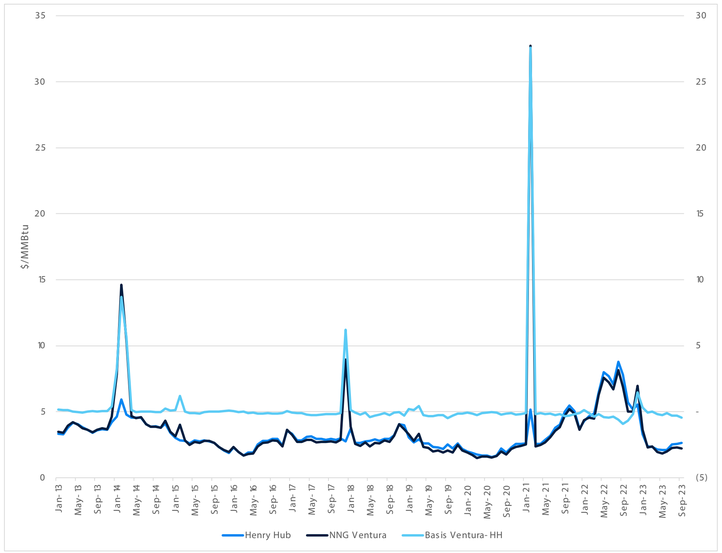
	Two year total	
January	50,882,520	18.0%
February	46,645,882	16.5%
March	36,989,345	13.1%
April	26,005,811	9.2%
May	10,236,567	3.6%
June	7,356,453	2.6%
July	7,231,160	2.6%
August	7,391,813	2.6%
September	7,986,942	2.8%
October	13,886,397	4.9%
November	25,209,176	8.9%
December	42,177,429	15.0%
	281,999,495	100.0%

Historical prices are from Platts and Argus Media
Prices in $/MMBtu (Nom)

Historical/Forecast	Year	Month	Date	Henry Hub	NNG Ventura	Basis Ventura- HH	Season
Historical	2013	1	Jan- 13	3.34	3.50	0.16	Winter
Historical	2013	2	Feb- 13	3.30	3.41	0.11	Winter
Historical	2013	3	Mar- 13	3.80	3.93	0.13	Winter
Historical	2013	4	Apr- 13	4.16	4.19	0.03	Summer
Historical	2013	5	May- 13	4.04	4.01	(0.03)	Summer
Historical	2013	6	Jun- 13	3.83	3.75	(0.08)	Summer
Historical	2013	7	Jul- 13	3.63	3.64	0.01	Summer
Historical	2013	8	Aug- 13	3.41	3.45	0.04	Summer
Historical	2013	9	Sep- 13	3.61	3.63	0.02	Summer
Historical	2013	10	Oct- 13	3.67	3.74	0.06	Winter
Historical	2013	11	Nov- 13	3.62	3.69	0.07	Winter
Historical	2013	12	Dec- 13	4.22	4.61	0.39	Winter
Historical	2014	1	Jan- 14	4.62	7.85	3.23	Winter
Historical	2014	2	Feb- 14	5.92	14.61	8.69	Winter
Historical	2014	3	Mar- 14	4.78	10.42	5.64	Winter
Historical	2014	4	Apr- 14	4.54	4.68	0.13	Summer
Historical	2014	5	May- 14	4.55	4.51	(0.04)	Summer
Historical	2014	6	Jun- 14	4.57	4.58	0.01	Summer
Historical	2014	7	Jul- 14	4.06	4.07	0.02	Summer
Historical	2014	8	Aug- 14	3.87	3.88	0.01	Summer
Historical	2014	9	Sep- 14	3.90	3.87	(0.03)	Summer
Historical	2014	10	Oct- 14	3.78	3.77	(0.01)	Winter
Historical	2014	11	Nov- 14	4.09	4.33	0.24	Winter
Historical	2014	12	Dec- 14	3.40	3.49	0.09	Winter
Historical	2015	1	Jan- 15	3.03	3.14	0.11	Winter
Historical	2015	2	Feb- 15	2.83	4.03	1.20	Winter
Historical	2015	3	Mar- 15	2.81	2.82	0.01	Winter
Historical	2015	4	Apr- 15	2.58	2.47	(0.11)	Summer
Historical	2015	5	May- 15	2.82	2.72	(0.10)	Summer
Historical	2015	6	Jun- 15	2.75	2.63	(0.13)	Summer
Historical	2015	7	Jul- 15	2.82	2.78	(0.04)	Summer
Historical	2015	8	Aug- 15	2.77	2.79	0.02	Summer
Historical	2015	9	Sep- 15	2.65	2.65	(0.00)	Summer
Historical	2015	10	Oct- 15	2.32	2.35	0.02	Winter
Historical	2015	11	Nov- 15	2.07	2.11	0.04	Winter
Historical	2015	12	Dec- 15	1.87	1.94	0.07	Winter
Historical	2016	1	Jan- 16	2.28	2.34	0.06	Winter
Historical	2016	2	Feb- 16	1.95	1.94	(0.01)	Winter
Historical	2016	3	Mar- 16	1.69	1.69	0.00	Winter
Historical	2016	4	Apr- 16	1.89	1.80	(0.09)	Summer
Historical	2016	5	May- 16	1.89	1.83	(0.07)	Summer
Historical	2016	6	Jun- 16	2.52	2.37	(0.15)	Summer
Historical	2016	7	Jul- 16	2.80	2.64	(0.15)	Summer
Historical	2016	8	Aug- 16	2.79	2.69	(0.10)	Summer
Historical	2016	9	Sep- 16	2.96	2.81	(0.15)	Summer
Historical	2016	10	Oct- 16	2.93	2.81	(0.12)	Winter
Historical	2016	11	Nov- 16	2.47	2.36	(0.11)	Winter
Historical	2016	12	Dec- 16	3.57	3.62	0.05	Winter
Historical	2017	1	Jan- 17	3.32	3.27	(0.05)	Winter
Historical	2017	2	Feb- 17	2.84	2.73	(0.11)	Winter
Historical	2017	3	Mar- 17	2.84	2.73	(0.11)	Winter
Historical	2017	4	Apr- 17	3.08	2.88	(0.21)	Summer
Historical	2017	5	May- 17	3.13	2.88	(0.25)	Summer
Historical	2017	6	Jun- 17	2.93	2.68	(0.25)	Summer
Historical	2017	7	Jul- 17	2.96	2.72	(0.23)	Summer
Historical	2017	8	Aug- 17	2.87	2.70	(0.17)	Summer
Historical	2017	9	Sep- 17	2.95	2.76	(0.19)	Summer
Historical	2017	10	Oct- 17	2.87	2.69	(0.18)	Winter
Historical	2017	11	Nov- 17	2.97	2.89	(0.09)	Winter
Historical	2017	12	Dec- 17	2.76	8.96	6.20	Winter
Historical	2018	1	Jan- 18	3.71	3.85	0.14	Winter
Historical	2018	2	Feb- 18	2.65	2.57	(0.08)	Winter
Historical	2018	3	Mar- 18	2.65	2.41	(0.24)	Winter
Historical	2018	4	Apr- 18	2.76	2.69	(0.07)	Summer
Historical	2018	5	May- 18	2.78	2.37	(0.41)	Summer
Historical	2018	6	Jun- 18	2.93	2.62	(0.30)	Summer
Historical	2018	7	Jul- 18	2.80	2.60	(0.20)	Summer
Historical	2018	8	Aug- 18	2.93	2.82	(0.11)	Summer
Historical	2018	9	Sep- 18	2.95	2.70	(0.25)	Summer
Historical	2018	10	Oct- 18	3.23	3.18	(0.05)	Winter
Historical	2018	11	Nov- 18	4.06	4.05	(0.01)	Winter
Historical	2018	12	Dec- 18	3.96	3.68	(0.28)	Winter
Historical	2019	1	Jan- 19	3.07	3.28	0.21	Winter
Historical	2019	2	Feb- 19	2.67	2.79	0.12	Winter
Historical	2019	3	Mar- 19	2.90	3.31	0.42	Winter
Historical	2019	4	Apr- 19	2.60	2.35	(0.25)	Summer
Historical	2019	5	May- 19	2.59	2.26	(0.33)	Summer
Historical	2019	6	Jun- 19	2.34	1.99	(0.35)	Summer
Historical	2019	7	Jul- 19	2.30	2.05	(0.25)	Summer
Historical	2019	8	Aug- 19	2.17	1.92	(0.25)	Summer
Historical	2019	9	Sep- 19	2.52	2.05	(0.47)	Summer
Historical	2019	10	Oct- 19	2.24	1.92	(0.31)	Winter
Historical	2019	11	Nov- 19	2.60	2.48	(0.12)	Winter
Historical	2019	12	Dec- 19	2.19	2.06	(0.13)	Winter
Historical	2020	1	Jan- 20	2.01	1.93	(0.08)	Winter
Historical	2020	2	Feb- 20	1.87	1.72	(0.15)	Winter
Historical	2020	3	Mar- 20	1.75	1.49	(0.26)	Winter
Historical	2020	4	Apr- 20	1.69	1.59	(0.10)	Summer
Historical	2020	5	May- 20	1.69	1.62	(0.08)	Summer
Historical	2020	6	Jun- 20	1.56	1.52	(0.05)	Summer
Historical	2020	7	Jul- 20	1.69	1.63	(0.07)	Summer
Historical	2020	8	Aug- 20	2.22	2.00	(0.22)	Summer
Historical	2020	9	Sep- 20	1.92	1.77	(0.15)	Summer
Historical	2020	10	Oct- 20	2.29	2.20	(0.09)	Winter
Historical	2020	11	Nov- 20	2.56	2.33	(0.23)	Winter
Historical	2020	12	Dec- 20	2.57	2.41	(0.16)	Winter
Historical	2021	1	Jan- 21	2.61	2.51	(0.11)	Winter
Historical	2021	2	Feb- 21	5.15	32.73	27.58	Winter
Historical	2021	3	Mar- 21	2.57	2.37	(0.19)	Winter
Historical	2021	4	Apr- 21	2.57	2.47	(0.11)	Summer
Historical	2021	5	May- 21	2.88	2.69	(0.19)	Summer
Historical	2021	6	Jun- 21	3.19	3.05	(0.14)	Summer
Historical	2021	7	Jul- 21	3.79	3.54	(0.25)	Summer
Historical	2021	8	Aug- 21	4.03	3.83	(0.20)	Summer
Historical	2021	9	Sep- 21	5.02	4.69	(0.33)	Summer
Historical	2021	10	Oct- 21	5.47	5.19	(0.28)	Winter
Historical	2021	11	Nov- 21	5.03	4.85	(0.18)	Winter
Historical	2021	12	Dec- 21	3.72	3.64	(0.09)	Winter
Historical	2022	1	Jan- 22	4.27	4.38	0.11	Winter
Historical	2022	2	Feb- 22	4.67	4.55	(0.12)	Winter
Historical	2022	3	Mar- 22	4.86	4.48	(0.38)	Winter
Historical	2022	4	Apr- 22	6.48	6.29	(0.19)	Summer
Historical	2022	5	May- 22	8.00	7.59	(0.41)	Summer
Historical	2022	6	Jun- 22	7.69	7.24	(0.46)	Summer
Historical	2022	7	Jul- 22	7.08	6.71	(0.38)	Summer
Historical	2022	8	Aug- 22	8.79	8.17	(0.62)	Summer
Historical	2022	9	Sep- 22	7.81	6.89	(0.92)	Summer
Historical	2022	10	Oct- 22	5.69	5.01	(0.68)	Winter
Historical	2022	11	Nov- 22	5.17	4.99	(0.18)	Winter
Historical	2022	12	Dec- 22	5.53	6.98	1.45	Winter
Historical	2023	1	Jan- 23	3.30	3.62	0.32	Winter
Historical	2023	2	Feb- 23	2.37	2.31	(0.06)	Winter
Historical	2023	3	Mar- 23	2.33	2.36	0.03	Winter
Historical	2023	4	Apr- 23	2.14	1.94	(0.20)	Summer
Historical	2023	5	May- 23	2.11	1.85	(0.26)	Summer
Historical	2023	6	Jun- 23	2.11	2.00	(0.12)	Summer
Historical	2023	7	Jul- 23	2.53	2.25	(0.28)	Summer
Historical	2023	8	Aug- 23	2.57	2.29	(0.29)	Summer
Historical	2023	9	Sep- 23	2.65	2.21	(0.44)	Summer

Note - these are NOT weighted averages with respect to CNP consumption in each month.

	Annual Average	Winter	Summer
2013	0.08	0.15	(0.00)
2014	1.50	2.98	0.02
2015	0.09	0.24	(0.06)
2016	(0.07)	(0.02)	(0.12)
2017	0.36	0.94	(0.22)
2018	(0.15)	(0.09)	(0.22)
2019	(0.14)	0.03	(0.32)
2020	(0.14)	(0.16)	(0.11)
2021	2.13	4.46	(0.20)
2022	(0.23)	0.03	(0.49)
5 year Average	0.29	0.85	(0.27)



State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 10/3/2023
Response Due: 10/13/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 078	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Topic: Variable O&M Escalation Factor for Years 1 through 5 Reference(s): Filing, Excel Spreadsheet 20236-196995-11, Tabs CNP01 through CNP25 Please provide the support for the -5.25 percent annual escalation factor for Variable O&M used as an input to this analysis. **Response:** The Commission's June 1, 2023 Order in Docket No. G-999/CI-21-566 ("Frameworks Order"), Order Point 28 states "Where applicable, for quantifying any NGIA cost or benefit, utilities shall use structural cost-benefit values following the methods described in Appendix H of the Minnesota Department of Commerce's February 11, 2020, CIP BenCost Input Decision in Docket No. G-999/CIP-18-782, Inputs 1–13, with the modifications reflected in the Structural Values Modifications to CIP Approach table filed by the Joint Commenters." The Joint Commenters proposed no modifications to the CIP method for calculating variable O&M for energy efficiency, but stated that the method for other resources should be considered in the context of specific utility proposals. The method developed for variable O&M for CIP, as described in the

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Department's February 11, 2020, Decision in Docket No. G-999/CIP-18-783, is as follows:

"Input 6: Variable O&M: The variable costs, other than fuel and purchased energy costs, that are included as expenses in delivering energy to the end use consumer. For utilities that have flexible rate tariffs, Variable O&M is the minimum transportation flexible rate, which is generally based on the utility's best estimate of variable costs. Each utility must fully explain how it determines the Variable O&M input. This cost is multiplied by the Annual Escalation Rate of 4.69 percent, which is described above in Input No. 1."

This definition highlights how the annual escalation rate is to match the escalation rate used for Input No. 1, which is the Retail Rate Price. The escalation rate for the retail rate is described in the Department's decision as follows:

"The Retail Rate is multiplied by the *Annual Escalation Rate* of 4.69 percent. Staff calculated the Annual Escalation Rate of 4.69 percent using the average percent change in the price of natural gas between 2018 through 2022 to all users in the West North Central Region, as estimated in the Energy Information Administration's December 2018 *Annual Energy Outlook* ."

The Company's calculations used to reach the -5.25 percent annual escalation factor follow the same methodology as used by the Department, but using a more recent Energy Information Administration *Annual Energy Outlook*. These specific calculations were provided in response to Department of Commerce Information Request 72.

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State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas

Date of Request: 9/27/2023
Response Due: 10/9/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 065	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Topic: Cost recovery of pilots by customer class Reference(s): Filing, page 20 The Company states: "Note that CenterPoint Energy has proposed to match cost recovery to the classes of customers receiving benefits from the proposed pilots. For example, only residential customers would be charged for residential-focused pilots." a. Please identify the proposed pilots that are classified as residential-only, small commercial only or large commercial only. b. What is the basis for classifying the recovery of the costs of the proposed pilots by customer class? c. Does CenterPoint currently recovery any costs for specific projects included in its base rates or existing tracker accounts by customer class? d. If so, please list those specific projects and the recovery mechanism. **Response:** a. CenterPoint Energy classified pilots as Residential, Commercial & Industrial or both. The pilots that are focused on a single customer class are noted here: Residential:

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- Residential Deep Energy Retrofits and Electric Air Source Heat Pumps
- Residential Gas Heat Pumps

Commercial & Industrial:

- Industrial or Large Commercial Hydrogen and Carbon Capture Incentives
- Industrial Methane and Refrigerant Leak Reduction
- Carbon Capture Rebates for Commercial Buiildings
- Decarbonizing Existing District Energy Systems
- Industrial Electrification Incentives
- Commercial Hybrid Heating
- Small/Medium Business GHG Audit
- Gas Heat Pumps for Commercial Buildings
- Industrial and Large Commercial GHG Audit

b. Classifying the recovery of the costs of the proposed pilots by customer class was determined by the class of customer that was deemed to benefit from the pilot.

c-d. There are instances in CenterPoint Energy's current billing where specific costs are allocated to certain classes. Examples of instances where CenterPoint Energy would allocate specific costs include, but are not limited to, Residential Marketing costs which are allocated specifically to Residential customers in the class cost of service study filing in a general rate case, Conservation Improvement Programs where certain customers are excluded from the conservation charges, and gas demand costs which are only charged to CenterPoint Energy's firm customers.

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State of Minnesota
Minnesota Department of Commerce

Utility Information Request

Docket Number: Dkt. G-008/M-23-215 - NGIA
Requested From: CenterPoint Energy Minnesota Gas
Date of Request: 10/5/2023
Response Due: 10/16/2023

Analyst Requesting Information: Adway De/Andy Bahn/John Kundert/Sachin Shah

Type of Inquiry: Other

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
DOC 080	Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy. Topic: Recovery of Renewable Natural Gas (RNG) Costs Reference(s): Main Filing, pages 19 and 20 The Company identifies Minn. Stat. 216B.16, subd. 7, clause (2) as the statutory reference for the Purchased Gas Adjustment mechanism in Footnote 39. Minn. Stat. 216B.16, subd. 7 clause (2) states: Subd. 7.Energy and emission control products cost adjustment. Notwithstanding any other provision of this chapter, the commission may permit a public utility to file rate schedules containing provisions for the automatic adjustment of charges for public utility service in direct relation to changes in: (1) federally regulated wholesale rates for energy delivered through interstate facilities; (2) direct costs for natural gas delivered; (3) costs for fuel used in generation of electricity or the manufacture of gas; or (4) prudent costs incurred by a public utility for sorbents, reagents, or chemicals used to control emissions from an electric generation facility, provided that these costs are not recovered elsewhere in rates. The utility must track and report annually the volumes and costs of sorbents, reagents, or chemicals using separate accounts by generating plant.

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A. If CenterPoint Energy is proposing to recover the costs of the RNG environmental attributes via the PGA, please identify the classification of those environmental attributes given the four costs listed in this statute.
B. If CenterPoint Energy is proposing to recover the costs of the RNG environmental attributes via the PGA, provide a narrative supporting this determination.

Response:

Minn. Stat. § 216B.2427, subd. 2(c)(1), states the costs of an NGIA Plan "are recoverable…under section 216B.16, subd. 7, clause (2) via the utility's purchased gas adjustment." As a result, under the NGIA, recovery of NGIA Plan costs is authorized under clause (2) as "direct costs for natural gas delivered."

See CenterPoint Energy's Petition at pages 19-22 for a discussion of the Company's proposed recovery of its NGIA Plan costs, including proposed recovery through the PGA mechanism of costs incurred for the purchase of RNG.

CenterPoint Energy is proposing to recover costs for the purchase of RNG in the PGA as a direct cost for natural gas delivered. As described in CenterPoint Energy's Petition, Pilots A and B will be for bundled RNG purchases consisting of natural gas commodity and its environmental attributes. The cost recovery is for the RNG delivered as a bundled purchase of renewable natural gas. For Pilot C, CenterPoint Energy also proposes to give a preference to bundled RNG (i.e. sale of both environmental attributes and commodity gas) but would consider purchasing unbundled RNG (i.e. without the commodity gas). However, even in the case of purchases of unbundled environmental attributes of RNG, because the NGIA authorizes NGIA plan costs to be recovered through the PGA, this recovery mechanism is appropriate for the costs of these RNG purchases.

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CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce
Public Comments

Docket No. G008/M-23-215

Dated this **16th** day of **January 2024**

/s/Sharon Ferguson

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First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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