BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

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In the Matter of Xcel Energy's Natural Gas Innovation Plan

ISSUE DATE: May 16, 2025

DOCKET NO. G-002/M-23-518

ORDER APPROVING NATURAL GAS INNOVATION PLAN WITH MODIFICATIONS

PROCEDURAL HISTORY

On December 15, 2023, Northern States Power Co. d/b/a Xcel Energy (Xcel) filed a petition for approval of its first Natural Gas Innovation Plan. Xcel amended this filing on April 26, May 31, and July 29, 2024.

By December 6, 2024, the Commission had received initial, reply, and/or supplemental comments from members of the public as well as the following organizations:

- Center for Energy and Environment (CEE)
- Citizens Utility Board of Minnesota (CUB)
- City of Arden Hills
- City of Becker
- City of Saint Paul
- City of Shakopee
- County of Kandiyohi
- Coalition for Renewable Natural Gas (RNG Coalition)
- CURE
- Geothermal Exchange Organization
- Green Cities Accord (formerly Green Minneapolis)
- International Union of Operating Engineers Local 49 (Engineers) and North Central States Regional Council of Carpenters (Carpenters)
- Laborers' International Union of North America–Minnesota and North Dakota (LIUNA)
- Minnesota Center for Environmental Advocacy, Fresh Energy, and Sierra Club (Clean Energy Organizations or CEOs)

- Minnesota Department of Commerce (Department)
- National Indian Carbon Coalition
- Office of the Attorney General—Residential Utilities Division (OAG)
- Prairie Island Indian Community
- Saint Paul 350
- Xcel

On February 4 and 6, 2025, this matter came before the Commission.

FINDINGS AND CONCLUSIONS

I. Background

A. Overview

In 2021, Governor Walz signed the Natural Gas Innovation Act (NGIA) into law.[1] The NGIA allows natural gas utilities to file five-year plans with the Commission detailing the innovative resources they plan to implement to help meet Minnesota's goals for promoting renewable energy, reducing the emission of greenhouse gases (GHG), and reducing their reliance on gas from geologic sources.[2] The plan may also propose a method for recovering the cost of implementing the plan. The NGIA defines "innovative resource" as "biogas, renewable natural gas, power-to-hydrogen, power-to-ammonia, carbon capture, strategic electrification, district energy, and energy efficiency."[3]

In accordance with the NGIA, the Commission has issued a "Frameworks Order" establishing (1) a general framework for comparing the lifecycle GHG emissions intensities of each innovative resource, and (2) a cost-benefit analytic framework for comparing the cost-effectiveness of innovative resources and plans.[4]

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[1] The NGIA is codified at Minn. Stat. §§ 216B.2427 and 216B.2428.

[2] Minn. Stat. § 216B.2427, subd. 10.

[3] Minn. Stat. § 216B.2427, subd. 1(i). However, no proposal to promote energy efficiency or strategic electrification can qualify as an innovative resource under an NGIA plan if the utility could reasonably pursue that proposal as part of its Conservation Improvement Program (CIP) as modified by Minnesota's Energy Conservation and Optimization Act of 2021 (ECO); *see* Minn. Stat. § 216B.2427, subd. 1(g) and 1(r).

[4] *In the Matter of Establishing Frameworks to Compare Lifecycle Greenhouse Gas Emission Intensities of Various Resources, and to Measure Cost-Effectiveness of Individual Resources and of Overall Innovative Plans*, Docket No. G-999/CI-21-566, Order Establishing Frameworks for Implementing Minnesota's Natural Gas Innovation Act (June 1, 2022) and Order (September 12, 2022), adopted pursuant to Minn. Stat. § 216B.2428.

B. Reporting and Oversight

Utilities operating under an approved plan must report annually on the work completed under the plan.[5] After reviewing these reports, the Commission may approve the continuation of a pilot program within the plan, with or without modifications; require the utility to file a new or modified pilot program or plan; or disapprove the continuation of a pilot program or plan.

II. Xcel's Natural Gas Innovation Plan

A. Overview of the Plan

As part of its first NGIA plan, Xcel proposed 12 pilot programs—addressing proposals to reduce reliance on geologic natural gas with RNG, hydrogen, and electricity (including electric-driven heating provided throughout a district), as well as proposals for capturing GHG. Xcel also proposed nine research & development programs. To explain how Xcel chose these proposals, the filing included Exhibit D, listing the 30 options Xcel initially considered and the reasons Xcel declined to pursue most of those options. Xcel initially estimated that implementing its plan would reduce or avoid the emission of nearly 927,000 metric tons of carbon dioxide equivalent (tons) and create 417 full-time equivalent jobs in Minnesota—but Xcel acknowledged that changes to its initial plan might alter these estimates.

Xcel calculated that the NGIA limited the amount Xcel could spend on its first NGIA plan to $58.08 million. Xcel asked the Commission to approve a budget of roughly $55.39 million in programs over its five-year planning horizon with another $1.01 million in reserves, but acknowledged that implementing the plan would cost the utility an estimated $141 million overall.

In addition to proposed pilot programs and R&D projects, the plan included a request for budget flexibility, a cost-recovery proposal, proposed cost-effectiveness objectives, and a proposal on the types of information Xcel should include in its annual status reports.

No commenter recommended rejecting Xcel's plan in its entirety. Many commenters proposed changes to pilot programs by, for example, rejecting or altering certain pilot proposals or adjusting a program's budget. The Carpenters & the Engineers, CEE, and LIUNA joined Xcel in encouraging the Commission to approve Xcel's plan outright—but acknowledged that they would also support the plan with modifications.

B. Modifications to Pilot Programs

Some commenters proposed changes to the pilot programs; others supported the programs as proposed. This section includes a brief description of the proposed changes, and the Commission's actions on those proposals.

[5] Minn. Stat § 216B.2427, subd. 2(f).

1. RNG pilot program—Sauk Centre

Cow manure releases methane into the atmosphere. Methane is a potent GHG, and also the basis of natural gas. Biogasco LLC proposes to take manure from a family-owned and operated dairy farm near Sauk Centre, Minnesota, and—using an anerobic digester—convert it into RNG. Biogasco LLC would then truck the gas to the Northern Natural Gas interstate pipeline from which Xcel acquires its supply of natural gas. Xcel proposed to enter into a ten-year contract to buy RNG from this project—with a budget of $7.56 million during the five-year plan, and $22.44 million for the lifetime pilot costs.

a. Comments

No party opposed this proposal in general. But CUB, CURE, the Department, and OAG questioned the wisdom of approving a ten-year contract to fulfill the objectives of a five-year NGIA. OAG proposed that Xcel negotiate a shorter contract or, if this were not feasible, that the Commission require Xcel to include the program as part of both its first and second NGIA plans—thereby capturing the proposal's full costs and full benefits within NGIA plans.

Xcel stated that it could not negotiate a viable shorter-term arrangement with the project's developer. Xcel also argued that the proposal would support a small family-owned dairy farm, a sector of the economy facing various challenges. The Carpenters & the Engineers, CEE, and LIUNA supported approving this proposal without imposing constraints on future NGIA plans.

b. Commission Action

The Commission agrees with all parties that the Sauk Center proposal qualifies as an appropriate pilot program for inclusion in Xcel's NGIA plan. The proposal seems well-designed to provide new insights about harvesting RNG to help displace the need for geologic natural gas.

Nevertheless, the Commission acknowledges the concerns raised by CUB, CURE, the Department, and OAG regarding the mismatch between the pilot program's contract terms and the term of Xcel's first NGIA plan. This mismatch poses challenges for ensuring that the NGIA cost-recovery mechanisms are used only for appropriate NGIA costs, and ensuring that all costs are accounted for appropriately. For the purpose of establishing a budget for Xcel's first NGIA plan, therefore, the Commission will direct Xcel to exclude any costs attributable to its Sauk Center Pilot Program after the program's first five years. If Xcel includes the program in subsequent NGIA plans, Xcel must include the subsequent costs in the budgets of those subsequent plans.

2. RNG Pilot Program—Amp-Swift

Amp Americas, a Chicago-based environmental energy firm, proposes to use anerobic digesters to convert manure from four dairy farms located in Swift, Chippewa and Kandiyohi counties into RNG, which would eventually be injected into the Alliance interstate pipeline. As part of this Amp-Swift project, Xcel proposed entering into a five-year contract to purchase some *unbundled environmental attributes* of the RNG. That is, Xcel did not propose to buy the project's gas;

rather, Xcel proposed to buy the right to claim for regulatory purposes that it is responsible for generating a specified amount of RNG.

According to Xcel, the program would provide a cost-effective way to reduce the amount of GHG emitted in the state, especially when measured in terms of the amount of GHG captured per unit of gas delivered.

Xcel estimated that this pilot would support two jobs, and initially proposed a budget of $3.51 million for this project. But when Xcel later withdrew some other RNG projects, Xcel proposed expanding its participation in the Amp-Swift pilot program by buying an additional $2.74 million of unbundled environmental attributes.

a. Comments

Various commenters supported Xcel's proposal in general—including the Carpenters & the Engineers, CEE, the Department, Kandiyohi County, and LIUNA.

OAG and CUB questioned whether the purchase of environmental attributes, without a simultaneous purchase of the RNG itself, qualified as an innovative resource—but conceded that the Commission had ruled on this question when it approved the NGIA plan for CenterPoint Energy. CURE also raised concerns about potential adverse consequences arising from consolidated animal feeding operations, and from potential methane leakage.

Finally, CUB, CURE, and OAG recommended that, should the Commission accept the pilot, the Commission limit the budget to the $3.51 million proposed in Xcel's original petition and reject Xcel's proposal to buy an additional $2.74 million worth of environmental attributes. These commenters questioned how expanding the budget would lead Xcel to gain insights that the original budget would not provide.

b. Commission Action

Similar to the Sauk Center pilot program, the Amp-Swift pilot is a Minnesota-based program for capturing methane, a potent GHG, before it gets released into the atmosphere and using it to displace some demand for geologic natural gas. Thus, it will help reduce GHG emissions within the state, while promoting local economic development and ecological insights. But unlike the Sauk Center program, it is not clear that Xcel would have a practical way to acquire the RNG produced by the Amp-Swift project because Xcel does not draw its gas supply from the Alliance pipeline. As a result, the choice to buy unbundled environmental attributes appears to be the most feasible way for Xcel to participate in this program. And the environmental benefits of this program—capturing gas that would otherwise have been released into the atmosphere and using that gas to reduce the demand for geologic natural gas—does not depend on an Xcel customer consuming the captured gas. Accordingly, the Commission will approve including this program as part of Xcel's NGIA plan.

That said, the Commission agrees with CUB, CURE, and OAG that Xcel has not articulated any additional information it would acquire by increasing its purchases from the Amp-Swift project

by $2.74 million. Therefore the Commission will limit Xcel's participation in this project to $3.51 million, as proposed in Xcel's original petition.

3. RNG Pilot Program—Pine Bend

The Pine Bend facility in Inver Grove Heights converts landfill waste into RNG and delivers it to Xcel's distribution system. Xcel proposed to procure RNG over a five-year off-take agreement, estimated that this pilot would support three jobs, and proposed a $2.9 million budget within the five-year plan and with lifetime costs of $7.29 million.

a. Comments

The Department recommended rejecting this pilot due to the project's high cost per unit of GHG avoided, lack of innovation, and potentially misleading environmental benefit calculations. Instead, the Department recommended that Xcel solicit proposals for a project with a more agreeable cost/benefit calculation and greater innovation, and submit that proposal in a supplemental filing or during an annual status report.

Xcel, the Carpenters & the Engineers, CEE, and LIUNA opposed the Department's proposal. Xcel defended its calculation of environmental benefits, but could not persuade the Department. Xcel argued that the Pine Bend proposal would be innovative by providing an opportunity to learn about acquiring both RNG and environmental attributes from the same project. And Xcel acknowledged the project required incurring high cost per unit of GHG avoided, but argued that the utility took that fact into account in selecting the size of its investment for this project. Under questioning, however, Xcel determined that it would be able to maintain its participation in this program even if it reduced its budget to $2.4 million.

b. Commission Action

The Commission reviews NGIA plans to ensure that utilities pursue promising and cost-effective opportunities for meeting state environmental objectives. The Pine Bend pilot program is sufficiently different from Xcel's other pilot programs as to provide a distinct opportunity to gain different insights—precisely the kinds of opportunities the NGIA is designed to promote. But to participate in the Pine Bend project, Xcel proposes to incur relatively high costs per unit of GHG avoided, which makes the project less attractive than some alternatives.

Consequently, the Commission is persuaded to grant Xcel's petition to include the Pine Bend project in its first NGIA plan—but to limit Xcel's participation to $2.4 million over five years. This decision will permit Xcel to gain the insights available to those participating in the program, while appropriately limiting ratepayer costs for gaining these insights.

Moreover, the Commission will direct Xcel to develop a competitive bidding process for soliciting proposals for delivering RNG onto its distribution system and acquiring environmental attributes. Xcel must then use the process when selecting future NGIA pilot programs or utility service to be included in base rates. Xcel must file this proposal as part of its final status report for this plan.

4. Hydrogen Pilot Program—Sherco 5 MW

At the site of the Sherburne County Generating Station (Sherco) in Becker, Xcel uses natural gas to fuel the boiler system that heats its building and provides a back-up supply of steam for starting the Sherco generators. Because Xcel plans to retire the various Sherco generators over time, the auxiliary steam boiler system will soon have excess capacity. Xcel identified an industrial customer interested in buying steam from Xcel, established an unregulated affiliate to provide that service, and secured Commission approval for this arrangement through an affiliate interest agreement under Minn. Stat. § 216B.48.[6]

In the current docket, Xcel proposed to reduce the amount of natural gas used by this auxiliary boiler system by blending it with hydrogen. To acquire this hydrogen, Xcel proposed to build, own, and operate a five-megawatt (MW) electrolyzer, an electric device that extracts hydrogen from water. Because solar panels would provide the energy to power the electrolyzer, the resulting hydrogen would qualify as an innovative resource.

Xcel estimated that the pilot would support 135 jobs and proposed a budget of $7.89 million in the five-year NGIA plan, with lifetime costs of $26.31 million. These figures incorporated the federal Clean Hydrogen Production Tax Credit and the Renewable Energy Production Tax Credit, permitting Xcel to save approximately $5.36 million over five years and $12.93 million across the entire lifetime of the project.

According to Xcel, five megawatts is the minimum feasible size for a project that would generate useful insights for further hydrogen generation. Xcel emphasized that this pilot would provide a rare opportunity to reduce GHG emissions arising from running an industrial operation such as a boiler—a notoriously difficult challenge.

a. Comments

By the time of the Commission's meeting, no commenter opposed the project entirely, while the City of Becker, the Carpenters & the Engineers, CEE, and LIUNA joined Xcel in supporting it largely as filed. However, other commenters identified areas of concern.

First, commenters raised questions about the amount of production tax credit the pilot program would earn and how they would be allocated. Rather than trying to resolve these matters at the Commission's hearing, Xcel proposed—and the commenters generally supported—filing a revised budget reflecting the assumptions underlying Xcel's revised calculations for the production tax credit. To facilitate implementation, Xcel and the commenters supported permitting the Commission's Executive Secretary to approve the filing, provided no one filed an objection.

Second, CUB, CURE, the Department, and OAG raised concerns about the proposal's allocation of operating costs, capital costs, revenues, and risk. OAG emphasized that when the Commission

[6] See *In the Matter of the Petition Requesting Approval of the Amended Agreement with Liberty Paper, Inc., and Approval of Accounting and Rate Treatment*, Docket No. E-002/M-19-663.

approved the agreement between Xcel's regulated and affiliated operations, Xcel agreed that ratepayers would "not be responsible for any risks associated with supplying steam to [the industrial customer] and will not incur any increased costs."[7] Commenters noted that the operating cost to produce the hydrogen would exceed the cost of the natural gas it would displace, presumably leaving Xcel's ratepayers to pay for the difference. Commenters noted that Xcel proposed to depreciate the pilot's capital cost over 20 years, but the industrial customer has not committed to purchasing steam for that period—leaving doubt about who would bear the cost of this asset if the customer withdrew. Regarding revenues, commenters noted that the pilot's customer would buy only steam from Xcel's affiliated operation, and Xcel's current agreement with the affiliate does not provide for revenue sharing with Xcel's gas customers. (Xcel's affiliate would purchase electricity to operate the electrolyzer, generating revenues for Xcel's electric customers—but not its gas customers.)

These concerns prompted CUB, CURE, the Department, and OAG to propose various modifications to the pilot program. They variously recommended a) directing Xcel to first obtain Commission approval for a new agreement with the industrial customer to compensate and/or protect ratepayers for the identified risks, or b) using the revenues from the customer to offset the cost of the pilot program, or to offset Xcel's overall costs in its next rate case. The Carpenters & the Engineers, CEE, LIUNA, and Xcel opposed these proposals. Xcel argued that its proposal for using the revenues from an unregulated business were consistent with the Commission's past practices, and with how Xcel allocated such revenues in its last rate case.

Third, CUB, CURE, the Department, and OAG questioned how Xcel proposed to allocate the program's costs among its various classes of customers—for example, residential, commercial, and industrial. Noting that the pilot is designed to provide clean energy for industrial applications and that Xcel has not proposed to use this technology for any other kind of customer throughout the five-year plan, the Department proposed barring Xcel from recovering any of the costs from residential customers. CUB, CURE, and OAG supported this idea, and proposed also shielding small commercial customers from bearing these costs. While Xcel argued that all customers might eventually benefit from the insights arising from using the electrolyzer, no commenter opposed this proposal.

Finally, CUB, CURE, and OAG questioned Xcel's proposal to include a $2,078,100 contingency fund for this project. Xcel argued that this level of contingency was appropriate for a capital project of this size and novelty to address unanticipated cost increases.

b. Commission Action

With the benefit of perspectives from all commenters, the Commission is persuaded that Xcel's Sherco 5MW Electrolyzer pilot will offer a unique opportunity for learning about the generation and use of hydrogen blending with natural gas for industrial purposes. Accordingly, the

[7] *In the Matter of the Petition Requesting Approval of the Amended Agreement with Liberty Paper, Inc., and Approval of Accounting and Rate Treatment*, Docket No. E-002/M-19-663, Xcel petition (October 25, 2019), at 7.

Commission will approve with conditions Xcel's proposal to include this program as part of Xcel's NGIA plan.

The appropriate allocation of cost, benefit, and risk is complicated. The relationships between Xcel's regulated operations and its affiliate operations, and between the affiliate and the industrial customer, predate the emergence of the proposed electrolyzer pilot, so the costs, benefits, and risks of those existing arrangements cannot be attributed to the pilot. Accordingly, the Commission will decline to alter the allocation of the revenues paid by the industrial customer. Likewise, the Commission finds that the increased operating cost arising from procuring hydrogen in lieu of natural gas is appropriately understood as a cost of reducing GHG emissions rather than a cost of generating steam; thus the Commission will not bar Xcel from seeking to recover these costs in the same manner as other NGIA costs. But issues involving the pilot's capital costs and risks warrant additional safeguards.

First, as previously discussed, the Commission will approve only the part of the pilot's costs accruing within the five-year period of Xcel's first NGIA plan. Xcel must include costs that accrue thereafter as part of subsequent dockets, such as subsequent NGIA plans.

Second, the Commission notes that Xcel proposes to recover the costs of different aspects of its NGIA plan from different customer classes, based on which class or classes derive the primary benefit. In this case, Xcel proposed to use the electrolyzer primarily to provide an alternative fuel for large customers with needs that are hard to meet via means other than fossil fuels. Accordingly, the Commission will adopt the recommendations of CUB, CURE, the Department, and OAG to direct Xcel to refrain from recovering any portion of the cost of this pilot from residential or small commercial customers.

Third, to facilitate implementation of appropriate safeguards for this pilot, the Commission will direct Xcel to make two filings in the current docket within the next 30 days.

- Given that the industrial customer could discontinue buying steam from Xcel before Xcel has fully recovered the pilot's costs, Xcel must file an explanation of the steps it has and will take to mitigate this financial risk, and how Xcel would propose to address cost recovery under those circumstances.

- Xcel must file a revised budget to resolve confusion and ambiguities about the amount of production tax credits Xcel expects the pilot to accrue, and how those benefits may be allocated among participants.

The Commission will authorize its Executive Secretary to issue a notice inviting comments on each filing for a period of 60 days and, if no objections are filed on a given filing, to approve the filing. But in any event, Xcel must not proceed with the pilot until the Commission has approved these filings.

Finally, at this juncture the Commission will approve Xcel's proposal to maintain a contingency fund for this project, reflecting the uncertainties that are inherent in a project of this size and novelty. But to ensure appropriate oversight of these dollars, the Commission will direct Xcel to

include in its annual NGIA status reports a discussion of any use of the contingency fund for the Sherco 5MW pilot, including but not limited to providing evidence of cost increases beyond Xcel's control.

5. Carbon Capture Pilot Program—Trees

Through photosynthesis, trees pull carbon dioxide (the most abundant GHG) from the air to use in making the sugars required for forming wood. The carbon is thus kept out of the atmosphere until the wood is burned or otherwise decomposes. Thus, a person can help remove carbon dioxide from the atmosphere by planting trees—or by preserving trees that would otherwise be chopped down. That person may then be able to claim credit for this environmental benefit, and to sell the right to make this claim of a *carbon offset* to others. To support this activity, firms now specialize in verifying that a specific carbon offset project will, in fact, remove carbon from the atmosphere by a specified amount, and in registering, tracking, and retiring carbon offset credits to prevent fraud and double-counting.

Xcel proposed two pilot programs for purchasing carbon offsets from projects designed to plant and/or conserve trees. Xcel argued that these pilot programs would provide the most cost-effective way to capture GHGs, justifying Xcel's reliance on them as a major component of its NGIA plan. In addition, subsidizing trees helps provide habitat for wildlife, manage storm water, and filter fine particulate pollution from the air.

Xcel proposed to spend $2.39 million to buy 15,000 tons of carbon offsets from the Indian Land Tenure Foundation, as part of its Improved Forest Management project. This organization raises funds to help the Bois Forte Band of Chippewa recover land that historically belonged to the tribe. Bois Forte would then adopt a forest management plan, balancing conservation and environmental protection in the restored land with maintenance of the Band's cultural practices. Sale of carbon offsets helps finance the land purchases.

Xcel also proposed to spend $760,000 to buy 3,000 tons of carbon offsets from Green Cities Accord (formally Green Minneapolis), a firm that plants trees throughout the Twin Cities metropolitan area and maintains them for at least 25 years. Xcel stated that this firm would provide the utility with carbon offset credits from trees planted after the approval of its NGIA plan, to the extent possible, prioritizing credits for trees planted within Xcel's gas service area. Xcel argued that participating in this pilot would save energy and enhance environmental justice:[8] By providing a windbreak to neighboring buildings, the trees would help reduce the

[8] "Environmental justice" refers to providing benefits to an *environmental justice area*—that is, an area in Minnesota that, based on the most recent data published by the United States Census Bureau, meets one or more of the following criteria:

> (1) 40 percent or more of the area's total population is nonwhite;
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> (2) 35 percent or more of households in the area have an income that is at or below 200 percent of the federal poverty level;

amount of gas required for heating. And while climate change causes everyone to experience hotter summers, the effect is compounded in urban areas where pavement absorbs heat throughout the day and radiates it back at night, depriving residents of the opportunity to cool off after sunset. By subsidizing the planting and maintenance of trees in urban areas, this pilot would provide more urban shade, mitigating the problem where it is most acute.

a. Comments

The Carpenters & the Engineers, CEE, and LIUNA supported Xcel's proposed pilot projects. In addition, the Indian Land Tenure Foundation and Green Cities Accord each supported their own projects.

CUB, CURE, and OAG disputed whether carbon offsets qualify as an innovative resource under the NGIA. These commenters questioned whether the programs would meet the statutory definition of an innovative resource, whether they would reduce the amount of natural gas consumed or the amount of GHG emitted, and whether they would demonstrate anything innovative, thereby providing an opportunity for learning. OAG noted that Xcel had previously provided funds to both these projects as charitable donations, and questioned whether Xcel's proposed pilots would simply become ratepayer-funded charitable contributions. In addition, these commenters noted that the verification firm participating in the Improved Forest Management program had faced criticism for failing to fulfill its duties. But these commenters acknowledged that the Commission authorized CenterPoint Energy to invest $329,301 in a similar Green Cities Accord program, finding that it would qualify as an innovative resource.[9]

In response to criticisms, Xcel emphasized that its financial participation would help these high-quality carbon-offset programs continue and expand. Xcel argued that its participation in these programs would differ from a charitable contribution in that Xcel would receive credits for the carbon offsets as a result. Xcel also argued that it would have the opportunity to learn from using newly developed systems in conjunction with the purchase and retirement of the environmental attributes.

Should the Commission approve these projects, commenters proposed some modifications. CUB, CURE, and OAG proposed that the Commission reduce the budgets. Noting that CenterPoint Energy plans to spend 0.3% of its NGIA budget for securing carbon offsets from tree planting and management, whereas Xcel proposed to spend 5.42%, commenters recommended that Xcel reduce its expenditures to be proportionate to CenterPoint Energy's.

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(3) 40 percent or more of the area's residents over the age of five have limited English proficiency; or

(4) the area is located within Indian country, as defined in United State Code, title 18, section 1151.

Minn. Stat. § 216B.1691, subd. 1(e).

[9] See *In the Matter of CenterPoint Energy's Natural Gas Innovation Plan*, Docket No. G-008/M-23-215, Order Approving Natural Gas Innovation Plan with Modifications, at 4 (October 9, 2024).

And the Department joined CUB, CURE, and OAG in recommending that Xcel provide updates in its annual NGIA status reports. For the Improved Forest Management project, they recommended that Xcel identify the number of acres reforested as part of the program and verify that the planted trees are being maintained—including the number of trees lost and replanted, if any. In response, Xcel agreed to provide ongoing verification of maintenance of planted trees, including an account of how many trees were lost and replanted, to the extent that the projects provide the information. And for the Improved Forest Management project, Xcel agreed to report the number of acres managed under the program and to verify the practices that the project would implement.

b. Commission Action

While some commenters question whether the proposed type of carbon capture pilot program qualifies as an innovative technology, they acknowledge that the Commission approved a similar pilot program as part of CenterPoint's NGIA plan. The Commission held as follows:

> While there are reasonable and differing interpretations of the NGIA's approach to carbon capture, the Commission is unpersuaded that this first application of the statute calls for its narrowest reading. Other approaches to carbon capture may be more reasonable in future iterations of innovation plans, but those will be explored after reflection of the pilot's effectiveness and continuing examination of the issues, which will facilitate careful consideration of possible program refinements or changes. [T]he Commission will therefore approve this pilot.[10]

Carbon capture programs similar to the programs proposed here not only succeed in removing GHG that would otherwise be left in the atmosphere, but they do so at a relatively low price per ton of carbon dioxide captured. And the programs can help provide wildlife habitat, manage storm water, remove particulate matter from the air, and—when promoting trees near buildings, help reduce heating and cooling costs, including costs borne by environmental justice communities. For the foregoing reasons, the Commission will not prohibit Xcel from including some programs promoting tree planting and/or conservation as part of its NGIA plan.

However, the Commission is not persuaded that Xcel's proposals should be adopted precisely as recommended. The Commission previously approved CenterPoint's tree-focused program based on the fact that the trees in the program would be able to reduce heat loss by sheltering nearby residences from wind, and based on the pilot's modest price, representing only 0.3% of the plan's overall budget. In contrast, Xcel proposes to spend 5.42% of its NGIA plan budget on these programs—with more than 75 percent of that share budgeted for the Improved Forest Management project, which would maintain trees that are often too far from any residences or businesses to influence their energy consumption. Based on these concerns, the Commission will

[10] *Id.*

decline Xcel's proposal to include the Improved Forest Management project in Xcel's NGIA plan.

In contrast, the Commission will approve Xcel's proposal to include the Green Cities Accord pilot program in its NGIA plan—with the following modifications:

First, the Commission will reduce the budget to $329,301, equal to CenterPoint's budget for its Green Cities Accord project.[11]

Second, the Commission will specify that the funds are to be used only for trees planted in Xcel's gas service territory. This will permit Xcel's customers to derive the ancillary benefits of wind breaks and shade, thereby reducing their energy consumption.

Third, the Commission will direct Xcel to include in its annual NGIA report a statement about the number of trees lost and replanted as part of this pilot program, and a statement verifying that Green Cities Accord is continuing to maintain the trees in the pilot. Xcel must provide this information to the extent Green Cities Accord makes it available, in years when Green Cities Accord reports this information to its accrediting agency.

Fourth, the Commission will direct Xcel to diligently seek to verify the accuracy of the carbon credits arising from this pilot. At a minimum, Xcel should closely monitor any audits or litigation involving the entity verifying the carbon credits that may raise doubts about the credits' accuracy, and provide a discussion in its annual NGIA reports including its findings and lessons regarding its ongoing verification efforts and credit monitoring. With these modifications, the pilot program will appropriately balance the goals of gaining new insights with innovative technologies, while also making prudent use of ratepayer resources.

6. Carbon Capture Pilot Program—Dem-Con HZI Biochar

Xcel proposed, and no commenter explicitly opposed, acquiring environmental attributes from the Dem-Con HZI project in Shakopee, which is designed to produce renewable natural gas from organic waste. Xcel further proposed to buy 10,000 tons of carbon offsets associated with biochar—a kind of charcoal created from the byproduct of the Dem-Con HZI project which has the advantage of holding carbon in a relatively stable, solid form that can then be sold for use as fertilizer or an additive to compost.

a. Comments

The Carpenters & the Engineers, CEE, LIUNA, and Shakopee supported Xcel's proposed pilot project.

[11] *See In the Matter of CenterPoint Energy's Natural Gas Innovation Plan*, Docket No. G-008/M-23-215, Order Approving Natural Gas Innovation Plan with Modifications, at 12-13 (October 9, 2024).

CURE and the Department renewed their concerns about whether buying carbon offsets qualifies as an innovative technology. But they also expressed concern that the environmental benefits claimed by the biochar project may already be accounted for as part of the original Dem-Con HZI pilot.

b. Commission Action

As previously discussed, at this early stage of NGIA implementation, the Commission is inclined to approve pilots with reasonable budgets and significant learning potential, such as this one, to avoid missing opportunities to learn about methods to better manage GHGs. That said, CURE and the Department raise legitimate concerns about the prospects of double-counting the carbon offsets generated by the two Dem-Con HZI pilots. To address this concern, the Commission will direct Xcel, in its annual NGIA status reports, to demonstrate that this pilot does not double-count emissions otherwise avoided from the Dem-Con RNG pilot.

7. Carbon Capture Pilot Program—Advanced Methane Leakage Detection

One method to reduce the emission of GHGs is to reduce leaks of natural gas (methane) from distribution systems.

Xcel surveys parts of its distribution system every three years to find leaks. For purposes of its NGIA plan, Xcel proposed to find and acquire advanced methane leakage detection (AMLD) technology, and use it to test portions of Xcel's distribution system in a low- or moderate-income and/or Environmental Justice Area annually. Xcel would measure how conducting more frequent surveys, using more sensitive technology for detecting and measuring leaks, and prioritizing the repair of larger leaks, influences the rate at which Xcel continues to detect leaks and the frequency of customer-reported leaks. While Xcel proposed to recover the cost of this program via its NGIA plan, it noted that it was also pursuing a grant from the US Environmental Protection Agency (EPA) which might offset some of the costs.

a. Comments

Commenters uniformly supported the idea of Xcel using more advanced methods to detect and mitigate leaks.

The sole opposition came from commenters proposing that Xcel forego this pilot and simply implement the technology as part of its regular operations, as CenterPoint has done. According to these commenters, Xcel could then recover the costs via its regular rates or via a mechanism for recovering gas utility infrastructure costs (GUIC) under Minn. Stat. § 216B.1635.

The Department expressed concerns about managing the recovery of this pilot's costs. Should Xcel implement advanced leak detection outside the context of this pilot program, the Department proposed that Xcel remove the cost of this pilot from its NGIA budget. Should Xcel use GUIC, the Department proposed that Xcel forego the opportunity to recover a return on this investment. Should Xcel receive an EPA grant, the Department proposed that Xcel make a filing

explaining how this funding would affect its cost recovery. Finally, the Department recommended that Xcel file, as part of its last annual status report under this plan, a proposal for implementing advanced leak-technology throughout its system, and explain how this pilot influenced or informed that proposal.

Xcel opposed the proposed changes, arguing that a pilot program would be appropriate to evaluate the idea's cost-effectiveness compared to Xcel's existing method for detecting and repairing leaks. But Xcel agreed to make a proposal for expanding the implementation of advanced detection technology as part of its last status report for this NGIA plan. The Carpenters & the Engineers, CEE, and LIUNA supported this accommodation.

b. Commission Action

The Commission shares the enthusiasm of all commenters for Xcel's pursuit of advanced technology for detecting methane leaks. Nevertheless, the Commission sees the merits of pursuing this technology via a pilot program designed to evaluate its cost-effectiveness, so at this stage the Commission will decline to direct Xcel to implement the technology system-wide. That said, the Commission agrees with the various commenters that by the end of this pilot, Xcel should have a proposal ready for full-scale implementation and be able to say how this pilot informed that proposal. Accordingly, the Commission will adopt that recommendation.

Finally, at this stage the Commission does not see the need to treat cost recovery for this pilot differently than for the other pilots, so will decline the various recommendations to do so.

8. Strategic Electrification Pilot Program—Custom Projects for Large Customers

Xcel proposed to provide analytic support—and potentially financial incentives—to non-residential customers that are considering a cost-effective project to switch some operations from using natural gas to using electricity.

Xcel already proposed to offer this kind of service as part of its plan filed pursuant to the Minnesota Energy Conservation and Optimization Act of 2021 (ECO).[12] ECO directs utilities to propose cost-effective projects designed to promote energy conservation and optimization—potentially including projects offering incentives to encourage participation—as well as plans to recover the resulting costs from ratepayers.[13] But Xcel claimed that some of its projects did not qualify for inclusion in its ECO plan, and thus did not qualify for incentive payments, because they would not result in a net reduction of energy consumption. For this pilot program, therefore, Xcel proposed to analyze custom projects designed to reduce GHG emissions, even if the projects would not reduce net energy consumption.

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[12] *See In the Matter of the 2024-2026 Minnesota Electric and Natural Gas Energy Conservation and Optimization Plan*, Docket No. E,G-002/CIP-23-92.

[13] *See generally* Minn. Stat. § 216B.241.

Xcel also acknowledged the need to track expenditures to ensure that the utility did not recover the cost of any project from both ECO and the NGIA.

a. Comments

The CEOs, CUB, and the Department supported this pilot as aligning with Minnesota's environmental and policy goals. The Department agreed with Xcel that some potential projects for large customers would not qualify for inclusion in Xcel's ECO plan, but might be appropriate candidates to include in this pilot program.

But these commenters observed that Xcel's proposal does not present any specific projects to analyze. Noting that the statutory criteria for ECO projects differ somewhat from NGIA projects, the Department recommended that Xcel review its past two ECO plans to identify any project that Xcel rejected because the project failed to demonstrate cost-effectiveness as measured by ECO and file a statement identifying these projects and their potential for reducing GHG emissions.

The Carpenters & the Engineers, CEE, LIUNA, and Xcel opposed the Department's recommendation as unduly burdensome, but offered a compromise: As an addendum to its annual ECO status report, Xcel could provide an informational appendix with high-level information regarding customer projects that did not qualify for incentive payments under ECO in 2024, but that might be eligible for support under this pilot program. For each such project, Xcel would explain why the project did not receive ECO funding and estimate the project's potential for saving energy and avoiding emissions. But Xcel emphasized that these summaries would need to exclude customer-identifying or trade-secret information.

b. Commission Action

The Commission concurs with all commenters that this proposed pilot program reflects the NGIA's intention to seek out creative opportunities for better managing GHGs. Given the lack of specific projects to analyze at this point, the Commission recognizes the Department's desire to develop a quick list of potential projects. Nevertheless, the Commission concludes that the compromise proposal seems well designed to identify promising candidates, and the annual NGIA status reports will provide the Commission with a process to oversee, modify, or even disapprove of any project that Xcel ultimately pursues as part of this pilot. Accordingly, the Commission will approve the pilot with the provisos supported by the Carpenters & the Engineers, CEE, LIUNA, and Xcel.

9. District Energy Pilot Program—Community Ground Source Heat Pump

Heat pumps use electricity to provide space heating (and cooling) using the same technology as a conventional air conditioner to transfer heat from a building's exterior to its interior or vice versa. Where these systems displace gas heating (and/or cooling), they reduce GHG throughput and emissions. Air source heat pumps collect heat from (and discharge heat to) the outside air—but the mechanism loses efficiency for heating when the outside air is cold, or cooling when the outside air is hot. In contrast, ground source heat pumps have the advantage of collecting heat

from (and discharging heat to) the ground, which remains at a relatively constant temperature year-round. But ground source heat pumps have the disadvantage of being more expensive to install.

For this pilot program, Xcel proposed building and operating a ground source heat pump system to serve multiple adjacent customers, thereby permitting economies of scale to bring down the cost for each customer. According to Xcel, on the coldest days these systems can extract heat approximately 2.4 times more efficiently than air-source heat pumps—not only saving energy, but reducing the electric infrastructure needed to meet peak seasonal demand. Xcel expected that the pilot would reduce gas sales and throughput; it would also increase the opportunity for a gas utility to employ its staff—because the skills required to build and maintain a gas distribution system resemble the skills required to build and maintain a district energy system. And because heat pumps operate year-round, they provide an opportunity to generate revenues year-round—an attractive feature for a gas utility.

Xcel proposed soliciting proposals to identify suitable locations, ideally in low-income or environmental justice communities. Xcel considered various ways it could structure the ownership of this pilot—for example, whether the customer or the utility would own the equipment on the customer's site—but noted that the choice of structure could influence how many federal tax credits the pilot might secure.

a. Comments

This proposal met with widespread support, including from the City of Saint Paul and the Geothermal Exchange Organization. CEE recommended that the Commission impose similar reporting requirements on Xcel as the Commission imposed on CenterPoint Energy in the context of approving its NGIA plan. Specifically, CEE recommended that Xcel provide information in its annual NGIA status reports regarding the utility's progress in requesting proposals, and responses to its proposed pilot. These would include how Xcel considered—

- opportunities to install a community ground source heat pump system in a low-income and/or environmental justice area of its system,
- opportunities to install the pilot where Xcel was already planning to replace and/or upgrade its distribution plant,
- engineering and technological perspectives, and
- customer preferences.

Xcel and other commentors supported this proposal.

The Department generally favored Xcel's proposal, but posed a number of questions on technical matters, requested forecasts of costs and benefits, and recommended extensive reporting requirements. The Department also recommended that the Commission direct Xcel to adopt an ownership model that would maximize the opportunity to earn federal tax credits.

The Carpenters & the Engineers, CEE, LIUNA, and Xcel opposed this last recommendation as unduly restrictive. Instead, Xcel proposed adopting additional requirements that the Commission applied to CenterPoint's district energy proposal, generally as follows: If the pilot's proposed system design will cause the pilot's total costs to exceed the plan estimates by more than 10 percent, or if lifetime GHG reductions will be less than 90 percent of what was estimated in the approved plan, Xcel must not implement the pilot until after the utility files the results of its system design in an annual NGIA status report or as a separate filing in the current docket, for Commission review and approval. The pilot's system design results must include at least the following information:

- A description of the geothermal system's characteristics (including assumed heating capacity, location, and lifespan), the type of geothermal technology to be installed, the suitability of the proposed location for the installation, the number and types of buildings to be connected, and the customers that would be served by the system.

- A description of the project's costs, disaggregated into installation, equipment, and operation and maintenance costs, offset by any incentives, rebates, and tax credits assumed to reduce these costs.

- A description of the estimated benefits of the project, including throughput reduction, efficiency gains, load management possibilities, and customer financial benefits.

Finally, while CUB, CURE, and OAG supported the proposal in general, they questioned the need for a $1,140,000 contingency fund. As in the context of the Sherco 5MW Electrolyzer, Xcel argued that the contingency fund was appropriate to address unanticipated cost increases, given the size and novelty of the project.

b. Commission Action

The Commission agrees with commenters that networked geothermal system technology could potentially provide substantial environmental and financial benefits for customers. Accordingly, the Commission will approve the pilot along with the reporting requirements agreed to by Xcel. But the Commission will decline the Department's recommendation to require Xcel to pick the ownership structure that would earn the maximum federal tax credits, instead leaving to Xcel the initial challenge of weighing the goal of maximizing tax credits with other competing goals.

Finally, at this juncture the Commission will approve Xcel's proposal to maintain a contingency fund for this project, reflecting the uncertainties that are inherent in a project of this size and novelty. But to ensure appropriate oversight of these dollars, the Commission will direct Xcel to include in its annual NGIA status reports a discussion of any use of the contingency fund for the community ground-source heat pump pilot, including but not limited to providing evidence of cost increases beyond Xcel's control.

10. Research & Development Projects

Minn. Stat. § 216B.2427, subd. 4(g), provides for utilities to spend up to 10 percent of the anticipated incremental costs related to innovation plans on research & development (R&D). Xcel proposed nine R&D projects, exploring six types of innovative resources, each budgeted for less than $1.5 million over the five-year NGIA term. While Xcel had initially proposed a project exploring the Trane Heating thermal storage for commercial buildings, commenters persuaded the utility to pursue this project as part of its ECO plan. As a result, Xcel replaced that proposal with a proposal to invest $1 million to study retrofitting buildings with continuous exterior insulation.[14]

a. Comments

While commenters generally supported Xcel's proposed R&D projects, two projects—the Carbon Offset Potential study and the Future Utilization Technology Development project—elicited opposition.

In its Carbon Offset Potential Study, Xcel would invest $100,000 in developing a project for land-based carbon sequestration, potentially generating high-quality carbon offsets within Minnesota with ancillary benefits. The Carpenters & the Engineers, CEE, the Department, and LIUNA supported Xcel's proposal. But OAG and St. Paul 350 both opposed the project, questioning the prospects of this project for managing GHGs in the long run.

In its Future Utilization Technology Development project, Xcel would contribute $500,000 to become a member with other utilities in an organization financing a broad portfolio of R&D programs. The Carpenters & the Engineers, CEE, and LIUNA supported the proposal. But CUB, CURE, and OAG opposed this project, finding Xcel's rationale for joining this endeavor to be vague. In addition, OAG noted that the $500,000 budget would pay for only two years of membership; Xcel acknowledged that it might later seek additional funding to maintain its membership.

b. Commission Action

The Commission concurs with commenters that most of Xcel's R&D proposals will finance promising avenues of investigation with viable prospects for finding new or refined methods for managing GHGs. The Commission is persuaded that these projects are designed to yield useful information about innovative resources and provide further insights into how Xcel might decarbonize its natural gas service. In particular, the Commission affirms Xcel's choice to defer an analysis of Trane Heating thermal storage for commercial buildings, and to instead pursue a study of retrofitting buildings with continuous exterior insulation.

[14] *See* Xcel Reply Comments, Attachment A (September 26, 2024).

That said, the Commission will decline to approve Xcel's Carbon Offset Project study and Xcel's Future Utilization Technology Development project. The Commission concurs with commenters that the costs of these endeavors do not seem commensurate with the articulated benefits.

11. Supplemental Pilot Programs

As a result of decisions made throughout this order, the Commission has eliminated $6,660,699 from Xcel's proposed NGIA plan.

a. Comments

Rather than reducing the size of Xcel's NGIA plan, the CEOs recommended that Xcel reallocate these funds into additional pilot programs—including some that Xcel had outlined, but ultimately rejected, as set forth in its initial application, Exhibit D. These included the following:

- A "Deep Energy Retrofits" pilot, designed to enable residences to make optimal use of heat pumps, with an emphasis on aiding low- and moderate-income residences.

- A "Residential Thermal Storage for Heating Peaks" pilot to test the Sunamp thermal battery—designed to provide heat during the coldest days of the year to supplement the heat provided by air source heat pumps—in a few customer homes and perhaps even in a lab.

- A pilot promoting both air-source heat pumps and thermal energy storage for residential customers.

b. Commission Action

The Commission agrees with the CEOs that reducing the size of Xcel's plan by $6,660,699 would cause Xcel's plan to be substantially smaller than provided for in the NGIA, and result in lost opportunities to explore innovative ways to manage the use of natural gas. Instead of taking this path, the Commission will direct Xcel, within the next 60 days, to meet with stakeholders to develop proposals for two additional pilot programs to be implemented with its first NGIA plan.

Specifically, the Commission will direct Xcel to propose a pilot for strategic electrification, building envelope, energy efficiency and/or deep weatherization for low-income customers in Xcel's gas service territory similar to the proposals offered by the CEOs as described above. Xcel must consider using census data on income and poverty rates, as well as internal data on energy bills, to identify low- and moderate-income customers who may benefit from this pilot. The budget for this proposal should be at least $4,660,699.

The Commission will also direct Xcel to propose a pilot for commercial customers using air-source heat pumps and thermal storage, such as the plan Xcel set forth in its petition, Exhibit D. The budget for this proposal should not exceed $2 million.

To facilitate implementation, the Commission will authorize its Executive Secretary to take procedural steps in response to Xcel's proposals. Specifically, the Executive Secretary will have authority to solicit comments on whether Xcel should implement the new pilots as proposed. If no one files an objection within 30 days of Xcel's filing, the Executive Secretary may issue a notice approving the pilots; otherwise, the Executive Secretary may solicit additional comments to consider the merits of the new pilot proposal(s).

C. Job Creation

In its initial filing, Xcel stated that its NGIA plan would promote the development and training of Minnesota's workforce to address new energy resources. Specifically, Xcel initially estimated that its plan would generate 417 one-year, full-time jobs equivalents in the state—but acknowledged that changes to the plan would alter this estimate. LIUNA proposed that Xcel make various commitments to maximize the creation of high-quality jobs and registered apprenticeship opportunities for residents of communities served by Xcel and "local workers" as defined in Minn. Stat. § 216B.2422, subd. 1(h). This proposal met with unanimous support. The Commission will adopt LIUNA's proposal as set forth in the ordering paragraphs.

D. Budget Flexibility

Xcel asked for authorization to spend up to 25 percent more or less than the Commission-approved budget on any given program or project without further Commission review, provided that no increase would cause the plan as a whole to exceed the statutory limit or violate any other requirement. CUB, CURE, the Department, and OAG opposed the initial proposal. But they joined Xcel, the Carpenters & the Engineers, CEE, and LIUNA in supporting, or at least not opposing, the proposal subject to conditions similar to those adopted for CenterPoint Energy's NGIA plan—but with one point of contention.

One condition would require Xcel to notify the Department and the OAG whenever it would exercise budget flexibility outside the annual review process, giving these commenters 30 days to decide whether to refer the matter for Commission action. To accelerate decision-making, Xcel asked to reduce the review period from 30 days to 10. CUB, CURE, the Department, and OAG opposed this change.

The Commission finds that 10 days would provide insufficient time to permit the Department and OAG to review Xcel's proposal to modify the budget for its NGIA plan. Accordingly, the Commission will approve Xcel's request for budget flexibility subject to list of conditions set forth in the Order Paragraphs, including a condition directing Xcel to wait at least 30 days before exercising its discretion to alter the budgets for its NGIA projects.

E. Cost-Effectiveness Objectives

The NGIA directs the Commission to establish cost-effectiveness objectives for innovation plans based on the cost-benefit test for innovative resources developed in the Commission's

Frameworks Order.[15] If the Commission finds that the utility has successfully achieved its cost-effectiveness objectives, the utility may be able to increase its NGIA budget for its next innovation plan.

Xcel organized its cost-effectiveness objectives into the four categories—perspectives, environment, socioeconomic, and innovation—set forth in the Commission's Frameworks Order, as follows:

Perspectives:

- The overall portfolio of NGIA projects proposed would achieve GHG savings at a cost of $200 per ton (+/- 20 percent). For this objective, Xcel calculated GHG savings on a lifetime basis, and calculated costs on a lifetime basis using the Utility Cost Test. Xcel recommended using the Utility Cost Test to account for benefits from incentives from the federal Inflation Reduction Act (IRA).

Environment:

- The plan would reduce overall lifecycle GHG emissions by 790,000 tons (+/- 20 percent).
- By experimenting with resources that will play a growing role over time, the plan would make reasonable progress toward achieving the state's target of net zero GHG emissions by 2050.

Socioeconomic:

- The plan would enhance equity for low- and moderate-income, disadvantaged, and/or Environmental Justice Areas through direct investments in and inclusion of these communities in various projects.
- The plan would support workforce development, job training, and economic development—including meeting the prevailing wage and apprenticeship requirements for projects applying for incentives under the IRA.

Innovation:

- The plan would include projects in all eight of the NGIA's innovative resource categories, and would provide for reporting on how the lessons learned from the projects contribute to future progress.
- The plan would support the development of new sources of low-carbon fuels produced in Minnesota—for example, anaerobic digesters that produce renewable natural gas from feedstocks such as livestock manure, municipal solid waste, or landfill gas.
- The plan would support the development of strategic electrification and district energy projects with innovative technologies extended to industrial, commercial, and residential customers.
- The plan would support emerging technologies through R&D projects that have the potential to contribute to deeper emissions reductions when extended to a broader range of customers.

[15] Minn. Stat. § 216B.2427, subd. 2(e).

For determining whether Xcel has achieved these objectives, the utility asked the Commission to evaluate its performance holistically, given that any effort to maximize the achievement of one objective may impede its pursuit of other objectives.

1. Comments

The Carpenters & the Engineers, CEE, and LIUNA supported Xcel's proposal.

The Department recommended that Xcel re-file its objectives to be more general and applicable to its entire range of programs and projects. The Department objected that many of Xcel's cost-effectiveness objectives are qualitative goals that require no specific outcomes; Xcel achieves them simply by including certain types of programs and projects in its plan. In response, Xcel argued that aspects of the NGIA cannot be evaluated on a quantitative basis, and that the Commission is capable of evaluating Xcel's plan using both quantitative and qualitative considerations.

CUB, CURE, the Department, and OAG supported Xcel's recommendation that the Commission evaluate the cost-effectiveness of an NGIA plan on a holistic basis, acknowledging that the range of projects being pursued will likely generate a range of outcomes. But to support that judgment, these commenters recommended that Xcel report results granularly—providing data on cost-effectiveness and emissions reductions for each pilot for each year of the plan. In particular, they recommended rejecting Xcel's proposal to evaluate its performance based on whether it achieved its goals within a margin of error of 20 percent.

2. Commission Action

In general, the Commission finds that Xcel has adequately fulfilled its obligation to set forth cost-effectiveness objectives. At this early stage of implementing the NGIA, it is only appropriate that the Commission would evaluate a utility's objectives on a holistic basis, as it did when evaluating CenterPoint Energy's NGIA plan. Accordingly, the Commission will approve Xcel's objectives for evaluating cost-effectiveness, albeit with the following modifications and clarifications.

First, the Commission will direct Xcel, in its annual NGIA status reports, to provide disaggregated data—that is, data on the cost-effectiveness and emissions reductions for each pilot for each year.

Second, the Commission will modify Xcel's "perspectives" objective to remove the +/- 20 percent margin. The Commission did not grant this degree of leeway in the context of CenterPoint Energy's NGIA plan, and finds no reason to require it here. The Commission's choice to evaluate the cost-effectiveness of Xcel's plan on a holistic basis should obviate the need for maintaining a margin of error regarding individual measures of performance.

Third, the Commission will direct Xcel to measure the cost-effectiveness of programs based on both the Utility Cost Test and the Societal Cost Test. Where the Utility Cost Test measures whether a program's cost to the utility exceeds its benefits to the utility, the Societal Cost Test measures whether a program's cost to society exceeds its benefits to society. The Societal Cost

Test takes into account a broader range of considerations and so, when considered along with the Utility Cost Test, will provide a broader range of insights.

Fourth, for all future NGIA plans and any reports on the cost-effectiveness of those plans, the Commission will direct Xcel to file data indicating its targeted GHG emissions and its total GHG emissions by year for the prior five years. This historical data will provide appropriate perspective for evaluating future decisions.

Fifth, commenters observed that Minn. Stat. § 216B.2427, subd. 10, requires that a utility's NGIA plan materially reduce the amount of geologic natural gas delivered to the utility's customers. Accordingly, the Commission will direct Xcel to incorporate an assessment of a plan's consequences for throughput of geologic natural gas.

Sixth, in evaluating how its NGIA plan cost-effectively promotes innovation, Xcel remarked that the plan supports emerging technologies through R&D projects that could contribute to deeper emissions reductions when scaled across industrial, commercial, and residential customers. The Commission will approve this language—but will add that a plan should also report on how the lessons learned from using innovative resources contribute to the utility scaling up its portfolio of innovative resources, and report on the role of these resources in achieving zero net emissions throughout the utility's system.

Finally, as with CenterPoint Energy, the Commission will direct Xcel to file revised cost-effectiveness objectives reflecting the changes set forth herein within 30 days. If no one files opposition to these objectives within 30 days of Xcel's compliance filing, the objectives will take effect. If anyone files comments raising contested issues, the Commission will solicit comments and address the matter at a future agenda meeting.

F. Summary

In evaluating Xcel's NGIA plan, the Commission has considered the plan's costs and benefits to Xcel's system, to participating customers, to non-participating customers, and to other energy systems serving Minnesota customers. The Commission has also considered the environmental and socioeconomic costs and benefits that would result directly from the plan, and the benefits of the plan for promoting energy resource innovation in the state. On this basis, and consistent with the Commission's Frameworks Order, the Commission finds that the expected qualitative and quantitative benefits of Xcel's NGIA plan as modified are greater in total than the expected quantitative and qualitative costs of the plan in total. In particular, the Commission finds as follows:

- The size, scope, and scale of the plan produces net benefits under the Commission's cost-benefit framework.

- The plan promotes the use of renewable energy resources and reduces or avoids GHG emissions while remaining at or below the cost cap set by the NGIA.

- The plan promotes local economic development.

- The innovative resources included in the plan have a lower lifecycle GHG intensity than natural gas produced from conventional geologic sources.

- 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.

- The costs and revenues projected under the plan are reasonable in comparison to other innovative resources the utility could deploy to reduce GHG emissions, considering other benefits of the innovative resources included in the plan.

- The total amount of estimated GHG emissions reduced or avoided under the plan is reasonable considering the state's GHG and renewable energy goals, customer cost, and the total amount of GHG emissions reduced or avoided under the utility's previously approved plans, if applicable.

- Any renewable natural gas purchased by a utility under the plan that is procured from the anaerobic digestion of manure is certified as being produced at an agricultural livestock production facility that has not and does not increase the number of animal units at the facility solely or primarily to produce renewable natural gas for the plan.

- At least half of the utility's costs approved by the Commission for recovery under the plan are for the procurement and distribution of renewable natural gas, biogas, hydrogen produced via power-to-hydrogen, and ammonia produced via power to ammonia.

- The budget for Xcel's proposed district energy program does not exceed 20 percent of the total costs approved by the Commission for recovery under the plan.

Accordingly, the Commission is persuaded that Xcel's innovation plan should be approved—including proposed pilots and R&D projects—as modified in this order. Decarbonizing the natural gas sector requires a different approach than decarbonizing the electricity sector, and Xcel has crafted a plan that uses innovative resources to reduce GHG emissions and natural gas throughput. The plan marks an important first step in an iterative process in which Xcel and its stakeholders learn the most effective way to implement these resources. Xcel's plan is consistent with the NGIA and relevant Commission orders, and the Commission finds that the plan meets the criteria set forth at Minn. Stat. § 216B.2427, subd. 2(b).

When reviewing Xcel's innovation plan, the Commission was particularly mindful of the following considerations.

First, the NGIA encourages utilities to learn. Utilities with innovation plans must implement innovative resources, some of which they may not have much, or any, experience using. As utilities learn what works and what does not, they will become better positioned to develop programs that more effectively contribute to meeting Minnesota's GHG and renewable energy goals.

Second, approval of Xcel's innovation plan does not set the plan in stone. The NGIA requires a utility to file annual reports on various aspects of an approved plan, such as costs incurred, reductions or avoidance of GHG emissions, and the economic impact of the plan, among others.[16] When evaluating such reports, the Commission has the authority to make modifications or even to disapprove the continuation of a pilot program or plan.[17] The Commission's review will provide a check on Xcel's implementation of its plan and help ensure that only useful projects continue.

Third, to recover costs under its plan, Xcel must demonstrate to the satisfaction of the Commission that the costs it incurs are reasonable.[18] This requirement helps protect ratepayers and incentivizes Xcel to be prudent when incurring costs.

With these considerations in mind, the Commission is confident that Xcel's plan will help Minnesota move closer to achieving its GHG and renewable energy goals. The Commission appreciates Xcel's effort in developing its first innovation plan under the NGIA, and the stakeholders' involvement in the process. To add further clarity, the ordering paragraphs will set forth details concerning Xcel's reporting requirements, annual status reports, and future NGIA plans; budget flexibility; job creation; cost recovery; and programs to be referred to Xcel's ECO plan.

ORDER

Plan Approval or Modification

1. The Commission approves the portfolio of pilot programs and research & development projects proposed by Northern States Power Company d/b/a Xcel Energy in its first Natural Gas Innovation Act plan, including the proposed plan's budget, as modified below.

Budget Rule

2. For purposes of establishing a budget for Xcel's first NGIA plan, Xcel must exclude any costs attributable to any pilot program (such as Xcel's Sauk Center pilot) after the

[16] Minn. Stat. § 216B.2427, subd. 2(f).

[17] Minn. Stat. § 216B.2427, subd. 2(g).

[18] Minn. Stat. § 216B.2427, subd. 2(c).

program's first five years. If Xcel includes the program in subsequent NGIA plans, Xcel must include the subsequent costs in the budgets of those subsequent plans.

RNG Pilot Program—Amp-Swift

3. The Commission approves a $3.51 million budget for Xcel's Amp-Swift pilot program to generate renewable natural gas.

RNG Pilot Program—Pine Bend

4. The Commission approves a $2.4 million budget for Xcel's Pine Bend pilot program.

5. In its final status report for this NGIA plan, Xcel must use the lessons learned from the Pine Bend pilot to develop a competitive bidding process for delivery of renewable natural gas onto its distribution system and acquisition of the environmental attributes for use in future pilots or utility service to be included in base rates.

Hydrogen Pilot Program—Sherburne County Five-Megawatt

6. Within 30 days, Xcel must file an explanation detailing the steps it has taken and will take to mitigate the risk of a stranded asset for its Sherco 5MW pilot, and how it would propose to manage cost recovery for this asset if the industrial customer were to withdraw before Xcel had fully recovered the asset's costs.

7. Xcel must not proceed with its Sherco 5MW pilot program until after Xcel has received approval of this filing. The Commission delegates authority to its Executive Secretary to approve the filing in the event that no party raises an objection to Xcel's proposal within 60 days after Xcel files it.

8. If Xcel proceeds with its Sherco 5MW pilot,

   A. Xcel must file an affiliate interest arrangement in a new docket.

   B. Xcel must not seek to recover the cost of its Sherco 5MW pilot from residential or small commercial customers.

   C. Within 30 days, Xcel must file a revised budget with corrected assumptions regarding the Production Tax Credit. The Commission will delegate authority to the Executive Secretary to open a comment period following the filing and, if no one files an objection, to approve the updated budget 60 days thereafter.

   D. In its annual NGIA status reports, Xcel must discuss any use of the $2,078,100 contingency fund for the Sherco 5MW pilot, including but not limited to providing evidence of cost increases beyond Xcel's control.

Carbon Capture Pilot Program—Trees

9. The Commission declines to approve the Improved Forest Management pilot from the Indian Land Tenure Foundation for inclusion in Xcel's NGIA plan.

10. The Commission sets the budget for Xcel's Green Cities Accord pilot at $329,301, to be invested solely for the promotion and maintenance of trees planted within the service territory of Xcel's gas utility.

11. Xcel must do the following:

    A. Provide ongoing verification in its annual NGIA status reports that the trees planted under this program are being maintained—including an account of how many trees were lost and replanted—to the extent Green Cities Accord provides this information and in the years when Green Cities Accord's annual reporting to its credit verification registry requires such an accounting.

    B. Diligently seek to verify the accuracy of the carbon credits generated by this pilot—including, but not limited to, closely monitoring any audits or litigation of the entity verifying the carbon credits that may put in question whether the credits being reported are accurate—and, in its annual NGIA status report, report its findings and provide a thorough discussion of any lessons learned regarding its ongoing verifications and credit monitoring.

Carbon Capture Pilot Program—Dem-Con HZI Biochar

12. In its annual NGIA status report, Xcel must demonstrate that this pilot does not double-count emissions otherwise avoided from the Dem-Con Renewable Natural Gas pilot.

Carbon Capture Pilot Program—Advanced Methane Leakage Detection (AMLD)

13. In its final NGIA status report for this NGIA plan, Xcel must file plans to deploy AMLD system-wide, and explain how its AMLD pilot results influenced or informed these plans.

Strategic Electrification Pilot Program—Custom Projects for Large Customers

14. As an addendum to its 2024 status report filed under the Minnesota Energy Conservation and Optimization Act of 2021 (ECO), Xcel must provide an informational appendix with high-level information regarding customer projects which did not receive an incentive under ECO in 2024, but which might have been eligible for support under the Custom Projects for Large Customers pilot. For each such project, Xcel must explain why the project did not receive ECO funding and estimate the project's potential for saving energy and avoiding emissions. Xcel must not include customer-identifying or trade secret information in the project summaries.

District Energy Pilot Program—
Community Ground Source Heat Pump (CGSHP)

15. If Xcel's system design for the CGSHP pilot indicates that the pilot's total costs will exceed plan estimates by more than 10 percent or lifetime GHG reductions will be less than 90 percent of what was estimated in the approved plan, Xcel must not implement the pilot until after Xcel files the results of its system design in an annual NGIA status report, or as a separate filing in the current docket, for Commission review and approval. The CGSHP pilot's system design results must include at least the following information:

    A. A description of the geothermal system's characteristics (including assumed heating capacity, location, and lifespan), the type of geothermal technology to be installed, the suitability of the proposed location for the installation, the number and types of buildings to be connected, and the customers that would be served by the system.

    B. A description of the project costs, disaggregated into installation, equipment, and operation and maintenance costs, offset by any incentives, rebates, and tax credits assumed to reduce these costs.

    C. A description of the estimated benefits of the project, including throughput reduction, efficiency gains, load management possibilities, and customer financial benefits.

16. In its annual NGIA status reports, Xcel must provide information and updates on its progress requesting proposals, and responses for its proposed CGSHP pilot, including how Xcel considered opportunities to install a community ground source heat pump system in a low-income and/or environmental justice area of its system with upcoming pipe replacements and upgrades, along with other considerations including the suitability of sites from an engineering and technological perspective and customer preferences.

17. In its annual NGIA status reports, Xcel must discuss any use of the $1,140,000 contingency fund for the Community Ground Source Heat Pump pilot, including but not limited to providing evidence of cost increases beyond Xcel's control.

Supplemental Pilot Programs

18. Xcel must propose new pilots using the $6,660,699 eliminated from Xcel's proposed plan.

    A. Xcel must meet with stakeholders before submitting its new pilot proposals.

    B. Within 60 days, Xcel must propose supplemental pilot programs as follows:

        1) A pilot for strategic electrification, building envelope, energy efficiency and/or deep weatherization for low-income customers in Xcel's gas service territory similar to the proposals by the CEOs discussed above. Xcel must consider using census data on income and poverty rates, as well as internal data on energy bills,

to identify low- and moderate-income customers who may benefit from this pilot. The budget must be at least $4,660,699.

2) A pilot for commercial customers using air-source heat pumps and thermal storage, such as what Xcel set forth in its petition, Exhibit D, with a budget of up to $2 million.

C. The Commission delegates to the Executive Secretary authority to do the following:

1) Issue a notice for a 30-day negative check-off period.

2) If no one files an objection within 30 days of Xcel's filing, issue a notice approving the pilots.

3) If someone files an objection within 30 days of Xcel's filing, solicit additional comments to consider the merits of the new pilot proposal(s).

Research & Development Projects

19. The Commission rejects Xcel's Carbon Offset Project Study and Xcel's Future Utilization Technology Development Project.

20. The Commission approves Xcel's proposed Continuous Exterior Insulation Retrofit R&D project, as described in Xcel's Reply Comments, Attachment A (September 26, 2024), with a budget of $1 million.

Job Creation

21. In its annual NGIA status reports, Xcel must provide evidence demonstrating that its Dem-Con HZI and Dem-Con HZI Biochar pilots will maximize the creation of high-quality jobs and registered apprenticeship opportunities for residents of communities served by Xcel and "local workers" as defined in Minn. Stat. § 216B.2422, subd. 1(h).

22. Xcel must employ contractors to build the hydrogen electrolyzer and community ground source heat pump proposed in its NGIA plan and commit to maximizing the creation of high-quality jobs and registered apprenticeship opportunities for residents of communities served by Xcel and "local workers" as defined in Minn. Stat. § 216B.2422, subd. 1(h).

23. Xcel must encourage large customers that participate in energy efficiency and electrification pilots to employ contractors that maximize the creation of high-quality jobs and registered apprenticeship opportunities for residents of communities served by

Xcel and "local workers" as defined in Minn. Stat. § 216B.2422, subd. 1(h), and prioritize financial support for participants that commit to do so.

24. Xcel must report, as feasible, on the creation of high-quality jobs and registered apprenticeship opportunities for residents of communities served by Xcel and "local workers" as defined in Minn. Stat. § 216B.2422, subd. 1(h), for existing renewable natural gas facilities that will be utilized by a pilot (e.g., Amp-Swift, Pine Bend).

Public Accountability

25. Xcel must add a layer of data in its Minnesota Service Quality map for natural gas service showing where NGIA investments have been made.

Additional Reporting Requirements

26. Xcel must explicitly state learning objectives for each pilot project.

27. Xcel must track and report energy consumption for each pilot to the extent feasible.

28. In its annual NGIA status reports, Xcel must track water consumption for the Sherco 5MW pilot.

29. At the end of the NGIA plan's five-year term, Xcel must conclude each pilot with a public-facing summary that includes, at a minimum, a pilot summary, the initial learning objectives of the pilot, the lessons learned, quantitative and qualitative pilot results, and a narrative discussing how the pilot will influence Xcel's future NGIA plans or ECO filings—including why Xcel may or may not pursue similar efforts in the future.

Cost Recovery Proposal

30. The Commission approves Xcel's proposal for recovering its NGIA plan costs—including Xcel's forecasted rider rate to recover the cost of developing the NGIA plan forecasted expenses during 2025.

31. Within 10 days, Xcel must file an updated tariff and tracker in this docket, accounting for the modifications to Xcel's NGIA plan.

Cost Effectiveness Objectives

32. The Commission approves Xcel's proposed Cost Effectiveness Objectives as modified by this order:

    A. In its annual NGIA status reports, Xcel must provide data on the cost-effectiveness and emissions reductions for each pilot each year.

B. Within 30 days, Xcel must file updated cost-effectiveness objectives. If no party files opposition to these objectives within 30 days of Xcel's compliance filing, the cost-effectiveness objectives will take effect. If anyone files comments raising contested issues, the Commission will solicit comments and address the matter at an agenda meeting.

Objective Modifications—"Perspectives" Objectives

C. The Commission modifies Xcel's first cost-effectiveness objective under the "perspectives" category to remove the +/- 20 percent margin.

D. The Commission modifies Xcel's "perspectives" objective to require Xcel to measure costs using both the Utility Cost Test and the Societal Cost Test.

Objective Modifications—"Environmental" Objectives

E. In all future NGIA plans and any reports on the cost-effectiveness of those plans, Xcel must file data indicating its targeted greenhouse gas emissions and its total greenhouse gas emissions by year for the last five years.

F. Xcel must include the following cost-effectiveness objective that supports the NGIA's throughput goal (Minn. Stat. § 216B.2427, subd. 10):

> The plan as a whole achieves material reductions to the overall amount of natural gas produced from geologic sources delivered to Xcel customers compared to the amount that would have been delivered absent Xcel's NGIA plan.

Objective Modifications—"Innovation" Objectives

G. The Commission modifies Xcel's fourth cost-effectiveness objective under the "innovation" category of objectives as follows:

> The Plan supports emerging technologies through R&D projects that could contribute to deeper emissions reductions when scaled across industrial, commercial, and residential customer classes, and reporting on how learnings contribute to scaling of portfolio of innovative resources and their role in a net-zero natural gas system.

Proposed Plan for Filing Annual Status Reports

33. The Commission approves Xcel's plan for filing its annual status reports.

34. Xcel must propose reporting requirements for its NGIA plan's annual status reports.

A. The list of proposed reporting requirements must include content required by the NGIA and relevant Commission orders, and must clearly articulate the information to be provided for each pilot and research & development project (including updates on progress, project results, project cost and budget impacts, and relevant updates to cost-benefit metrics using project data), and for the plan in aggregate.

B. Xcel must file its proposal within 30 days—or earlier as a joint filing with relevant stakeholders in this docket, including the Department. If no one files opposition to the proposal within 30 days of Xcel's filing, the reporting requirements will be approved. If anyone files an objection, the Commission will solicit comments and address the matter at a subsequent agenda meeting.

C. Xcel must offer revised reporting requirements when proposing new or modified pilots and/or research & development projects. The Commission delegates authority to its Executive Secretary to review and approve the revised reporting requirements consistent with decisions made in this and subsequent NGIA-related dockets.

D. In its future NGIA plans, Xcel must file a similar list of reporting requirements for NGIA annual status reports.

Referral to ECO

35. Xcel must consider, and discuss with the Department and interested stakeholders, the potential inclusion of the projects and project types recommended by the CEOs for possible inclusion in Xcel's 2024-2026 ECO Triennial portfolio or the 2027-2029 ECO Triennial Filing, expected to be filed by June 1, 2026. The Department will subsequently file in this docket a summary of these discussions and the actions agreed upon to implement these projects.

36. Within 60 days, Xcel must meet with Department ECO staff and interested stakeholders to discuss the suitability of an All-Electric Residential New Build project modeled after Xcel's initiative in its Colorado Clean Heat Plan as a proposed update to its 2024-2026 ECO Triennial plan or for inclusion in its 2027-2029 ECO Triennial plan. The Department will subsequently file in this docket a summary of these discussions and what actions were decided upon to implement these projects.

Budget Flexibility

37. The Commission approves Xcel's request for additional budget flexibility with the following restrictions:

A. Xcel must adhere to the approved budget until the third year of its NGIA plan in order to provide sufficient time for pilots to reach maturity and enroll participants.

B. Xcel must use existing reserve funding before exercising budget flexibility.

C. Xcel must not use budget flexibility in a manner that would do the following:

1) Exceed its approved budget for the full NGIA plan.

2) Alter any pilot's budget within the first two years of the NGIA plan.

3) Remove more than 25% of a pilot's approved five-year budget.

4) Remove any of the five-year approved budget of any pilot that is achieving plan expectations in terms of total lifecycle GHG emissions reductions at a cost equal to or less than estimated in the plan at the time the budget flexibility is used.

5) Reduce the budget for any one of the five pilot categories listed below and use those funds for a different category:
   - Renewable natural gas
   - Biogas
   - Hydrogen produced via power-to-hydrogen
   - Ammonia produced from power-to-ammonia
   - Other investments

D. Any proposal to increase spending on any pilot or project by more than 25 percent of its approved five-year budget must go through the annual review process. For any pilot not achieving quantitative or qualitative expectations, Xcel must identify any avenues that could be taken to increase enrollment or improve performance of the pilot, and explain why these options are not reasonable.

E. Whenever Xcel exercises budget flexibility outside the annual review process, Xcel must first notify the Department and an Assistant Attorney General in the Residential Utilities Division. If no written response is received from the Department or an Assistant Attorney General in the Residential Utilities Division within 30 days, Xcel may exercise its budget flexibility subject to the modified terms. If either the Department or an Assistant Attorney General in the Residential Utilities Division objects to the use of budget flexibility, Xcel must 1) petition the Commission in this docket seeking authorization for the revised budget, or 2) pursue the revised budget through the annual review filings.

F. When Xcel modifies the budget for any pilot, Xcel must explain in its annual filing why it did so and include an analysis of pilot performance that reflects both participation levels and realized cost-effectiveness.

G. The way Xcel recovers the costs of the plan from ratepayers must include a mechanism to adjust rates, ensuring that the costs recovered from each class of customer reflects the actual spending allocated to that customer class.

38. Within 60 days and in its annual status reports, Xcel must provide an update on the impacts to its pilots and/or R&D pilot budgets resulting from federal action. Such updates should include, at a minimum, anticipated impacts on Inflation Reduction Act or other federal funding resulting from the following:

    A. Executive orders
    B. Reduced federal grants or loan guarantees
    C. Changes in the availability or anticipated availability of federal tax credits (including but not limited to, production tax credits for hydrogen)
    D. Changes in federal tax interpretations
    E. Changes in litigation positions or failures to defend legal challenges by the Department of Justice or any federal agency related to the IRA or other federal laws that directly affect the funding of Xcel's pilots
    F. Court rulings that affect Minnesota or otherwise result in a change to IRA or federal funding opportunities

39. This order shall become effective immediately.

BY ORDER OF THE COMMISSION

Will Seuffert
Executive Secretary

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CERTIFICATE OF SERVICE

I, Anne Redmond, hereby certify that I have this day, served a true and correct copy of the following document to all persons at the addresses indicated below or on the attached list by electronic filing, electronic mail, courier, interoffice mail or by depositing the same enveloped with postage paid in the United States mail at St. Paul, Minnesota.

Minnesota Public Utilities Commission
ORDER APPROVING NATURAL GAS INNOVATION PLAN WITH MODIFICATIONS

Docket Number **G-002/M-23-518**
Dated this 16th day of May, 2025

/s/ Anne Redmond

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85	Emily	Marshall	emarshall@lourismarshall.com	Miller O'Brien Jensen, PA		120 S. 6th Street Suite 2400 Minneapolis MN, 55402 United States	Electronic Service		No	23-518Official
86	Nicholas	Martin	nicholas.f.martin@xcelenergy.com	Xcel Energy		414 Nicollet Mall 7th floor Minneapolis MN, 55401 United States	Electronic Service		No	23-518Official
87	Linda	Martinez	lmartinez@auri.org	Agricultural Utilization Research Institute		null null, null United States	Electronic Service		No	23-518Official

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88	Mary	Martinka	mary.a.martinka@xcelenergy.com	Xcel Energy Inc		414 Nicollet Mall 7th Floor Minneapolis MN, 55401 United States	Electronic Service		No	23-518Official
89	Daryl	Maxwell	dmaxwell@hydro.mb.ca	Manitoba Hydro		360 Portage Ave FL 16 PO Box 815, Station Main Winnipeg MB, R3C 2P4 Canada	Electronic Service		No	23-518Official
90	Taylor	McNair	taylor@gridlab.org			668 Capp Street San Francisco CA, 94110 United States	Electronic Service		No	23-518Official
91	Sarah	Mead	sarah.mead@wecenergygroup.com	MERC		null null, null United States	Electronic Service		No	23-518Official
92	Matthew	Melewski	matthew@theboutiquefirm.com	Nokomis Energy LLC & Ole Solar LLC		2639 Nicollet Ave Ste 200 Minneapolis MN, 55408 United States	Electronic Service		No	23-518Official
93	Joseph	Meyer	joseph.meyer@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	Bremer Tower, Suite 1400 445 Minnesota Street St Paul MN, 55101-2131 United States	Electronic Service		No	23-518Official
94	Ana Sophia	Mifsud	amifsud@rmi.org	Rocky Mountain Institute (RMI)		null null, null United States	Electronic Service		No	23-518Official
95	Stacy	Miller	stacy.miller@minneapolismn.gov	City of Minneapolis		350 S. 5th Street Room M 301 Minneapolis MN, 55415 United States	Electronic Service		No	23-518Official
96	David	Moeller	dmoeller@allete.com	Minnesota Power			Electronic Service		No	23-518Official
97	Tena	Monson	tmonson@cityofardenhills.org	City of Arden Hills		1245 West Highway 96 Arden Hills MN, 55112 United States	Electronic Service		No	23-518Official
98	Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP		33 South Sixth St Ste 4200 Minneapolis MN, 55402 United States	Electronic Service		No	23-518Official
99	Evan	Mulholland	emulholland@mncenter.org	Minnesota Center for Environmental Advocacy		1919 University Ave W Ste 515 Saint Paul MN, 55101 United States	Electronic Service		No	23-518Official
100	Alan	Muller	alan@greendel.org	Energy & Environmental Consulting		1110 West Avenue Red Wing MN, 55066 United States	Electronic Service		No	23-518Official
101	Carl	Nelson	cnelson@mncee.org	Center for Energy and Environment		212 3rd Ave N Ste 560 Minneapolis MN, 55401 United States	Electronic Service		No	23-518Official
102	David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency		220 South Sixth Street Suite 1300 Minneapolis MN, 55402 United States	Electronic Service		No	23-518Official
103	Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light		200 1st Street SE PO Box	Electronic Service		No	23-518Official

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
				Company		351 Cedar Rapids IA, 52406-0351 United States				
104	M. William	O'Brien	bobrien@mojlaw.com	Miller O'Brien Jensen, P.A.		120 S 6th St Ste 2400 Minneapolis MN, 55402 United States	Electronic Service		No	23-518Official
105	Ric	O'Connell	ric@gridlab.org	GridLab		2120 University Ave Berkeley CA, 94704 United States	Electronic Service		No	23-518Official
106	Logan	O'Grady	logrady@mnseia.org	Minnesota Solar Energy Industries Association		2288 University Ave W St. Paul MN, 55114 United States	Electronic Service		No	23-518Official
107	Carol A.	Overland	overland@legalectric.org	Legalectric - Overland Law Office		1110 West Avenue Red Wing MN, 55066 United States	Electronic Service		No	23-518Official
108	Greg	Palmer	gpalmer@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	23-518Official
109	Jessica	Palmer Denig	jessica.palmer-denig@state.mn.us		Office of Administrative Hearings	600 Robert St N PO Box 64620 St. Paul MN, 55164 United States	Electronic Service		No	23-518Official
110	Antonio	Parisi	aparisi@sacyr.com	Sacyr Environment USA LLC		3330 Washington Blvd Ste 400 Arlington VA, 22201 United States	Electronic Service		No	23-518Official
111	Audrey	Partridge	audrey.peer@centerpointenergy.com	CenterPoint Energy Minnesota Gas		212 3rd Ave. N. Suite 560 Minneapolis MN, 55401 United States	Electronic Service		No	23-518Official
112	Dean	Pawlowski	dpawlowski@otpco.com	Otter Tail Power Company		PO Box 496 215 S. Cascade St. Fergus Falls MN, 56537-0496 United States	Electronic Service		No	23-518Official
113	Catherine	Phillips	catherine.phillips@wecenergygroup.com	Minnesota Energy Resources		231 West Michigan St Milwaukee WI, 53203 United States	Electronic Service		No	23-518Official
114	J.	Porter	greg.porter@nngco.com	Northern Natural Gas Company		1111 South 103rd St Omaha NE, 68124 United States	Electronic Service		No	23-518Official
115	Kevin	Pranis	kpranis@liunagroc.com	Laborers' District Council of MN and ND		81 E Little Canada Road St. Paul MN, 55117 United States	Electronic Service		No	23-518Official
116	Victoria	Reinhardt	victoria.reinhardt@co.ramsey.mn.us	Partnership on Waste and Energy		Ramsey County Board Office 15 W. Kellogg Blvd., Ste. 220 St. Paul MN, 55102 United States	Electronic Service		No	23-518Official

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
117	Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	1400 BRM Tower 445 Minnesota St St. Paul MN, 55101-2131 United States	Electronic Service		Yes	23-518Official
118	Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy		26 E Exchange St, Ste 206 St. Paul MN, 55101-1667 United States	Electronic Service		No	23-518Official
119	Nathaniel	Runke	nrunke@local49.org			611 28th St. NW Rochester MN, 55901 United States	Electronic Service		No	23-518Official
120	Bjorgvin	Saevarsson	bjorgvin@yorthgroup.com	Yorth		500 East Grant Street 1207 #1207 Minneapolis MN, 55404 United States	Electronic Service		No	23-518Official
121	Kevin	Saville	kevin.saville@ftr.com	Citizens/Frontier Communications		2378 Wilshire Blvd. Mound MN, 55364 United States	Electronic Service		No	23-518Official
122	Elizabeth	Schmiesing	eschmiesing@winthrop.com	Winthrop & Weinstine, P.A.		225 South Sixth Street Suite 3500 Minneapolis MN, 55402 United States	Electronic Service		No	23-518Official
123	Christine	Schwartz	regulatory.records@xcelenergy.com	Xcel Energy		414 Nicollet Mall, MN1180-07-MCA Minneapolis MN, 55401-1993 United States	Electronic Service		Yes	23-518Official
124	Douglas	Seaton	doug.seaton@umwlc.org	Upper Midwest Law Center		8421 Wayzata Blvd Ste 300 Golden Valley MN, 55426 United States	Electronic Service		No	23-518Official
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126	Patrick	Serfass	info@americanbiogascouncil.org	American Biogas Council		1211 Connecticut Ave NW Ste 650 Washington DC, 20036 United States	Electronic Service		No	23-518Official
127	Will	Seuffert	will.seuffert@state.mn.us		Public Utilities Commission	121 7th Pl E Ste 350 Saint Paul MN, 55101 United States	Electronic Service		Yes	23-518Official
128	Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates		7400 Lyndale Ave S Ste 190 Richfield MN, 55423 United States	Electronic Service		No	23-518Official
129	David	Shaffer	david.shaffer@novelenergy.biz	Novel Energy Solutions		2303 Wycliff St Ste 300 St. Paul MN, 55114 United States	Electronic Service		No	23-518Official
130	Andrew R.	Shedlock	andrew.shedlock@kutakrock.com	Kutak Rock LLP		60 South Sixth St Ste 3400 Minneapolis	Electronic Service		No	23-518Official

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						MN, 55402-4018 United States				
131	Beth	Smith	bsmith@greatermankato.com	Greater Mankato Growth		1961 Premier Dr Ste 100 Mankato MN, 56001 United States	Electronic Service		No	23-518Official
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134	Beth	Soholt	bsoholt@cleangridalliance.org	Clean Grid Alliance		570 Asbury Street Suite 201 St. Paul MN, 55104 United States	Electronic Service		No	23-518Official
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139	Richard	Stasik	richard.stasik@wecenergygroup.com	Minnesota Energy Resources Corporation (HOLDING)		231 West Michigan St - P321 Milwaukee WI, 53203 United States	Electronic Service		No	23-518Official
140	Kristin	Stastny	kstastny@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 South 8th Street Minneapolis MN, 55402 United States	Electronic Service		No	23-518Official
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144	Julie	Voeck	julie.voeck@nee.com	NextEra Energy Resources, LLC		700 Universe Blvd Juno Beach FL, 33408 United States	Electronic Service		No	23-518Official

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145	Sam	Wade	sam@rngcoalition.com	Coalition for Renewable Natural Gas		1017 L Street #513 Sacramento CA, 95814 United States	Electronic Service		No	23-518Official
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153	Patrick	Zomer	pat.zomer@lawmoss.com	Moss & Barnett PA		150 S 5th St #1200 Minneapolis MN, 55402 United States	Electronic Service		No	23-518Official