BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

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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 Innovation Plans	ISSUE DATE: June 1, 2022 DOCKET NO. G-999/CI-21-566 ORDER ESTABLISHING FRAMEWORKS FOR IMPLEMENTING MINNESOTA'S NATURAL GAS INNOVATION ACT

PROCEDURAL HISTORY

In 2021, the Legislature enacted the Natural Gas Innovation Act (NGIA or the Act).[1] The Act directs the Commission, by June 1, 2022, to establish frameworks for (1) comparing the lifecycle greenhouse gas emissions intensities of innovative resources, and (2) cost-benefit analysis to compare the cost effectiveness of innovative resources and of innovation plans that natural gas utilities file under the Act.[2]

On November 18, 2021, following notice and comment, the Commission met to set preliminary procedures for implementing the Act. As specified in its order issued on January 27, 2022, the Commission encouraged CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Minnesota Gas (CenterPoint) to continue working with its consultant, ICF, and independent neutral facilitator the Great Plains Institute, to engage stakeholders in developing frameworks for emissions intensity accounting and cost-benefit analysis.[3] The Commission ordered CenterPoint and any other interested entities to file proposed frameworks by January 30, 2022.[4]

On January 13, 2022, CenterPoint filed its proposed framework for calculating lifecycle greenhouse gas emissions intensity. It included the proposal of Northern States Power Company d/b/a Xcel Energy (Xcel) for calculating the lifecycle greenhouse gas emissions intensity of electricity for strategic electrification, one type of innovative resource included in the Act.

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

[2] Minn. Stat. § 216B.2428.

[3] Order Establishing Preliminary Procedures for Implementing Minnesota's Natural Gas Innovation Act (January 27, 2022).

[4] *Id.* at 4, Ordering Para. 2.

On January 28, 2022, the Department of Commerce, Division of Energy Resources (the Department), filed a proposed methodology for calculating the lifecycle greenhouse gas emissions intensity of electricity for all innovative resources.

Also on January 28, 2022, CenterPoint filed its proposed cost-benefit-analysis framework.

On February 25, 2022, the Commission received comments from the following:

- The International Union of Operating Engineers Local 49 (Local 49),
- Minnesota Energy Resources Corporation (MERC),
- Laborers' International Union of North America Minnesota & North Dakota (LIUNA),
- Partnership on Waste and Energy,
- Coalition for Renewable Natural Gas (RNG Coalition),
- Fresh Energy,
- Center for Energy and Environment (CEE),
- CenterPoint,
- Xcel, and
- The Department.

On March 18, 2022, MERC, LIUNA, Office of the Attorney General—Residential Utilities Division, Fresh Energy, CEE, CenterPoint, Xcel, and the Department filed reply comments.

On April 1, 2022, the Partnership on Waste and Energy, RNG Coalition, Fresh Energy, CEE, CenterPoint, and Xcel filed supplemental comments.

Also on April 1, 2022, a group of commenters jointly submitted supplemental comments including a set of framework parameters they recommended that the Commission adopt. This group of joint commenters consisted of CenterPoint, CEE, Fresh Energy, Local 49, LIUNA, MERC, RNG Coalition, and Xcel (collectively, the Joint Commenters).

The Department filed supplemental comments on April 4, 2022, and, on April 11, filed a letter supporting most of the Joint Commenters' recommendations, with certain modifications.

On April 22, 2022, RMI and Pieter Gagnon of National Renewable Energy Laboratory filed letters discussing the calculation of lifecycle greenhouse gas emissions from electrification.

On May 3, 2022, the matter came before the Commission.

FINDINGS AND CONCLUSIONS

I. Introduction

The Natural Gas Innovation Act allows natural gas utilities to file, for Commission approval, innovation plans for the development or provision of innovative resources that will contribute to achieving the state's greenhouse gas and renewable energy goals.[5]

[5] Minn. Stat. § 216B.2427, subd. 2.

"Innovative resources" under the Act include biogas, renewable natural gas, power-to-hydrogen, power-to-ammonia, carbon capture, strategic electrification, district energy, and energy efficiency.[6]

Among other things, an innovation plan must (1) identify the innovative resources the utility plans to implement and their lifecycle greenhouse gas emissions intensities;[7] (2) identify research and development investments and pilot programs proposed relating to innovative resources; (3) estimate the lifecycle greenhouse gas emissions to be reduced or avoided through the plan and the total emissions from natural gas use by utility customers in 2020; and (4) provide an accounting of the cost effectiveness of the innovative resources from the perspectives of the utility, society, and participating and nonparticipating customers, compared to other resources that could be deployed to reduce or avoid the same emissions.[8]

To guide gas utilities in developing innovation plans, the Act directs the Commission to establish (1) a general framework to compare the lifecycle greenhouse gas emissions intensities of innovative resources and (2) a cost-benefit analytic framework for comparing the cost effectiveness of innovative resources and innovation plans under the Act.[9]

II. Summary of Commission Action

In this order, pursuant to Minn. Stat. § 216B.2428, the Commission will (1) adopt a framework for comparing the lifecycle greenhouse gas emissions intensities of innovative resources under the NGIA, (2) adopt a framework for cost-benefit analysis to be applied to innovative resources and innovation plans under the NGIA, and (3) establish reporting requirements.

III. Frameworks for Calculating Lifecycle Greenhouse Gas Emissions Intensities

A. Undisputed Issues

Through a collaborative process, the Department, natural gas utilities, and the other stakeholders were able to reach substantial consensus and propose joint recommendations regarding many aspects of a proposed framework for analyzing the lifecycle greenhouse gas emissions intensities of innovative resources. Broadly, all parties and participants agreed that utilities should file high, low, and expected emissions intensity values for resources included in an innovation plan; file updated emissions intensity estimates in annual status reports using actual project-specific data when feasible; and use the most recent version of the Argonne National Laboratory's Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies (GREET) model in NGIA filings. Other areas of consensus related to the methods for calculating emissions from geologic natural gas, energy-efficiency measures, biogas, power-to-ammonia, district energy, and carbon capture, as well as certain reporting and procedural matters.

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[6] *Id.*, subd. 1(h).

[7] "Lifecycle greenhouse gas emissions" means the aggregate greenhouse gas emissions resulting from the production, processing, transmission, and consumption of an energy resource; emissions "intensity" refers to the emissions per unit of energy delivered to an end user. Minn. Stat. § 216B.2427, subd. 1(i), (j).

[8] *Id.*, subd. 2.

[9] Minn. Stat. § 216B.2428.

The Commission appreciates the efforts of all who participated in these proceedings. The collaborative stakeholder process achieved significant consensus and produced a set of parameters that will guide utilities in pursuing innovative ways to reduce emissions from natural gas service and advance the state's energy and climate policy objectives. These parameters provide a useful high-level structure from which utilities can develop innovation plans consistent with the statute, while leaving appropriate opportunities to assess finer details in specific innovation plans. The stakeholders collectively developed a robust, technical record demonstrating the reasonableness and probable effectiveness of these agreed-upon parameters.

Based on a thorough review of the record and the directives and goals of the NGIA, the Commission will adopt the recommended parameters on the undisputed issues relating to the calculation of lifecycle greenhouse gas emissions intensities, as set forth in the ordering paragraphs below.

B. Calculating the Greenhouse Gas Emissions Intensity of Electricity for Strategic Electrification

Despite significant agreement on other aspects of the framework, parties and participants disagreed on the best methodology for calculating the lifecycle greenhouse gas emissions intensity of electricity for evaluating strategic electrification proposals.

The Act defines strategic electrification as the installation of electric end-use equipment in an existing building in which natural gas is a primary or back-up fuel source, or in a newly constructed building in which a customer receives natural gas service for one or more end uses, provided that the electric end-use equipment: (1) results in a net reduction in statewide greenhouse gas emissions over the life of the equipment when compared to the most efficient commercially available natural gas alternative; and (2) is installed and operated in a manner that improves the load factor of the customer's electric utility.[10]

1. Xcel's Proposed Methodology

a. Xcel's Proposal

To calculate the lifecycle greenhouse gas emissions intensity of electricity for strategic electrification projects, the Joint Commenters recommended a methodology that was initially developed by Xcel and refined through stakeholder collaboration. Similar to their recommendations for other innovative resources, the Joint Commenters supported including GREET's lifecycle accounting capabilities in the evaluation of strategic electrification proposals because GREET is widely accepted as the best available tool for calculating the lifecycle greenhouse gas emissions intensities of fuels.

However, they recognized a key limitation of GREET in this context. The parties and participants agreed that it is important to consider how emissions associated with electricity change on an hourly basis, seasonally, and progressively over time with varying generation

[10] Minn. Stat. § 216B.2427, subd. 1(q). However, strategic electrification under the NGIA does not include investments that the Commissioner of Commerce determines could reasonably be included in the natural gas utility's conservation improvement program under Minn. Stat. § 216B.241.

resources and end uses, but GREET includes only an annual average lifecycle greenhouse gas emissions intensity for electricity; it does not offer hourly estimates of electric generation.

To account for temporal variations not included in GREET, Xcel proposed to conduct hourly modeling outside of GREET, through a capacity expansion model,[11] to create a blended generation mix which would then be plugged into GREET to calculate the lifecycle emissions intensity of electricity from strategic electrification. The utility would use the capacity expansion model to establish hourly consumption emission levels for (1) an electric baseline load scenario and (2) a high-electrification scenario, from 2024–2045. The utility would then compare the two scenarios to understand what resources would be dispatched and added to the electric system to serve the incremental load of the high-electrification scenario compared to the baseline scenario.

Xcel's modeling indicated that approximately 70% of the incremental electric load from 2024–2045 would be served by wind energy. To reflect the coincidence of new electrification loads with wind energy on the system, Xcel developed a proxy factor to represent the ratio of wind generation to the utility's overall system generation mix that, combined, would result in about 70% wind energy serving new electrification loads. Using this method, Xcel concluded that a reasonable proxy factor would be a blend equal to 50% wind and 50% Xcel's system mix.

Based on this analysis, the Joint Commenters proposed that a gas utility seeking to implement strategic electrification within the service territory of an electric utility should calculate the greenhouse gas emissions intensity of electricity by entering into GREET a user-defined generation mix representing a 50/50 blend of (1) wind and (2) the electric utility's overall system mix as projected in its most recent Commission-approved integrated resource plan. If the relevant electric utility is unknown or does not file integrated resource plans, then the gas utility could use a Minnesota-specific generation mix from the National Renewable Energy Laboratory (NREL) Standard Scenarios instead of a utility-specific mix in the 50/50 proxy factor.

b. Comments Opposing Xcel's Proposal

The Department raised several concerns about the proposal recommended by Xcel and the Joint Commenters. First, the Department argued that Xcel's methodology would need each electric utility to develop a proxy blend level for gas utilities to use in preparing their innovation plans, a significant undertaking arising out of a legislative effort targeting natural gas utilities and a Commission docket in which the electric utilities (other than Xcel) did not participate.

Additionally, the Department asserted that Xcel's proxy approach would not account for which resources on the regional system are serving the imported energy need or being exported at particular times and would not accurately account for the effects of imports and exports on emissions. The Department's analysis indicated that Xcel's proposal would thus overestimate the emissions reductions associated with strategic electrification and underestimate the emissions impact of increased electric demand from other innovative resources.

The Department questioned the accuracy of Xcel's assumptions that (1) wind generation correlates with new electrified load, (2) this correlation will cause changes in emissions, and (3) wind will serve the majority of the incremental load. Because gas and electric usage patterns

[11] Capacity expansion models are used in utility integrated resource planning proceedings and can provide an hourly forecast of a utility's generation mix and the associated direct (consumption) emissions.

for various end uses are not uniform across the state, fuel switching may have different emissions consequences for different utilities. Accordingly, the Department concluded that Xcel's proposal would not be broadly applicable statewide.

Further, the Department raised concerns about the sensitivity of Xcel's emission factor estimate to the time horizon of the analysis. The Department asserted that Xcel's methodology would produce significantly different estimates of marginal emission factors for any given year depending on the number of years included in the analysis. For example, in the 2024–2045 capacity expansion analysis from which Xcel derived its 50/50 wind/system mix proxy factor, more than half of the new wind capacity will not be added to the system until after 2040. Thus, Xcel's proposal would measure lifecycle emissions based on resources that will not be in the system until the end of, or even after, the expected lifetime of many appliances deployed through strategic electrification efforts. If Xcel performed its analysis to the year 2040 instead of 2045, the proxy factor and emissions estimates would be significantly different.

The Department also contended that Xcel's model lacked the granularity needed to capture differences in emissions reductions between a proposed project likely to increase the use of more carbon-intensive marginal fuels and a project tailored to draw on cleaner marginal resources.

Overall, the Department concluded that Xcel's proposed methodology could miss important implications about the projects being evaluated and overestimate the emissions reductions associated with strategic electrification while underestimating the emissions impacts of increased electric demand from other innovative resources.

c. Reply Comments

Xcel disagreed with the assertion that its proposal would need each electric utility to develop a proxy factor for gas utilities to use in NGIA plans. Rather, Xcel argued, a 50/50 blend of wind and the electric utility's system mix would be a valid starting point statewide because (1) the hourly profile of strategic electrification over a year is similar statewide; (2) the profile of wind generation is similar across Minnesota utilities because they build or buy wind in the most wind-rich areas, not necessarily in their own service territories; and (3) the preference to add low-cost renewable generation to the system to serve electrification load should apply to all utilities.

Xcel also argued that wind generation profiles, the annual load shape of electrification measures, and capacity expansion modeling support its assertion that wind generation will serve the majority of incremental electrification load.

However, acknowledging that the appropriate blend of wind and system generation mix could vary, Xcel supported allowing electric utilities to develop and request Commission approval of a different, utility-specific blend factor.

Xcel stated that its proposal accounts for emissions from imports and exports within its expansion plan and production cost optimizations, contrary to the Department's assertion that it ignores market interactions. To the extent that the Department supports further accounting for imports and exports, Xcel argued that issue may warrant additional analysis and stakeholder work in future innovation-plan cycles.

Responding to concerns about the sensitivity of Xcel's methodology to the time horizon of the analysis, Xcel argued that it is reasonable to consider how the generation mix will change over a

long period of time when evaluating the lifecycle emissions of electrification measures that have relatively long timeframes, and that looking at a shorter time period could be misleading.

The Joint Commenters continued to support Xcel's proposal.

2. The Department's Proposed Methodology

a. The Department's Proposal

To calculate the lifecycle greenhouse gas emissions intensity of electricity, the Department proposed a long-run marginal analysis focusing on the change in emissions due to incremental load or the marginal unit serving that load and the incremental emissions produced by the marginal units. The Department reasoned that long-run marginal analysis is appropriate because strategic electrification will lead to an incremental increase in electric demand, and the system operator (not the utility), will decide when, how, and in what order to dispatch generation in response to demand.

Like Xcel's proposal, the Department's proposed methodology uses a capacity expansion model to calculate the relevant electric utility's hourly, consumption-only greenhouse gas emissions intensities under (1) a baseline scenario and (2) an electrification scenario. However, the Department's methodology then adds emissions due to energy imported from the independent system operator and subtracts emissions due to exports. Third, to account for upstream emissions, the Department's methodology applies lifecycle emissions multipliers.

The Department's proposed lifecycle emissions multipliers are resource-specific and are calculated as the ratio of a given resource's lifecycle emissions intensity (from GREET) and combustion emissions intensity (from the EPA's Emissions & Generation Resource Integrated Database (eGRID)). An hour would be assumed to be served by either coal, natural gas, or renewable resources depending on the combustion greenhouse gas intensity during that hour, and either the coal, natural gas, or renewable lifecycle emissions multiplier would apply accordingly, to reflect the general rule that emissions intensities are highest when coal plants are serving the incremental load, intermediate when natural gas serves the incremental load, and lowest when renewable resources serve the incremental load.

The Department proposed that the hourly lifecycle greenhouse gas emissions intensities derived through these steps could be averaged to create an annual electric lifecycle greenhouse gas emissions intensity value for each year of a natural gas utility's innovation plan and, for innovative resources other than strategic electrification, entered into GREET as a user-defined emissions factor for electricity. This would allow utilities to input a single annual value for the emissions intensity of electricity instead of inputting individual shares of different types of generation sources.

The Department asserted that its proposed methodology is more reasonable than Xcel's because it accurately estimates the utility-specific change in lifecycle greenhouse gas emissions due to a change in electric load caused by innovative resources for every hour over the lifetime of the innovative resource; accounts for future changes in a utility's load and generation mix; and incorporates imports from and exports to the regional electric grid, thereby generating a more accurate estimate of the actual lifecycle greenhouse gas emissions intensities of electricity.

Recognizing that utilities may not have the experience or resources needed to implement either proposed methodology, the Department offered to work with stakeholders to develop guidance for using the approved methodology in innovation plans. Further, it recommended that the Commission delegate to the Department the responsibility to develop and update electric lifecycle emissions intensity values in accordance with the approved methodology.

b. Comments Supporting the Department's Approach

RMI filed a letter generally supporting the Department's recommendation to use a long-run marginal emissions methodology to estimate emissions associated with strategic electrification. RMI argued that the Department's proposed methodology is an effective way to estimate the impacts of new electrification loads on the power system, reflecting changes in the generation mix and dispatch to meet the new load and capturing future emissions when they will occur.

Recognizing the technical complexity of this type of analysis, RMI recommended that the Department continue to explore opportunities to refine its proposed methodology to incorporate utility emissions commitments and to adjust electrification load shapes.

Pieter Gagnon, a researcher at NREL, filed a technical memorandum discussing considerations for estimating electric-sector marginal emissions. He noted the value of using a long-run marginal emissions rate to capture long-term consequences where an intervention may influence capital-asset decision making. For example, new load added through a strategic electrification project could induce the deployment of new generators, which could lead to long-term structural changes in the electric system that a long-run marginal emissions rate would seek to capture. A long-run marginal emissions rate estimates the rate of change of emissions taking into account how a strategic electrification measure or other intervention could influence the operation and the structure of the grid.

Gagnon acknowledged that calculating long-run marginal emissions rates requires technical sophistication and that entities have often instead relied on historical average emission rates as proxies to avoid the complexity. However, he asserted that there have been significant advancements in methodologies for calculating long-run marginal emissions rates and that regulators in another state have recently started to use these methodologies.

c. Comments Opposing the Department's Proposal

Xcel argued that multiple aspects of the Department's proposed methodology tend to overestimate the greenhouse gas emissions intensity of electricity and underestimate emissions reductions from strategic electrification.

Xcel asserted that the Department's approach does not properly account for the potential to integrate more renewable, emissions-free generation into the system through strategic electrification. Additionally, Xcel argued that the Department's marginal analysis assumes, without justification, that the incremental load from strategic electrification will cause an increase in high-carbon imports into the regional market.

Xcel also opposed the Department's approach to lifecycle emissions multipliers, arguing that its assumptions that certain combustion emissions ranges correlate with certain generation resources create risks of error that could overestimate the emissions intensity of electricity.

Generally, the Joint Commenters expressed concerns that the Department's proposed methodology would significantly complicate the process, making it unduly difficult for many utilities to use and increasing the risk of error compared to Xcel's proposal, which they deemed simpler and more intuitive. The Joint Commenters also argued that the Department's proposal was incomplete in some respects and would require further information and expert analysis before it is ready to be used, which could delay the development of innovation plans.

3. Commission Action

Having thoroughly considered the record and the arguments of parties and participants, the Commission will adopt the methodology developed by Xcel and supported by the Joint Commenters for calculating the lifecycle greenhouse gas emissions intensity of electricity for strategic electrification. Xcel's proposed methodology offers a balanced approach to satisfying the statute's policy goals and encouraging utilities to develop innovation plans.

Xcel's proxy blend concept averages complex hourly data on the generation sources that will serve added electrification load over 20 years and distills it into a simple blend factor that gas utilities can run through the GREET model with little added administrative burden. Although complex modeling is needed to derive an appropriate blend factor, the result is a straightforward factor that is immediately available for use by any gas utility seeking to file an innovation plan. Xcel's approach takes advantage of the accounting capabilities of GREET—which is widely accepted as the best available tool for estimating the lifecycle greenhouse gas emissions intensities of various fuels—while addressing the limitation that GREET does not include hourly electricity generation data.

Although Xcel's proposed 50/50 blend factor of wind to system mix may not perfectly represent all of Minnesota's gas utilities, it provides a reasonable approximation, and its simplicity at the outset will make it more feasible for more utilities to develop innovation plans sooner and begin deploying innovative resources in accordance with the policy goals of the NGIA. The adoption of a clear, easy-to-use framework should encourage broader utility participation in voluntary NGIA programs, expanding opportunities to advance the state's energy and climate goals.

Additionally, the Commission will allow electric utilities to develop their own blend factors and submit them for approval in place of the default 50/50 blend for use in any innovation plans proposing strategic electrification within the electric utility's service territory. The development of utility-specific blend factors has the potential to inject greater accuracy and precision into these calculations. However, given the concerns raised about the time and resources needed, the Commission will not mandate the development of electric-utility-specific blends at this time.

The Commission appreciates the Department's nuanced approach and its efforts to maximize the accuracy and precision of the framework for estimating the lifecycle greenhouse gas emissions intensity of electricity. However, several parties and participants raised concerns that the Department's more complex framework could lead to delays in the development of innovation plans, decrease transparency, or inadvertently discourage some utilities from pursuing innovation plans due to perceptions of difficulty and cost.

Based on the current record, and given the statutory timeframe for adopting this initial framework, the Commission concludes that the methodology developed by Xcel and supported by the Joint Commenters strikes a better balance between the competing interests in facilitating

an accurate and precise accounting one hand and, on the other, selecting a functional framework that is practical to implement.

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

Further, the Commission anticipates continuing opportunities to evaluate and, if appropriate, modify the approved framework based on experience and improved knowledge as the Act is implemented and as innovative resources are further developed and deployed in Minnesota.

C. Calculating the Greenhouse Gas Emissions Intensity of Electricity for Other Innovative Resources

The parties and participants also disagreed about the appropriate way to evaluate electric load added due to innovative resources other than strategic electrification, including renewable natural gas[12] and power-to-hydrogen.[13]

1. Comments

a. The Department

The Department recommended using the same methodology discussed above to calculate the greenhouse gas emissions intensity of electricity used in the production, processing, transmission, and consumption of all innovative resources, not just strategic electrification. For renewable natural gas and hydrogen, in addition to calculating the direct combustion emissions using GREET, the Department proposed using its electric greenhouse gas emissions intensity methodology to estimate emissions from electricity associated with the relevant resource and entering that value into GREET as a user-defined emissions factor for electricity.

The Department concluded that this methodology would better simulate actual electricity market operations, estimating the lifecycle greenhouse gas emissions of all innovative resources more accurately than the default electric emissions intensities in GREET.

b. Xcel and the Joint Commenters

For innovative resources other than strategic electrification, the Joint Commenters proposed using the default electric greenhouse gas emissions intensities included in GREET. They argued

[12] The Act defines "renewable natural gas" as biogas that has been processed to be interchangeable with, and that has a lower lifecycle greenhouse gas emissions intensity than, natural gas produced from conventional geologic sources. Minn. Stat. § 216B.2427, subd. 1(o). "Biogas" as used in this definition refers to gas produced by the anaerobic digestion of biomass, gasification of biomass, or other effective conversion processes. *Id.*, subd. 1(a).

[13] The Act defines "power-to-hydrogen" as the use of electricity generated by a carbon-free resource to produce hydrogen. Minn. Stat. § 216B.2427, subd. 1(m).

that electricity associated with fuels such as renewable natural gas and hydrogen has relatively flat hourly load profiles, so incorporating hourly data is less useful in these contexts than in the strategic electrification context, where load profiles vary significantly by time of day and over the course of the year. For renewable natural gas and hydrogen, the Joint Commenters contended that any incremental benefit that could be gained from undertaking additional analytical steps to understand hourly variations would not be enough to justify the added complexity and expense.

Further, the Joint Commenters argued that calculating the greenhouse gas emissions intensity of electricity the same way for strategic electrification and for other applications would overestimate the emissions of resources that align well with renewable generation (such as strategic electrification) and underestimate the emissions of resources that have a flatter load shape (such as renewable natural gas and hydrogen).

2. Commission Action

The Commission appreciates the Department's efforts to develop a methodology that accounts for time-varying nuances that may affect the lifecycle emissions of electricity associated with the production, processing, transmission, and consumption of all innovative resources.

However, the Commission is not persuaded to require the complex methodology proposed by the Department for calculating electricity associated with renewable natural gas and hydrogen at this time. As the Joint Commenters argued, hourly variations in load profile are expected to be less consequential with respect to electricity associated with these innovative resources, and the record developed to date does not demonstrate that the value added by the Department's approach would justify its added administrative burden.

Instead, gas utilities proposing renewable natural gas or hydrogen projects in innovation plans should use the GREET model as set forth in the ordering paragraphs below.

D. Additional Hydrogen-Blending Considerations

1. Comments

a. The Department

The Department raised concerns about several potential risks of blending hydrogen with natural gas systems. First, the Department asserted that adding hydrogen to a natural gas pipeline can degrade mechanical properties of pipeline steels, potentially leading to accelerated cracking and natural gas leaks, which can pose public safety hazards, increase greenhouse gas emissions, and increase pipeline maintenance costs. The severity of these effects depends on pipe quality, operating conditions, and the amount of hydrogen blended with natural gas, among other factors.

Additionally, the Department argued that certain properties of hydrogen, including its wide range of flammability and flame speed, pose safety risks when transporting hydrogen and make hydrogen combustion more difficult to control than natural gas combustion. Physical and chemical properties of hydrogen may also cause different or worse adverse health impacts on customers depending on their end-use appliances and equipment, and furnaces and boilers may need to be modified to burn hydrogen safely while maintaining performance quality. The Department also noted that hydrogen's higher flame speed can result in higher levels of nitrogen

oxides (NO_x), which can cause adverse health consequences. The Department argued that these potential risks of hydrogen blending require additional research and regulatory oversight.

The Department recommended that utilities proposing power-to-hydrogen resources that involve blending hydrogen with natural gas be required to address 15 questions relating to the infrastructure that will come into contact with blended hydrogen, actions taken to prepare for increased hydrogen levels and associated risks, and analyses of potential impacts on customers.

b. Fresh Energy

Fresh Energy raised concerns about NO_x emissions from hydrogen blending and recommended that any hydrogen-blending proposals factor the increased NO_x emissions into the pilot's greenhouse gas emissions intensity score. Further, it recommended that utilities specify technical solutions to reduce NO_x emissions in any proposals involving high-hydrogen blends.

c. CenterPoint

CenterPoint opposed adopting the Department's 15 questions for hydrogen-blending proposals. It argued that many of the risks the Department raised are not of concern with the low levels of hydrogen blending that CenterPoint plans to incorporate in the near future.

Further, CenterPoint argued that the Department's questions pertaining to pipeline safety are regulated by the Office of Pipeline Safety, not the Commission. CenterPoint stated that it will coordinate with the Office of Pipeline Safety in developing its future hydrogen-blending plans.

However, CenterPoint acknowledged that the Department raised important long-term questions about how higher concentrations of hydrogen can be blended into natural gas systems safely, and it suggested that the Commission could require hydrogen-blending proposals to clearly state their learning objectives and learning metrics.

2. Commission Action

The record raises important questions about special risks that may accompany the blending of hydrogen into natural gas systems. It is reasonable to collect additional information to ensure those risks are properly considered and addressed in all hydrogen-blending proposals. The Commission will therefore require any utility proposing a hydrogen blending pilot to provide the following additional items: (1) a clear statement of the learning objectives for the proposed blending pilot and the metrics it will collect to achieve those learning objectives; (2) documentation of the utility's consultation with the Office of Pipeline Safety regarding the specific pilot, along with a discussion of why it is in compliance with state pipeline safety standards; and (3) a discussion demonstrating that the utility has determined that the level of hydrogen blending will ensure the safety of its system and of customers' appliances.

IV. Framework for Cost-Benefit Analysis

A. Undisputed Issues

CenterPoint developed a proposed cost-benefit-analysis framework and engaged with stakeholders to refine its proposal. The stakeholder process achieved consensus regarding most aspects of a proposed framework for analyzing and comparing the cost effectiveness of

innovative resources under Minn. Stat. § 216B.2428(2). First, the parties and participants agreed on recommended definitions for the various cost-effectiveness perspectives required to be considered in an innovation plan and agreed that the societal perspective should be primary.

Additionally, they agreed on a proposed societal cost-benefit chart to be completed and filed with innovation plans and agreed that, in completing the chart, utilities should quantify (1) near-term expected costs and benefits to the utility system, (2) costs and benefits associated with the reduction or avoidance of greenhouse gas and other emissions, and (3) any out-of-pocket costs expected to be paid by participating customers. With one exception, discussed below, they also agreed on a set of structural values utilities should use to quantify certain costs and benefits.

Further, the parties and participants agreed on a proposed set of baseline cost-effectiveness criteria against which innovation plans should be compared under Minn. Stat. § 216B.2428(2)(iii). Additionally, they jointly recommended that innovation plans include assessments of impacts on local communities and different types of customers, information about community and customer outreach, and discussions of equity and diversity considerations. They also agreed on the frequency with which structural cost-benefit values should be updated and on other content and timing requirements for NGIA filings.

The Act excludes from innovation plans any strategic electrification or energy conservation investments that the Commissioner of Commerce determines could reasonably be included in a utility's conservation improvement program (CIP) under Minn. Stat. § 216B.241.[14] The Joint Commenters and the Department were unable to agree on a test for determining which energy-efficiency and strategic-electrification measures should be eligible for inclusion in innovation plans as of the Commission meeting, but they anticipated that they could reach a mutually agreeable proposal through further collaboration. Accordingly, rather than decide this issue now, the Department and the Joint Commenters recommended that the Commission establish a further comment period and encourage the Department to consult with stakeholders to develop proposed guidance on this issue by July 1, 2022.

The partial cost-benefit-analysis framework jointly recommended by the parties and participants provides a helpful set of quantitative and qualitative considerations designed to allow a nuanced understanding of the costs and benefits of innovative approaches to reducing greenhouse gas emissions. The proposal offers adequate guidance to utilities, allows flexibility to accommodate a variety of innovative resources and pilot proposals, and will provide the Commission and stakeholders with important information needed to evaluate the cost effectiveness of proposals under the NGIA. Based on the extensive record and pursuant to the statutory objectives, the Commission will adopt the cost-benefit parameters jointly recommended by the parties and participants, as specified in the ordering paragraphs below.

B. Structural Cost-Benefit Values

The one aspect of the cost-benefit-analysis framework on which the parties and participants disagreed relates to whether to include a utility discount rate in the structural values.

[14] Minn. Stat. § 216B.2427, subd. 1(f), (q).

1. Proposals and Comments

a. CenterPoint and the Joint Commenters

CenterPoint proposed, and the Joint Commenters supported, including in the NGIA cost-benefit framework certain structural values to serve as the foundation for calculating quantifiable costs and benefits for many kinds of resources and pilots. CenterPoint proposed to adopt Inputs 1–13 from the Department's approved inputs for BenCost, the cost-benefit model that the Department uses for CIP,[15] with certain modifications.

One of the modifications the Joint Commenters recommended pertained to BenCost Input 12. BenCost Input 12 is the CIP plan's utility discount rate, which represents the value of the future stream of utility system benefits and costs resulting from the proposed investment. For purposes of NGIA filings, the Joint Commenters recommended replacing the Input-12 utility discount rate with the societal discount rate used in Input 13. They argued that using the societal discount rate to value future costs and benefits to the utility system is consistent with state policies that require consideration of societal impacts.

CenterPoint stated that applying the societal discount rate would assign greater value to future benefits and costs than applying the utility discount rate. It noted that many stakeholders had supported adopting the societal discount rate for the utility perspective in a recent proceeding to update BenCost values, but the Department chose not to reduce it to the societal-discount-rate level in that proceeding due to concerns about how it could impact the evaluation of electric integrated resource plans—a concern that is not present in this docket pertaining to gas utilities.

Xcel argued that, although the cost or savings to the utility is relevant to CIP inquiries, which compare energy savings against the cost of providing energy to evaluate potential conservation investments aimed at cost savings, the utility perspective is less important in the NGIA context, where the societal goal of reducing greenhouse gas emissions is primary.

Fresh Energy agreed that the societal perspective is the most important perspective for the NGIA and, therefore, argued that the Commission should prioritize reflecting the most up-to-date societal discount rate in this structural value rather than tying the NGIA Input-12 value to CIP's Input-12 value solely for the sake of uniformity between two different programs.

b. The Department

The Department opposed the Joint Commenters' recommendation to replace the utility discount rate with the societal discount rate in the structural cost-benefit values for NGIA. The Department is currently leading an effort to examine and update the cost-effectiveness methodologies used to evaluate utilities' CIP plans, and a cost-effectiveness advisory committee is expected to make recommendations in early 2023. The Department argued that the advisory committee's examination of the discount rates used in CIP cost-effectiveness testing will also be informative in the implementation of NGIA, and that changing this discount rate before the advisory committee's recommendations are available would circumvent the advisory committee's ongoing work.

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[15] *See In the Matter of 2020–2022 Gas Utility BENCOST Inputs*, Docket No. G-999/CIP-18-782, Decision, at Appendix H (February 11, 2020).

2. Commission Action

The Commission will adopt the structural cost-benefit values proposed by the Joint Commenters, including the societal discount rate instead of the utility discount rate for Input 12. As discussed above, the Department and the Joint Commenters agreed that the societal perspective should be the primary perspective considered when evaluating NGIA filings. The Department did not make a persuasive argument in support of maintaining the utility discount rate; rather, the Department focused on its preference to wait until the CIP cost-effectiveness advisory committee issues its recommendations before making any changes to this structural value for NGIA applications.

The Commission is not persuaded by the Department's argument that using the societal discount rate instead of the utility discount rate for this aspect of cost-benefit analysis under the NGIA will unduly circumvent the work of the CIP cost-effectiveness advisory committee. CIP and NGIA entail different inquiries with different objectives, and the Department did not demonstrate a need to tie the two programs' Input-12 values together. The Commission concludes that the potential benefit of waiting to see what the advisory committee recommends for future CIP filings does not outweigh the interest in providing clear guidance for the gas utilities seeking to develop NGIA innovation plans in the near future.

Accordingly, based on the record and the goals of the NGIA, the Commission will adopt the structural cost-benefit values recommended by the Joint Commenters.

V. Further Investigations

A. Best and Highest Use Cases

1. Comments

Fresh Energy recommended that the Commission investigate and identify the best- and highest-use cases for various innovative resources—i.e., where the deployment of a resource would achieve the greatest benefit out of all the potential applications of the resource—and consider each resource's best and highest use when evaluating utility innovation plans. Fresh Energy asserted that these questions are intertwined with the issue of scalability of a resource, which could be a function of the resource's potential market penetration or of geologic natural gas displaced systemwide. Fresh Energy argued that alternative gas fuels should be deployed only to their best and highest use—for example, industry uses where electrification is difficult—to increase decarbonization potential and use ratepayer money responsibly. Fresh Energy recommended conducting this investigation in the Future of Gas docket.[16]

The Department supported Fresh Energy's recommendation.

Xcel opposed Fresh Energy's recommendation, arguing that there is no statutory basis to impose categorical preferences for, or limitations on, certain types of innovative resources under the Act.

LIUNA opposed making decisions about best uses or scalability at this time, arguing that information relevant to those issues will be revealed as utilities begin submitting innovation plans and implementing innovative-resource projects.

[16] Docket No. G-999/CI-21-565.

2. Commission Action

The Commission will not order an investigation into the best- and highest-use cases for innovative resources at this time. As utilities begin implementing innovation plans and testing innovative resources, and as new data emerges from NGIA pilot programs, stakeholders and the Commission may be in a better position to explore nuances such as the best and highest uses of certain types of resources. However, at this time, the Commission is not persuaded to order a specific investigation or set a schedule for predetermining these issues on a categorical basis.

B. Joint Compliance Filing

Several parties and participants recommended that the Commission establish further comment periods and undertake future decision making, either in this docket or in new dockets, regarding additional details of NGIA implementation that this order does not reach.

The NGIA contemplates an evolving process of testing innovative-resource pilots, learning from those pilots, and, if appropriate, modifying the applicable frameworks for calculating emissions intensities and cost effectiveness based on lessons learned in the process.

To help focus this ongoing adaptive process, the Commission will direct CenterPoint, Xcel, and MERC to make a joint filing on June 1, 2026, that discusses lessons learned from the initial years of NGIA implementation and possible improvements to the emissions intensity and cost-benefit-analysis frameworks established in this order. The Commission does not intend to change the frameworks through this 2026 filing; rather, the filing will provide an opportunity for the Commission and stakeholders to assess the effectiveness of the established frameworks.

To ensure that this this joint filing is based on enough experience to yield meaningful insights to inform a useful evaluation of the frameworks, the Commission expects that the filing should occur after the utilities have implemented their initial innovation plans and gathered approximately two years of data. The Commission will delegate authority to the Executive Secretary to modify the date of this filing accordingly.

ORDER

1. Utilities shall file a high, low, and expected greenhouse gas intensity for innovative resources included in a proposed Natural Gas Innovation Act innovation (NGIA) plan, where applicable. High and low scenarios shall incorporate at least low and high assumptions for electricity use and other fuels used in the resource's lifecycle. Expected greenhouse gas intensity values will be used in cost-benefit calculations and when determining the expected greenhouse gas reduction of pilot programs and NGIA plans.

2. Where applicable, utilities shall file updated estimated greenhouse gas intensities for innovative resources included in NGIA plans in annual status reports, using actual project- or facility-specific data when reasonably feasible.

3. When applicable, utilities shall use the most recent version of the Argonne National Laboratory's Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies (GREET) model in any NGIA plan filings or status reports. Utilities may use the prior

year's model if filing an NGIA plan or status report within 30 days of the publication of a new version of the Argonne GREET model.

4. For purposes of the NGIA, the lifecycle greenhouse gas emissions per dekatherm of geologic natural gas shall be calculated using the Argonne GREET model, using GREET's most up-to-date default assumptions for fugitive methane leakage associated with geologic natural gas. Currently, the greenhouse gas intensity of geologic natural gas delivered to end use customers via the natural gas distribution system is calculated as 66.16 kilograms per dekatherm using the Argonne GREET model. As reliable data becomes available, utilities may submit utility-specific methane leakage data to estimate the lifecycle greenhouse gas emissions intensity of geologic gas in innovation plans.

5. The greenhouse gas intensity of renewable natural gas included in an NGIA plan will be calculated in accordance with the Argonne GREET model.

6. Utilities shall file Argonne GREET spreadsheets with the Commission supporting their calculations of lifecycle greenhouse gas intensity for any renewable natural gas proposed as part of an innovation plan.

    a. Utilities shall complete the Argonne GREET model with facility-specific information for any individual renewable natural gas facilities expected to contribute five percent or more of the total estimated greenhouse gas emissions reduction of the utility's proposed NGIA plan.

    b. Utilities may use national averages and/or reasonable assumptions for any renewable natural gas facilities expected to contribute less than five percent of the total estimated greenhouse gas emissions reduction of the utility's proposed NGIA plan, if facility-specific information is not readily available.

7. Utilities shall use electric-utility-specific generation mix information for the renewable natural gas facility when it is reasonably available. When electric utility-specific information is not available, the filing gas utility will use a state-specific generation mix taken from National Renewable Energy Laboratory (NREL) Standard Scenarios. If the renewable natural gas facility is using a higher proportion of carbon free electricity than is available by default from their electric utility—either from on-site generation, by subscribing to a Commission-approved electric utility green tariff with renewable energy credits retired on the facility's behalf, or, for approval on a case-by-case basis, using other carbon-free generation sources—the filing gas utility may input facility-specific electric generation information into GREET as appropriate.

8. Multi-year investments in renewable natural gas shall incorporate expected changes in the electricity system in the calculation of greenhouse gas intensity.

9. The greenhouse gas intensity of power-to-hydrogen included in an NGIA plan will be calculated in accordance with the Argonne GREET model.

10. Utilities may assume that hydrogen produced using carbon-free electricity has no greenhouse gas emissions associated with its production but may have greenhouse gas emissions associated with electricity used for compression, transportation, blending, injection, purification and pumping of water, or other purposes. Carbon-free electricity

includes dedicated carbon-free generation, electricity purchased pursuant to a Commission approved green-tariff program, and, for approval on a case-by-case basis, other carbon-free generation supported by a demonstration that the greenhouse gas intensity of the connected electric grid is not adversely impacted.

11. Utilities may use the State of Minnesota Technical Reference Manual for Energy Conservation Improvement Programs (Technical Reference Manual) or other methods approved by the Department of Commerce, Division of Energy Resources for the utility's conservation improvement program (CIP) to calculate energy savings.

12. If there are no applicable methods approved by the Department for a proposed energy efficiency measure, the utility must file a proposed method for calculating energy savings with their innovation plan proposal. Utilities are encouraged to engage with the Department before filing proposed methods with innovation plan proposals.

13. To calculate greenhouse gas reductions from an energy efficiency resource, utilities shall multiply the reduced consumption of geologic gas, calculated per paragraph 11 or 12 above, by the greenhouse gas intensity assigned to geologic gas per paragraph 4 above.

14. Utilities shall use estimated lifetime greenhouse gas reductions, rather than first-year reductions, when comparing energy efficiency with other resources.

15. In annual NGIA status reports, utilities shall provide actual participation and estimated lifetime savings for all measures installed, calculated in accordance with the Technical Reference Manual or other approved methodology.

16. The greenhouse gas intensity of electricity used for strategic electrification shall be calculated as follows:

    a. Gas utilities implementing strategic electrification in the electric service territory of an electric utility that files integrated resource plans with the Commission should calculate electricity greenhouse gas intensity by entering into GREET a user-defined generation mix representing a 50/50 blend of wind and the electric utility's projected system generation mix per its most recent Commission-approved integrated resource plan.

    b. An electric utility that wishes to develop its own blend of wind and the system generation mix may submit documentation supporting the utility-specific blend factor for review and approval by the Commission. The approved utility-specific generation mix to wind blend factor for Northern States Power Company d/b/a Xcel Energy (Xcel) is 50/50.

    c. Gas utilities implementing strategic electrification in the electric service territory of an electric utility that does not file an integrated resource plan, or implementing strategic electrification in a location where the electric utility is unknown, should calculate the greenhouse gas intensity by entering into GREET a 50/50 blend of wind and a Minnesota-specific generation mix taken from NREL Standard Scenarios.

d. Gas utilities seeking to implement a pilot for electrification of industrial processes shall include a discussion of their plan for calculating the greenhouse gas intensity of associated electricity use.

17. Utilities may use the Technical Reference Manual or other methods approved by the Department for the utility's CIP to calculate the energy use of appliances installed pursuant to a strategic electrification program and the baseline appliances.

18. If there are no applicable methods approved by the Department that the utility can use to calculate the energy use of an appliance, the utility must file a proposed method for calculating the appliance's energy use along with their innovation plan proposal. Utilities are encouraged to engage with the Department before filing proposed methods with innovation plan proposals.

19. Utilities shall use estimated lifetime greenhouse gas reductions, rather than first-year reductions, when comparing strategic electrification with other resources.

20. In annual NGIA status reports, utilities shall provide actual participation and estimated lifetime savings for all measures installed, calculated in accordance with the Technical Reference Manual or other approved methodology and incorporating any updates to the greenhouse gas intensity of electricity used.

21. When calculating the greenhouse gas intensity of biogas or power-to-ammonia, utilities shall use principles consistent with Argonne GREET and methods used for renewable natural gas and power-to-hydrogen, as appropriate.

22. When calculating the greenhouse gas intensity of a district energy project, utilities shall use project-specific data as available and principles consistent with Argonne GREET and methods used for calculating the greenhouse gas intensity of electricity approved by the Commission, unless it is demonstrated that an alternate method is appropriate.

23. When calculating the greenhouse gas intensity of a carbon capture project, utilities shall use project-specific data as available and principles consistent with Argonne GREET, unless it is demonstrated that an alternate method is appropriate.

24. CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas (CenterPoint), Xcel, and Minnesota Energy Resources Corporation shall make a joint filing on June 1, 2026, to discuss lessons learned and possible improvements for the greenhouse gas emission and cost-benefit-analysis frameworks established in this order. The Commission delegates authority to the Executive Secretary to modify the date for this filing.

25. The Commission delegates authority to the Executive Secretary to resume Docket No. G-008/M-21-324 and request comment on CenterPoint's proposed Minnesota-GREET framework for determining the lifecycle greenhouse gas intensity of renewable natural gas producers interconnecting to CenterPoint's distribution system.

26. The Commission adopts the following definitions for the cost-effectiveness perspectives required by the Act:

a. The NGIA Utility Perspective is defined as the costs or benefits that accrue to the utility system.

b. The NGIA Participating Customer Perspective is defined as the costs or benefits that accrue to the participating customer (i.e., the customer receiving or using the innovative resource).

c. The NGIA Nonparticipating Customer Perspective is defined as the costs or benefits that accrue to nonparticipating customers.

d. The NGIA Societal Perspective is defined as all the costs and benefits of the resource, including all relevant societal impacts.

27. The Commission will consider cost effectiveness primarily from the NGIA societal perspective.

28. Where applicable, for quantifying any NGIA cost or benefit, utilities shall use structural cost-benefit values following the methods described in Appendix H of the Minnesota Department of Commerce's February 11, 2020, CIP BenCost Input Decision in Docket No. G-999/CIP-18-782, Inputs 1–13, with the modifications reflected in the Structural Values Modifications to CIP Approach table filed by the Joint Commenters.[17]

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

30. Utilities shall include completed versions of the Exhibit B chart[18] in innovation plan filings for the plan proposed by the utility. The Exhibit B chart summarizes the costs and benefits that are expected to result from each pilot program proposed by the utility, one pilot per column.

31. In completing the Exhibit B chart for their proposed plan, utilities shall quantify costs and benefits to the extent reasonably practicable, but, at a minimum, utilities shall quantify (1) near-term expected costs and benefits to the utility system; (2) costs and benefits associated with reduction or avoidance of greenhouse gas and other emissions; and (3) any out-of-pocket costs expected to be paid by participating customers.

32. Where it is not reasonably practicable to quantify a cost or benefit, utilities shall provide a brief qualitative description of the cost or benefit in the Exhibit B chart.

33. For both quantitative and qualitative costs and benefits of the utility's proposed plan summarized in an Exhibit B chart, utilities shall provide a detailed discussion in the

[17] Joint Commenters' Proposed Decision Options, at Exhibit A, pp. 5–7 (April 1, 2022).

[18] NGIA Blank Cost-Benefit Framework Chart, CenterPoint's Proposed Cost-Benefit Framework, at Exhibit B (January 28, 2022) (Exhibit B chart).

innovation plan filing. For quantified costs and benefits, this detail shall include sufficient information for a reader to understand how the utility calculated the figure included in the chart using structural values and any other numerical inputs.

34. Utilities shall also complete an Exhibit B chart for each collection of alternative pilot programs to be considered pursuant to Minn. Stat. § 216B.2427, subd. 2(a)(16).

35. For each resource proposed to be included in a utility plan, the utility shall provide a brief discussion of other resources considered to reduce or avoid the same emissions targeted by the proposed resource including a discussion of how the expected costs and benefits of the alternative resources would compare the utility's proposed resource.

36. The Commission establishes the baseline cost-effectiveness criteria against which an innovation plan should be compared pursuant to Minn. Stat. § 216B.2428(2)(iii) as described in Exhibit B. The Commission finds that to approve an innovation plan it must find that the expected qualitative and quantitative benefits of a proposed innovation plan are greater in total than the expected quantitative and qualitative costs of the plan in total. In making this determination, the Commission shall consider plan costs and benefits to the utility system, to participating customers, to non-participating customers, and to other energy systems serving Minnesota customers. The Commission shall also consider environmental and socioeconomic costs and benefits that would result directly from the plan and the benefits of the plan for energy resource innovation in the state.

37. The Commission directs the Executive Secretary to establish a comment period to consider what energy efficiency and strategic electrification measures are eligible for inclusion in utility innovation plans with initial comments to be filed no later than July 1, 2022. The Commission encourages the Department to consult with interested parties to develop proposed guidance on this issue.

38. Utility innovation plan filings shall include:

    a. An assessment of impacts on local communities in and around proposed project sites and a summary of outreach/community workshops held for pilots designed to reach low- and medium-income customers;

    b. A discussion of expectations for program access and types of customers that may participate;

    c. A discussion of how equity and diversity was or will be considered in the program design process and any utility vendor/supplier selection processes;

    d. The most recent metrics filed under the Commission's January 7, 2020, Order of Service Quality Reports in Dockets No. G-004/M-19-280, G-008/M-19-300, G-011/M-19-303, G-002/M-19-304, and G-002/M-19-305; and

    e. A nontechnical summary describing how the innovation furthers the state's greenhouse gas emissions reduction and renewable energy goals, the process and analytical techniques used to create the plan, percentage greenhouse gas emission reductions through the plan, all projects proposed and considered by the utility ranked in order of cost per ton of avoided greenhouse gas emissions, costs and

activities required over the next five years to implement the plan, the likely effect of plan implementation on gas rates and bills, and local economic development and future innovation associated with the plan.

39. Prior to approval of any hydrogen blending pilot, the utility shall:

    a. Clearly state the learning objectives for the proposed blending pilot and metrics it will collect to achieve those learning objectives;

    b. Document the utility's consultation with the Minnesota Office of Pipeline Safety regarding the specific pilot along with a discussion of why it is in compliance with state pipeline safety standards; and

    c. Provide a discussion demonstrating that the utility has determined the level of hydrogen blending will ensure the safety of its system and customers' appliances.

40. The Commission will consider non-energy impacts when evaluating NGIA resources and pilots. Utilities are encouraged to work with stakeholders to develop valuations for appropriate non-energy impacts prior to filing an NGIA plan.

41. This order shall become effective immediately.

BY ORDER OF THE COMMISSION

Will Seuffert
Executive Secretary

CERTIFICATE OF SERVICE

I, Chrishna Beard, 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 ESTABLISHING FRAMEWORKS FOR IMPLEMENTING MINNESOTA'S NATURAL GAS INNOVATION ACT

Docket Number **G-999/CI-21-566**
Dated this 1st day of June, 2022

/s/ Chrishna Beard

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