



Illinois Commerce Commission Future of Gas Phase 1 Workshops Facilitator Report to the Commission

**Celia Johnson Consulting LLC,
Workshop Facilitator**

***Co-authored with
Illinois Commerce Commission Staff***

Final – July 29, 2024

Table of Contents

Executive Summary.....	i
I. ICC Future of Gas Workshops Overview.....	1
A. Facilitator.....	1
B. Initial Discussion Topics	2
C. Purpose of Phase 1 Workshops.....	2
D. Purpose of Phase 2 Workshops.....	3
E. Timeline for Phase 2 Workshops.....	3
II. ICC Future of Gas Phase 1 Workshop Process	3
A. Phase 1 Report	3
B. Phase 1 Workshop Plan	4
C. Workshop Website.....	4
D. Workshop Guiding Principles	5
E. Workshop Participation.....	5
F. Engaging Community Organizations	6
1. Evening Workshop.....	7
2. Listening Sessions.....	7
3. Additional Community Organization Meetings.....	7
4. Participating Community Organizations	7
5. Topic Themes Identified by Community Organizations.....	8
G. Written Comments	9
H. Resources Provided.....	9
III. ICC Future of Gas Phase 1 Workshop Meetings	9
A. Workshop #1: Monday, April 1, 2024.....	10
B. Workshop #2: Monday, April 8, 2024.....	10
C. Workshop #3: Monday, April 22, 2024	12
D. Workshop #4: Monday, April 29, 2024	14
E. Workshop #5: Monday, May 6, 2024	14
F. Workshop #6: Monday, May 20, 2024	17
G. Workshop #7: Wednesday, May 29, 2024.....	20
IV. Topics Identified During Phase 1 Workshops	23
1. Decarbonization Targets, Timelines, and Milestones	23
2. Foundational Data and Methodologies.....	24

3.	Decarbonization Pathways.....	25
4.	Decarbonization Impacts on the Natural Gas System and Responses.....	29
5.	Customer Choice and Protections.....	30
6.	Cost and Affordability Considerations	31
7.	Equity, Environmental Justice and Community Issues	32
8.	Electric Utility Considerations.....	33
9.	Economic Development and Businesses	34
10.	Workforce Considerations	35
11.	Utility Structure/Market Structure Issues.....	35
12.	Regulatory Changes and Strategies	36
V.	Conclusion.....	37
VI.	Appendices	37

Executive Summary

This Illinois Commerce Commission (“ICC” or “Commission”) Future of Gas Workshops Phase 1 Facilitator Report summarizes the ICC’s Future of Gas Phase 1 Workshop series held in April and May 2024.

Creation of a “Future of Gas” proceeding in Illinois was directed by the Commission in November 2023 in Commission Final Orders on rate case proceedings by Illinois gas utilities, including Ameren Illinois, Nicor Gas, Peoples Gas and North Shore Gas.¹ The Commission initiated the “Future of Gas” proceeding in March 2024, with an Initiating Order in ICC Docket Number 24-0158.² This Initiating Order further described the purpose of the proceeding, including the timing for two series of public workshops to occur before the initiation of a formal docketed proceeding.

The purpose of the ICC Future of Gas Workshops Phase 1 Workshop series was to identify all relevant topics and issues related to the future of natural gas in Illinois and decarbonizing the State of Illinois’ natural gas distribution system.

Section I of this report includes an overview of the ICC Future of Gas Workshops, with information on the facilitator, the initial list of Future of Gas topics identified by the Commission, the purpose of Phase 1 and Phase 2 Workshops, and the timing for Phase 2 Workshops. Section II provides an overview of the Phase 1 Future of Gas Workshop process, including the Workshop Plan, Workshop website, guiding principles, participation, process and outcome of engaging community organizations, process for soliciting written comments, and resources provided by participants. Section III includes a summary of the seven Phase 1 Workshop meetings. Finally, Section IV contains the list of Future of Gas topics and issues identified throughout the Phase 1 Workshop process.

There are ten appendices to this report. Appendix A contains the ICC’s March 7, 2024 Initiating Order for the ICC to convene a “Future of Gas” proceeding. Appendix B includes a list of companies and organizations that participated in Phase 1 Future of Gas Workshops. Appendices C through I include written comments received following Future of Gas Phase 1 Workshops. Presentations discussed at the Phase 1 Future of Gas Workshops are not attached to this report. Instead, presentations and other meeting materials are available for download on the ICC’s Future of Gas Workshops webpage.³ Appendix J includes written comments received on the draft Phase 1 Facilitator Report.⁴

¹ See ICC Docket No. 23-0066 (Nicor Gas); ICC Docket No. 23-0067 (Ameren Illinois); ICC Docket No. 23-0068 and 23-0069, consolidated (Peoples Gas and North Shore Gas)

² See ICC Docket No. 24-0158, Initiation of proceeding to examine the Future of Natural Gas and issues associated with decarbonization of the gas distribution system, March 7, 2024.

³ See ICC Future of Gas Proceedings webpage: <https://icc.illinois.gov/programs/Future-of-Gas-Workshop>

⁴ The draft Phase 1 Facilitator Report was circulated to the ICC Future of Gas Workshop distribution list on June 26, 2024. Comments were due July 12, 2024.

I. ICC Future of Gas Workshops Overview

In November 2023, the Commission issued decisions on rate increases and other revisions proposed by Illinois gas utilities, including Ameren Illinois, Nicor Gas, Peoples Gas and North Shore Gas.⁵ Several parties who intervened in the gas utility rate case dockets suggested a “Future of Gas” proceeding, among other policy proposals. Parties in the gas utility dockets generally agreed there are issues related to the future of natural gas in Illinois that would benefit from additional discussion. Within the gas utility dockets, Commission Staff noted these issues should be addressed in a forum that includes all interested stakeholders.

In its Final Orders on the gas rate case dockets, the Commission directed its Staff to develop a plan for a “Future of Gas proceeding” in Illinois, including a timeline for Workshops and a formal proceeding. The Commission also directed each gas utility to file a Long-Term Gas Infrastructure Plan on a biennial basis beginning in mid-2025. The purpose of these infrastructure plans is to increase transparency and remedy an information asymmetry between the gas companies, the Commission, and interested stakeholders. The Commission directed these infrastructure plans should be designed to include information related to the gas utilities’ internal decision making.

In March 2024, the Commission released an Initiating Order directing a statewide Future of Gas proceeding to commence within 30 days, including public workshops and opportunities for input from participants. The Initiating Order identified the purpose of the ICC Future of Gas proceeding, to “fully explore issues arising from decarbonization in the gas distribution system, develop recommendations for future Commission policies and action, and develop recommendations for any necessary legislative changes.”⁶ The ICC Future of Gas proceeding will evaluate the impacts of Illinois’ current decarbonization and electrification goals on the natural gas system. The main goal of the proceeding is to explore issues tied to decarbonization of the gas distribution system, including how the gas system may need to adapt.

The Initiating Order further directed that the Future of Gas proceeding should include two series of public Workshops, with opportunities for meaningful stakeholder participation. The purpose of Phase 1 and Phase 2 Workshops are further described in Section I of this report.

A. Facilitator

The Commission contracted with Celia Johnson Consulting LLC to facilitate the ICC Future of Gas Workshops (the “Facilitator”). Facilitator tasks for Phase 1 Workshops included coordinating with Commission Staff on all aspects of Workshop planning; developing the Workshop Plan, resource materials, and agendas; maintaining the distribution list; hosting and leading virtual Workshop meetings; selecting and coordinating with Workshop presenters; conducting outreach to encourage participation; taking notes at Workshop meetings; conducting background research, as needed; responding to inquiries; and drafting the Phase 1 Workshop Report.

⁵ See ICC Docket No. 23-0066 (Nicor Gas); ICC Docket No. 23-0067 (Ameren Illinois); ICC Docket No. 23-0068 and 23-0069, consolidated (Peoples Gas and North Shore Gas)

⁶ See ICC Docket No. 24-0158, Initiation of proceeding to examine the Future of Natural Gas and issues associated with decarbonization of the gas distribution system, March 7, 2024.

B. Initial Discussion Topics

In its Final Orders on the gas rate case dockets referenced in Section A above, the Commission identified the following list of initial issues for discussion in a Future of Gas proceeding⁷:

1. Potential for decarbonization of the existing gas system, including identification of technical constraints, hard to decarbonize end-uses, and methodologies for achieving decarbonization;
2. If decarbonization requires a shift to electric distribution, the timing of such a shift;
3. The role and scope of energy efficiency retrofits, for both residential and Commercial and Industrial end-users, to facilitate decarbonization;
4. Cost considerations, including the protection of non-first movers from bearing a disproportionate cost of the remaining gas system;
5. Stranded assets of the gas distribution system and planning methods to mitigate the issue, including non-pipeline alternatives;
6. Evaluation of strategies for identifying and managing infrastructure that is nearing the end of its useful life or is no longer used and useful;
7. The need for future integrated systems planning between gas and electric systems;
8. The need for line extensions (for both mains and services) on the gas distribution system in the future and the need for a rulemaking to modify existing codified line extension allowances;
9. The ability, costs, and timing of ramping up the electric distribution system to meet expanding load;
10. Additional electric distribution infrastructure needed, and interaction with existing electric multi-year rate and spending plans;
11. Potential uses for any existing gas infrastructure which may not be needed after the transition;
12. The effects of federal and state public policy that supports electrification on the gas system;
13. Legislative and regulatory changes needed to effectuate any needed transition;
14. Issues unique to propane and other liquid fuel customers; and
15. Other issues determined by the Staff to be necessary for the most thorough discussion possible.

The goal of the Phase 1 Workshop series was to further describe and expand upon these categories of issues, as directed by the Commission to its Staff in the rate case docket Final Orders.⁸

C. Purpose of Phase 1 Workshops

The “Phase 1” Workshop meeting series was held from April 1, 2024 to May 29, 2024, with seven virtual Workshops introducing a variety of topics related to the Future of Gas.

The purpose of Phase 1 Workshops was to identify all relevant topics and issues related to the future of natural gas in Illinois and decarbonizing the State of Illinois’ natural gas distribution system. The Commission also directed the Phase 1 Workshop series should further describe

⁷ See Nicor Gas Final Order at 234; Ameren Illinois Final Order at 94-95; Peoples Gas and North Shore Gas Final Order at 122.

⁸ See ICC Docket No. 23-0066 (Nicor Gas); ICC Docket No. 23-0067 (Ameren Illinois); ICC Docket No. 23-0068 and 23-0069, consolidated (Peoples Gas and North Shore Gas)

and expand upon the issues provided by the Commission in its Final Orders (see Section B above); and identify relevant informational resources, including data or analysis not yet conducted. Participants in Phase 1 Workshops were asked to avoid sharing positions or opinions about Future of Gas issues. The Workshop process utilized for Phase 1 is described below in Section II. Each Phase 1 Workshop is briefly summarized below in Section III.

D. Purpose of Phase 2 Workshops

In its Initiating Order, the Commission directed the second phase of Workshops to begin no later than September 1, 2024 and conclude by July 1, 2025. Phase 2 Workshops will focus on examining issues gathered during Phase 1, including stakeholder positions and perspectives, areas of agreement and disagreement, proposed legislative and / or regulatory solutions, and recommendations for Commission action. A Facilitator Report will be drafted following the conclusion of Phase 2 Workshops, including an opportunity for feedback from interested participants.

The Facilitator and Commission Staff will utilize the topics and issues identified during Phase 1 to plan for Phase 2. Topics and issues identified in Phase 1 are described in Section IV of this report.

E. Timeline for Phase 2 Workshops

As referenced in the Commission's March 2024 Initiating Order, the Facilitator's Phase 1 Report "shall include any recommendations from the Facilitator on the timeline for completion of the second series of workshops."⁹ The Facilitator and Commission Staff recognize the Future of Gas issues and topics identified during Phase 1 are complex and the scope of topics is broad. The Facilitator and Commission Staff believe it is necessary to begin the Phase 2 Workshop process before recommending any changes to timeline to the Commission. Conditional on progress, the Facilitator and Commission Staff may make a recommendation to the Commission during Phase 2 for an expanded timeline.

II. ICC Future of Gas Phase 1 Workshop Process

A. Phase 1 Report

The purpose of this Phase 1 Facilitator Report is to summarize the process and topics identified during Phase 1 Workshops, in order to inform Phase 2 Workshops. In its March 7, 2024 Initiating Order, the Commission directed the following for this "initial report":

Upon completion of the first series of workshops, the Facilitator shall: (1) publish to the Commission's website a first draft of a public initial report ("Initial Report") that identifies and concisely describes topics, information, and issues raised by parties; (2) provide parties the ability to comment on the first draft of the Initial Report; and (3) incorporate those comments into the final draft of the Initial Report. A final draft of the Initial Report shall be completed and submitted to the Commission no later than August 1, 2024. The Initial Report shall inform the second series of workshops and shall include any recommendations from the Facilitator on the timeline for completion of the second series of workshops. Upon review of

⁹ See ICC Docket No. 24-0158, Initiation of proceeding to examine the Future of Natural Gas and issues associated with decarbonization of the gas distribution system, March 7, 2024.

the Initial Report, the Commission may revise the tentative schedule for the second series of workshops detailed below.¹⁰

The Facilitator and Commission Staff recognize there are diverse viewpoints on many of the future of gas topics introduced during Phase 1 Workshops. Commission Staff is not making any conclusions or recommendations at this time based on information presented in Phase 1.

The draft Phase 1 Facilitator Report and Appendices were posted on the ICC Future of Gas Proceedings website and circulated to the distribution list on June 26, 2024. Comments were due July 12, 2024. Written comments received are attached to this final report in Appendix J, and posted on the ICC Future of Gas Proceedings website.

The Facilitator and Commission Staff appreciate Workshop participants reviewing the draft Phase 1 Report and sharing input. Several clarifications were incorporated in Section III, ICC Future of Gas Phase 1 Workshop Meetings. The majority of comments focused on Section IV, Topics Identified During Phase 1 Workshops. A number of commenters also raised questions and suggestions about Phase 2 Workshops, including sharing process recommendations and requesting information on how topics will be prioritized. The purpose of this Phase 1 Report is to summarize the Phase 1 process, meetings held, and Future of Gas topics identified during Phase 1. The Facilitator and Commission Staff appreciate the questions and suggestions about the Phase 2 process. While the Phase 2 process is not included in this Phase 1 Report and is in development, the Facilitator and Commission Staff will be mindful of the suggestions received. The Facilitator and Commission Staff will share information about the Phase 2 process and plan at the kick-off meeting scheduled on August 28, 2024.

B. Phase 1 Workshop Plan

In March 2024, the Facilitator developed a Phase 1 Workshop Plan in advance of the Phase 1 kick-off meeting held on April 1, 2024. The Phase 1 Workshop Plan identified a variety of process components, including background on the ICC Future of Gas Workshop proceeding; timing for Phase 1 Workshops; Workshop guiding principles; Workshop participation; strategies to engage community organizations; and a tentative schedule of topics for Phase 1 Workshops.

At the April 1, 2024 kick-off meeting, the Facilitator noted the process would be flexible, as needed.¹¹ The Facilitator and Commission Staff made three changes during implementation of Phase 1 compared to the information presented in the Phase 1 Workshop Plan: 1) Added a Workshop to provide more time for introduction of manufacturing considerations, workforce and organized labor considerations, and wastewater agency considerations; 2) Shifted topic timing in the schedule based on presenter availability and the need to prioritize introductory discussions in Phase 1; and 3) Moved the timeline for requesting written recommendations on future docketed proceedings to Phase 2.

C. Workshop Website

The Commission created a dedicated website to share information about the Workshops.¹² The ICC Future of Gas Proceedings webpage includes discussion topics identified during Phase 1,

¹⁰ See ICC Docket No. 24-0158, Initiation of proceeding to examine the Future of Natural Gas and issues associated with decarbonization of the gas distribution system, March 7, 2024.

¹¹ See [April 1, 2024 ICC Future of Gas Workshop Facilitator Presentation](#), slide 19.

¹² See ICC Future of Gas Proceedings webpage: <https://icc.illinois.gov/programs/Future-of-Gas-Workshop>

the Workshop schedule, Workshop comments received, meeting materials, and a page to sign up for the distribution list. For Phase 1 Workshops, the meeting materials page includes meeting recordings, agendas, presentations, attendees, notes and follow-up from each meeting.

D. Workshop Guiding Principles

Guiding principles of the ICC Future of Gas Phase 1 Workshop process included the following:

1. Focus on discussions that are productive and valuable

- Provide opportunities to educate and inform
- Encourage collaborative and fact-based discussion, with the goal of reducing future litigation

2. Conduct Workshops in an open, inclusive and transparent manner

- Encourage transparent information and data sharing
- Encourage participation from a diverse set of stakeholders representing a variety of interests

3. Provide equitable opportunities for participation

- Workshop participation is an opportunity to engage with the ICC without requiring formal intervention or legal representation
- Participation options include virtual Workshop meetings, submitting written comments, and meeting one-on-one or in small groups with the Facilitation Team

E. Workshop Participation

The March 7, 2024 Commission Initiating Order references participation:

[ICC] Staff states that it will ensure that the workshop series, comment processes, and activities conducted prior to the initiation of any docketed proceedings will be conducted in an open, inclusive, and transparent manner.¹³

Participation in ICC Future of Gas Phase 1 Workshops was open to all interested parties. Prior to the April 1, 2024 Phase 1 kick-off meeting, the Facilitator worked with Commission Staff to share an announcement with distribution lists for other Illinois processes. This announcement included background information about the new Workshop proceeding, and an invitation to sign up for the distribution list on the ICC Future of Gas website. At the conclusion of the Phase 1 Workshops, over 800 people were on the distribution list. Phase 1 Workshops typically included over 300 participants, representing a wide range of backgrounds and interests. Categories of participants included community representatives, consumer advocates, electric utilities, energy industry groups and expert organizations, environmental advocates, Illinois Commerce Commission and its Staff, Illinois Legislature representatives, industry trade groups, municipal utilities and cooperatives, natural gas utilities, organized labor representatives, private industry representatives, State of Illinois agencies, and ratepayer advocates. A list of participating companies and organizations can be found in Appendix B to this report.

To encourage broad participation, the following strategies were used:

¹³ See ICC Docket No. 24-0158, Initiation of proceeding to examine the Future of Natural Gas and issues associated with decarbonization of the gas distribution system, March 7, 2024.

1. **Hold virtual Workshop meetings:** Seven (7) virtual Workshops were held during Phase 1, including one (1) community meeting in the evening. Follow-up items and any new issues identified during each meeting were tracked by the Facilitator, included in meeting notes, and utilized in drafting the summary of topics in Section IV of this report. All Phase 1 Workshops were recorded, with recordings posted on the ICC Future of Gas website.
2. **Provide an opportunity for informal written comments to be submitted following each Workshop:** Beginning with Workshop #2, interested participants had an opportunity to submit written feedback about the topics addressed in the Workshop, with the goal of identifying Future of Gas topics that may need to be further addressed during Phase 2 Workshops. All written comments received are posted on the ICC Future of Gas website, and attached to this report as Appendices C through I.
3. **Facilitation Team outreach to community organizations:** The Facilitator conducted outreach to community organizations that may not have had the bandwidth to participate in Phase 1 Workshops. This effort is further described in Section F below.
4. **Providing an opportunity for meetings with Facilitation Team:** The Facilitator was available throughout Phase 1 to answer questions or meet with any participating company or organization to discuss the Workshops.

F. Engaging Community Organizations

The Facilitator and Commission Staff acknowledge that community organizations are time-constrained and asked to share feedback and views in a number of different forums in Illinois beyond the ICC Future of Gas Workshop proceeding. To encourage participation from a diverse set of stakeholders representing a variety of interests and to provide equitable opportunities for participation, the Facilitator offered multiple opportunities to participate both within the Workshop sessions themselves and outside of it in the form of small group “Listening Sessions” and one on one conversations. An evening Phase 1 Workshop was also held, to provide an opportunity for input from community members and community organizations. The Facilitator created a fact sheet to share with community organizations with additional background on the ICC Future of Gas Workshops.¹⁴

To encourage participation in the Phase 1 Workshops, as well as the small group Listening Sessions and the evening Workshop, the Facilitator conducted outreach to community organizations who have participated in other Illinois processes including:

- Illinois Energy Efficiency Stakeholder Advisory Group
- Income Qualified North Energy Efficiency Committee
- Income Qualified South Energy Efficiency Committee
- Metropolitan Mayors Caucus members

The ICC Legislative Liaison shared information about Phase 1 Workshops with members of the Illinois legislature. Additionally, the Facilitator requested suggested community organization contacts from Workshop participants. From those requests, the Facilitator conducted direct outreach via email to over 70 organizations, with a fifteen percent (15%) response rate.

¹⁴ See ICC Future of Gas Phase 1 Fact Sheet: <https://icc.illinois.gov/api/web-management/documents/downloads/public/future-of-gas/ICC%20Future%20of%20Gas%20Workshop%20Fact%20Sheet.pdf>

1. Evening Workshop

An evening Workshop was held on April 29, 2024, focused on introducing the Phase 1 Future of Gas Workshop process and provided an opportunity for input from community members and community organizations on Future of Gas topics or issues that should be further explored in Phase 2. More than 200 participants attended the evening Workshop.

2. Listening Sessions

The Facilitator held two small group Listening Sessions with interested community organizations. The goal of the Listening Sessions was to raise awareness about the ICC Future of Gas Phase 1 Workshops, and to hear directly from representatives of community organizations to identify Future of Gas topics that may be further explored in Phase 2 Workshops. During each Listening Sessions, the Facilitator provided a brief introduction to the Commission and the Future of Gas Workshop, as well as an opportunity for discussion.

Participants at the Listening Session on April 24, 2024, discussed the need for education to help individuals understand decarbonization tools and technologies and how a carbon-free transition might impact them. Participants discussed workforce considerations, cost and affordability considerations, the potential for [energy efficiency] requirements, and how to support small businesses and protect consumers during an energy transition.

Participants at the Listening Session on May 9, 2024, discussed considerations around the impact of an energy transition on smaller manufactures, homeowners, and renters to make infrastructure improvements (costs, capital). The group discussed the impact on workforce development and the importance of timing for training programs ahead of funding, the need to include BIPOC (Black, indigenous, people of color) communities in conversations every step of the way, and policy considerations as a tool for accountability. Participants also discussed education as an important tool as well as considerations for aligning needs to resources and tracking outcomes.

3. Additional Community Organization Meetings

In addition to the evening Workshop and small group Listening Sessions, the Facilitator met with two other groups that expressed interest in learning more about the ICC Future of Gas Workshop proceedings. The Facilitator met with the DuPage Mayors and Managers Conference Regulatory Issues Committee and the Income Qualified South Energy Efficiency Committee Leadership Team.

Participants in the Income Qualified South Energy Efficiency Committee Leadership Team session on June 3, 2024 discussed cost considerations of electrification including financial viability and feasibility for low-income households including sunk-costs for current programs installing natural gas equipment. The Leadership Team mentioned importance of aligning federal, state, and local initiatives and the need for customer and contractor education on electrification opportunities, especially in low-income areas.

4. Participating Community Organizations

The following organizations participated in the small group Listening Sessions and other community organization meetings:

- Aces 4 Youth
- East Central Illinois Community Action Agency

- Equitable Resilience & Sustainability, LLC
- Faith In Place
- Growth Dimensions Economic Development
- Hire 360
- Hispanic American Construction Industry Association
- Illinois Association of Community Action Agencies
- Quad Cities Chamber
- Sustainable Environmental and Economic Development Solutions

A number of additional community organizations participated in several of the Phase 1 Workshops. All participating companies and organizations from Phase 1 Workshops are listed in Appendix B.

5. Topic Themes Identified by Community Organizations

As referenced above, the goal of meeting with community organizations was to gather input on Future of Gas topics that may be further explored in Phase 2. The Facilitator presented a report-out on community organization feedback at the final Phase 1 Workshop held on May 29, 2024.¹⁵ The following topic themes were raised by community organizations:

- **Data and Accountability:** Who will track funding distribution and which tools will be used to align community needs with resources especially as it relates to environmental justice and BIPOC communities, including the question whether Census tract data or Restore, Reinvest, Renew (R3) maps be used.¹⁶
- **Economic Development:** Consider the impact of a clean energy transition for the Illinois economy.
- **Education:** Education is needed to help inform residents about carbon-free technologies, access to technologies, as well as information on how electrification will be implemented. Education should be differentiated for different types of users (residents, businesses, developers, municipal leaders, etc.).
- **Equity:** How to include BIPOC communities in the conversation every step of the way; how can we ensure that small businesses and manufacturers have equal access to capital and opportunities; how we can understand the impact of an energy transition on BIPOC communities; how can individual communities can explore carbon-free solutions.
- **Health and Safety:** What consumer protections will be in place to support residents and small businesses; how will new infrastructure impact natural resources, air quality, land use, and water; how we can use social determinants of health to track impacts.
- **Policy:** What policies need to be put in place to protect consumers, ensure an equitable transition, and track efforts.
- **Transition Costs:** Who will pay for a clean energy transition and how will funding be distributed; how will aging housing stock will be addressed related to electrification; how to address a potential rise in the cost of goods and services as businesses invest in carbon-free infrastructure.
- **Workforce Development and Training:** Identify new skills training and certifications needed during an energy transition; consider the rollout and timing of programs to

¹⁵ See May 29, 2024 [Facilitator Phase 1 Conclusion Presentation](#).

¹⁶ R3 areas are identified by considerations such as their associated rates of gun injuries, child poverty, unemployment and incarceration.

ensure they are in place prior to funding opportunities; ensure that individuals are being hired from within the communities they serve.

The themes above have been summarized in the Future of Gas topics list included in Section IV of this report.

G. Written Comments

As referenced above in Section E, the Facilitator and Commission Staff solicited written comments following the majority of Phase 1 Future of Gas Workshop meetings, starting with the second Workshop held on April 8, 2024. The purpose of providing an opportunity for comments after each Phase 1 Workshop was for participants to reflect on the information presented and suggest Future of Gas topics that may need further exploration in Phase 2 Workshops. Several participants also submitted general comments about Future of Gas issues.

All written comments received are posted on a dedicated page of the ICC Future of Gas Workshops Proceedings website.¹⁷ Written comments are also attached to this report in Appendices C through J.

H. Resources Provided

The Facilitator and Commission Staff acknowledge that a number of documents were shared by participants during Phase 1 Workshops, including research reports, news articles, and other resources. Resources provided related to Phase 1 Workshops are listed in Section III below. The Commission will also add a dedicated page to the ICC Future of Gas website to list resources for participants. Commission Staff is not making any conclusions or recommendations based on the resources provided by participants during Phase 1.

III. ICC Future of Gas Phase 1 Workshop Meetings

Seven Phase 1 Workshop meetings were held in April and May 2024. Section III of this report briefly summarizes presentations during each Phase 1 Workshop. The purpose of Phase 1 Workshops was to identify all relevant topics and issues related to the future of natural gas in Illinois and decarbonizing the State of Illinois' natural gas distribution system. The Facilitator and Commission Staff recognize there are diverse viewpoints on many of the Future of Gas topics introduced during Phase 1 Workshops. Commission Staff is not making any conclusions or recommendations at this time based on information presented in Phase 1.

The Facilitator tracked questions and topics raised during Phase 1 Workshop meetings. For questions that presenters were not able to respond to in the meeting, presenters were given an opportunity after the meeting to provide follow-up information. Responses are posted on the ICC Future of Gas Proceedings website.¹⁸

¹⁷ See ICC Future of Gas Proceedings webpage, Workshop Comments: <https://icc.illinois.gov/programs/Future-of-Gas-Workshop-Comments>

¹⁸ See ICC Future of Gas Proceedings webpage, Meeting Materials: <https://icc.illinois.gov/programs/Future-of-Gas-Workshop-Presentations>

A. Workshop #1: Monday, April 1, 2024

The April 1, 2024 Workshop was introductory. Commission Chairman Doug Scott and the Commission's Executive Director Jonathan Feipel shared opening remarks to kick-off the Phase 1 Workshop series. Chairman Scott highlighted the importance of exploring potential decarbonization pathway options in Illinois with all interested stakeholders in a collaborative process. The Facilitator presented an overview of the Phase 1 Future of Gas Workshop process, including an introduction to the Commission, background on creating a Future of Gas proceeding in Illinois, and the Phase 1 Workshop plan and schedule.

The following additional information was shared during and after the April 1 Workshop:

- ICC Future of Gas Proceedings website: <https://icc.illinois.gov/programs/Future-of-Gas-Workshop>
- ICC Future of Gas Phase 1 [Workshop Plan \(Final Draft\)](#)
- ICC Docket No. 23-0067 (Ameren Illinois), [Commission Final Order](#)
- ICC Docket No. 23-0066 (Nicor Gas), [Commission Final Order](#)
- ICC Docket Nos 23-0068 and 23-0069 (Peoples Gas and North Shore Gas), [Commission Final Order](#)
- ICC Docket No. 24-0158, Commission Initiating Order to commence a Future of Gas proceeding (March 2024): <https://icc.illinois.gov/docket/P2024-0158/documents/347887>

B. Workshop #2: Monday, April 8, 2024

The April 8, 2024 Workshop focused on introducing Future of Gas considerations, educating participants about current utility energy efficiency electrification efforts in Illinois, and introducing carbon emission-free technology considerations.

The Regulatory Assistance Project (RAP) presented an introduction to Future of Gas considerations, highlighting a May 2021 report.¹⁹ RAP introduced various gas terminologies, explained fossil fuel production and delivery, and provided an overview of the regulatory framework for gas utilities. The presenter discussed historic U.S. natural gas consumption by sector. RAP also highlighted key trends across the U.S., including efficient appliances and efficient heating electrification. The presenter introduced alternative gas issues, such as biomethane and hydrogen. RAP provided an overview of federal, state and local policies to address greenhouse gas emissions, including pollution reduction targets, Cap-and-trade programs, building energy performance standards, building code heating equipment restrictions, heating equipment emissions standards, and clean heat standards. Lastly, RAP shared considerations policymakers need to keep in mind during a clean energy transition, including impacts to customers, actions needed by public utility commissions, modernized gas planning, and equity.

Two Illinois electric utilities, ComEd and Ameren Illinois (a dual fuel utility), shared an overview of their energy efficiency electrification initiatives. The purpose of the ComEd and Ameren Illinois presentations was to better understand current energy efficiency electrification initiatives in Illinois. One of the topics in the ICC Initiating Order references exploring the role and scope of energy efficiency retrofits to facilitate decarbonization. ComEd's presentation defined statutory requirements from the Climate and Equitable Jobs Act related to energy efficiency electrification; an overview of the top electrification space heating measures and other

¹⁹ Regulatory Assistance Project: Under Pressure: Gas Utility Regulation for a Time of Transition (May 2021). Available at: <https://www.raponline.org/toolkit/under-pressure-gas-utility-regulation/>

residential and commercial and industrial electrification measures; a summary of ComEd's energy efficiency electrification offerings; challenges and strategies to lower costs. Ameren Illinois' presentation explained their current electrification offering and measures; how the energy efficiency electrification offering is implemented; and other considerations and challenges.

GTI Energy and Home Energy Efficiency Team (heet) presented an introduction to carbon emission-free technology considerations. The purpose of introducing technology considerations was to ask Workshop participants to identify additional emission reduction technologies that should be further explored. heet provided an introduction to thermal energy networks, explaining geothermal technologies. GTI Energy introduced a recent study analyzing a number of studies and net zero scenarios.²⁰ GTI Energy also explained several decarbonization technologies, including hybrid or dual fuel heat pumps, gas heat pumps, building space envelope retrofits options, a microgrid test bed, decarbonization for pipeline gas (renewable natural gas, clean hydrogen), network geothermal, and reducing upstream methane emissions.

ICC Staff requested written comments following Workshop #2, including the following questions:

1. What topics should be furthered explored related to energy efficiency electrification?
2. What emission reduction technologies should be furthered explored?
3. Is there another category of Future of Gas workshop topics that should be added?

Written comments received following Workshop #2 are included in Appendix D.

The following additional information was shared during and after the April 8 Workshop:

- **Research:**

- GTI Energy, Low Carbon Resources Institute and Electric Power Research Institute: Designs for Net-Zero Energy Systems: Meta-Analysis of U.S. Economy-Wide Decarbonization Studies (November 2023). Source: https://www.gti.energy/wp-content/uploads/2024/02/Meta-Analysis-of-U.S.-Economy-Wide-Decarbonization-Studies_Feb2024.pdf
- Regulatory Assistance Project: Under Pressure: Gas Utility Regulation for a Time of Transition (May 2021). Source: <https://www.raponline.org/toolkit/under-pressure-gas-utility-regulation/>
- U.S. Department of Energy Office of Scientific and Technical Information, Grid Cost and Total Emissions Reductions Through Mass Deployment of Geothermal Heat Pumps for Building Heating and Cooling Electrification in the United States (November 1, 2023). Source: <https://www.osti.gov/biblio/2224191/>

- **Resources:**

- Ameren Illinois Energy Efficiency Programs: <https://www.amerenillinoisavings.com/>
- ComEd Go Electric: <https://goelectric.comed.com/>
- ICC Thermal Energy Network Forum webpage: <https://www.icc.illinois.gov/informal-processes/Thermal-Network-Energy-Providers>
- ICC Thermal Energy Network Report to the Governor and Illinois General Assembly (February 2024): <https://icc.illinois.gov/api/web->

²⁰ GTI Energy: Designs for Net-Zero Energy Systems: Meta-Analysis of U.S. Economy-Wide Decarbonization Studies (November 2023). Source: https://www.gti.energy/wp-content/uploads/2024/02/Meta-Analysis-of-U.S.-Economy-Wide-Decarbonization-Studies_Feb2024.pdf

[management/documents/downloads/public/TEN/Thermal%20Energy%20Network%20Report%202024.pdf](https://www.aceee.org/policy-brief/2024/04/how-decarbonize-industrial-process-heat-while-building-american-manufacturing)

C. Workshop #3: Monday, April 22, 2024

The April 22, 2024 Workshop focused on introducing industrial decarbonization and introducing gas utility considerations related to the future of natural gas distribution in Illinois.

The American Council for an Energy Efficient Economy (ACEEE) presented an introduction to industrial decarbonization, highlighting an April 2024 report on decarbonizing industrial process heat.²¹ ACEEE provided an overview of industrial energy use and emissions. ACEEE also introduced four industrial decarbonization strategies (energy efficiency; industrial electrification; low carbon fuels, feedstocks and energy sources; and carbon capture, utilization and storage). Lastly, the presentation discussed the food and beverage sector as an example and highlighted decarbonization opportunities and challenges.

Nicor Gas presented an introduction to the overall gas system on behalf of the investor-owned gas utilities in Illinois (Ameren Illinois, MidAmerican Energy, Peoples Gas and North Shore Gas). This presentation included an overview of gas distribution systems, as well as Nicor Gas-specific information on energy supply and delivery, the transmission system, underground gas storage reservoirs, interconnection with eight interstate gas pipelines, and gas utility peak hour energy delivery. Nicor Gas presented information about the resiliency, reliability and efficiency of gas systems.

Ameren Illinois (a dual fuel utility) presented information on Ameren Illinois' gas customer footprint, gas system peak energy delivery, and natural gas storage capacity. Ameren Illinois also shared current system conditions, including 2023 gas volumes. Ameren Illinois highlighted that the overall system throughput has been steady with an increase in transport customers and a slight decline in sales customers. Cold weather events have created significant peaks within the last 15 years. The utility shared gas system requirements, considering both design requirements and federal pipeline safety regulations. Ameren Illinois highlighted technology options to curb fugitive emissions. Lastly, the presenter raised gas utility considerations, including stranded asset potential, future integrated system planning, non-pipeline alternatives, and key takeaways for Illinois to consider.

MidAmerican Energy (a dual-fuel utility) presented information on their natural gas customers and an overview of their renewable energy efforts. The presenter highlighted investments in system modernization and explained a "Destination Net Zero" project.

Nicor Gas presented information on growth in the demand for natural gas service in Illinois. The presenter explained the installed cost of electric heat pumps compared to installing an efficient gas furnace and air conditioner, the cost of electric heat, and the benefits of natural gas efficiency programs. Nicor Gas also highlighted natural gas efficiency studies and net zero natural gas efficiency options. Lastly, the presenter explained the impact of expanding natural gas energy efficiency programs with legislative changes.

²¹ American Council for an Energy Efficient Economy: How to Decarbonize Industrial Process Heat While Building American Manufacturing Competitiveness (April 23, 2024). Source: <https://www.aceee.org/policy-brief/2024/04/how-decarbonize-industrial-process-heat-while-building-american-manufacturing>

Peoples Gas and North Shore Gas presented on infrastructure, a gas decarbonization roadmap, and implications of electrification in Chicago. On infrastructure, the presenter provided an overview of the Safety Modernization Program, and examples of how the program has lowered methane emissions. On the gas decarbonization roadmap, Peoples Gas and North Shore Gas highlighted the difference in emissions between gas furnaces and electric heat pumps, the impacts of their gas energy efficiency programs, technology options for homes and businesses, and clean fuel options. The presenter also explained a carbon capture technology option, shared information about residential gas heat pumps, and highlighted options for storing and delivering renewable energy through gas networks. Lastly, Peoples Gas and North Shore Gas presented analysis on a potential future electrification scenario in Chicago.

ICC Staff requested written comments following Workshop #3, including the following questions:

1. What topics should be furthered explored related to industrial decarbonization?
2. What topics should be furthered explored related to gas utility considerations?
3. Is there another category of Future of Gas workshop topics that should be added?

Written comments received following Workshop #3 are included in Appendix E.

The following additional information was shared during and after the April 22 Workshop:

- **Research:**

- Advances in Applied Energy Journal: Electrification potential of U.S. industrial boilers and assessment of the GHG emissions impact (February 2022). Northwestern University, Department of Chemical and Biological Engineering; National Renewable Energy Laboratory; and University of California, Santa Barbara, Bren School of Environmental Science & Management. Source: <https://www.nrel.gov/docs/fy22osti/81721.pdf>
- American Council for an Energy Efficient Economy: How to Decarbonize Industrial Process Heat While Building American Manufacturing Competitiveness (April 23, 2024). Source: <https://www.aceee.org/policy-brief/2024/04/how-decarbonize-industrial-process-heat-while-building-american-manufacturing>
- EPRI Presentation at U.S. Department of Energy Heat Shot Summit: Electrification of Industrial Process Heat and Steam (October 23, 2024). Source: https://www.energy.gov/sites/default/files/2023-11/3.2a_geoffrey-blanford-industrialheatshotsummit-oct2023_0.pdf
- International Energy Agency (IEA): The Future of Heat Pumps (December 2022). Source: <https://iea.blob.core.windows.net/assets/4713780d-c0ae-4686-8c9b-29e782452695/TheFutureofHeatPumps.pdf>
- National Renewable Energy Laboratory (NREL): Heat Pump Report (February 2024). Source: <https://www.nrel.gov/news/press/2024/benefits-of-heat-pumps-detailed-in-new-nrel-report.html>
- U.S. Department of Energy Clean Hydrogen Commercial LIFTOFF Report: <https://liftoff.energy.gov/clean-hydrogen/>
- U.S. Department of Energy Industrial Decarbonization Commercial Liftoff Report: <https://liftoff.energy.gov/industrial-decarbonization/>

- **Resources:**

- ACEEE – Industrial Heat Pumps: <https://www.aceee.org/industrial-heat-pumps>
- Choose Energy Electricity Generation by State: <https://www.chooseenergy.com/data-center/electricity-sources-by-state/>
- Massachusetts Future of Gas order summarizing uncertainty and cost risk around hydrogen and RNG (pages 66-72), (December 2023) <https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/18297602>

- University of Illinois at Chicago Energy Resources Center (hosts DOE Industrial Assessment Center and Onsite TAP Center): <https://erc.uic.edu>
- USA Facts Economy of Illinois: <https://usafacts.org/topics/economy/state/illinois/>
- Video about thermal batteries <https://www.youtube.com/embed/cwDly9pjSjg>
- **Articles:**
 - U.S. Department of Energy Analysis Highlights Geothermal Heat Pumps as a Pathway to a Decarbonized Energy Future. U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy. December 6, 2023. Source: <https://www.energy.gov/eere/articles/us-department-energy-analysis-highlights-geothermal-heat-pumps-pathway-decarbonized>

D. Workshop #4: Monday, April 29, 2024

The April 29, 2024 Workshop was an evening meeting. The goal of the April 29 Workshop was to raise awareness about the ICC Future of Gas proceeding; to hear directly from community members and representatives of community organizations; and to identify issues and topics related to the Future of Gas that may be further explored in Phase 2 Workshops.

The Facilitator presented an overview of the ICC, background and purpose of the ICC Future of Gas Phase 1 Workshops, and time for discussion. Background information presented included a summary of the November 2023 ICC-issued decisions on a proposed rate increases as well as the March 2024 Commission Initiating Order to convene a Future of Gas proceeding. The Facilitator also presented the Phase 1 Workshop Plan and schedule, Workshop guiding principles, Workshop participation, and an overview of outreach to community organizations. The Facilitator also identified several key definitions related to the Future of Gas, and shared the list of initial issues identified by the Commission in the March 2024 Initiating Order.

The Facilitator led an open discussion with participants, identifying three questions:

1. What topics or issues should be considered in planning for the “Future of Gas” in Illinois?
2. Which energy tools and technologies are you familiar with or interested in?
3. How can a clean energy transition be equitable in Illinois?

Issues raised during the April 29 Workshop are summarized in the Future of Gas topics included in Section IV of this report.

ICC Staff requested written comments following Workshop #4, including the following question:

- Are there any additional issues or topics that should be added to the ICC Future of Gas Workshops for consideration in Phase 2?

Written comments received following Workshop #4 are included in Appendix F.

E. Workshop #5: Monday, May 6, 2024

The May 6, 2024 Workshop focused on several research studies related to the Future of Gas, with presentations from RMI, Groundwork Data, Nicor Gas, and ICF. The May 6 Workshop also introduced agriculture considerations related to the Future of Gas in Illinois.

RMI provided an overview of non-pipeline alternatives and emerging opportunities in planning for U.S. gas system decarbonization from a May 2024 report.²² They highlighted solutions, an overview of types of non-pipeline alternatives, several case studies, as well as challenges and key takeaways.

Groundwork Data presented a summary of research on the Future of Gas in Illinois released in May 2024, including information on previous energy transitions, and in-depth cost analysis for several scenarios.²³ Groundwork Data summarized profiles for each of the four investor-owned gas utilities in Illinois (Ameren Illinois, Nicor Gas, Peoples Gas and North Shore Gas) and outlined factors disrupting the gas distribution business model. The presenter also discussed aging distribution infrastructure, summarized total customer counts and capital spending, and explained several non-gas alternatives. Groundwork Data also highlighted methodologies and scenarios for modeling the Future of Gas. Lastly, the presenter discussed renewable natural gas (RNG), an approach for a managed transition, and key takeaways from the report.

Nicor Gas presented information on net zero pathways, including key learnings from a September 2021 ICF study.²⁴ An overview of the study was shared including key takeaways and a description and key differences of four net-zero scenarios including potential costs and emissions impacts for both upstream and downstream solutions. High-level results of the study were shared for residential and commercial sectors. The presenter also identified additional Future of Gas considerations for further exploration in Illinois.

The final topic at the May 6 Workshop included an introduction to Illinois agriculture considerations, with presentations from the Illinois Farm Bureau and the Grain and Feed Association of Illinois. The Illinois Farm Bureau shared the total output of Illinois agriculture, highlighting soybean, corn and pig production. The presenter shared how emissions in the agriculture sector have changed since 1948, compared to other economic sectors. Illinois Farm Bureau introduced natural gas and propane considerations and how each is used by farmers and Illinois households. The presenter also discussed grain drying, an agriculture necessity that is fueled by natural gas or propane without a commercially available technology alternative. Illinois Farm Bureau also highlighted the use of propane in pig production. Lastly, Illinois Farm Bureau introduced a number of decarbonization considerations, including scaling efforts, cost considerations and land-use impacts.

The Grain and Feed Association of Illinois also shared perspective on agriculture considerations. The presenter provided an overview of grain handling and grain drying, explaining the purpose of a grain dryer is to dry the commodity so it does not spoil during storage. The Grain and Feed Association of Illinois explained characteristics of a commercial grain dryer, including cost considerations if there were an electric alternative.

ICC Staff requested written comments following Workshop #4, including the following questions:

1. Should any topics or issues be added related to the research presented on May 6?
2. Should any topics or issues be added related to agriculture considerations?

²² National Grid and RMI Report: Non-Pipeline Alternatives – Emerging Opportunities in Planning for U.S. Gas System Decarbonization (May 1, 2024). Source: <https://www.nationalgridus.com/News/2024/05/National-Grid-and-RMI-Examine-Role-of-Non-pipeline-Alternatives-in-the-Energy-Transition/>

²³ Building Decarbonization Coalition and Groundwork Data Report: The Future of Gas in Illinois (May 6, 2024). Source: <https://buildingdecarb.org/wp-content/uploads/BDC-The-Future-of-Gas-in-Illinois.pdf>

²⁴ ICF Research for Southern Company Gas: Decarbonization Pathways for Nicor Gas (September 2021). Source: <https://www.nicorgas.com/content/dam/southern-co-gas/nicor-gas/pdfs/sustainability/icf-nicor-report-2021.pdf>

3. A “Future of Gas Working Document of Topics” is available for review, based on the discussion and comments received to date. Please review and submit feedback if an issue or topic is missing.

Written comments received following Workshop #5 are included in Appendix G.

The following additional information was shared during and after the May 6 Workshop:

- **Research:**

- Building Decarbonization Coalition and Groundwork Data Report: The Future of Gas in Illinois (May 6, 2024). Source: <https://buildingdecarb.org/wp-content/uploads/BDC-The-Future-of-Gas-in-Illinois.pdf>
- Daniel DeSantis, Brian D. James, Cassidy Houchins, Genevieve Saur, Maxim Lyubovsky, Cost of long-distance energy transmission by different carriers, iScience, Volume 24, Issue 12, 2021, 103495, ISSN 2589-0042, <https://doi.org/10.1016/j.isci.2021.103495>.
- GRAT (grain drying heat pumps): <https://gratpro.com/heat-pump-drying-solutions-for-grain/>
- ICF Research for Southern Company Gas: Decarbonization Pathways for Nicor Gas (September 2021). Source: <https://www.nicorgas.com/content/dam/southern-co-gas/nicor-gas/pdfs/sustainability/icf-nicor-report-2021.pdf>
- National Grid and RMI Report: Non-Pipeline Alternatives – Emerging Opportunities in Planning for U.S. Gas System Decarbonization (May 1, 2024). Source: <https://www.nationalgridus.com/News/2024/05/National-Grid-and-RMI-Examine-Role-of-Non-pipeline-Alternatives-in-the-Energy-Transition/>
- National Petroleum Council: Charting the Course, Reducing GHG Emissions from the U.S. Natural Gas Supply Chain (April 2024). Source: chartingthecourse.npc.org/files/GHG-Report_Summary-Charting_Course-2024-04-23.pdf
- RMI: Overextended: It’s Time to Rethink Subsidized Gas Line Extensions (December 2021). Source: <https://rmi.org/insight/its-time-to-rethink-subsidized-gas-line-extensions/>
- RMI: The case for natural gas transition planning; how policymakers and advocates can initiate regulatory proceedings and maximize their effectiveness (September 2023). Source: https://rmi.org/wp-content/uploads/2023/09/gas_policy_memo_september-2023.pdf
- University of Massachusetts Amherst: Equitable Energy Transition Planning in Holyoke Massachusetts: A Technical Analysis for Strategic Gas Decommissioning and Grid Resiliency (January 1, 2023). Source: <https://scholarworks.umass.edu/entities/publication/4f4f57a2-0cc4-46d1-b7f3-ff31cee2c2de>
- Wilson et al., Heat pumps for all? Distributions of the costs and benefits of residential air-source heat pumps in the United States, Joule (2024), <https://doi.org/10.1016/j.joule.2024.01.022>

- **Resources:**

- Building Decarbonization Coalition Future of Gas Proceedings tracker: [Future of Gas Proceedings in the U.S. \(rev. May 2024\) - Google Sheets](#)
- Choose Energy Electricity Generation by State: <https://www.chooseenergy.com/data-center/electricity-sources-by-state/>
- Electricity Maps: <https://app.electricitymaps.com/map>

- Groundwork Data Research Publications: <https://www.groundworkdata.org/research>
- NREL Scenario Viewer: <https://scenarioviewer.nrel.gov/>
- Nyle Dehydrators: <https://www.nyledehydrators.com/>
- U.S. Energy Facts by Source and Sector: <https://www.eia.gov/energyexplained/us-energy-facts/>
- **Articles:**
 - How targeted electrification can support a managed transition: Opinion article for Utility Dive. March 15, 2024. Source: <https://www.utilitydive.com/news/targeted-electrification-natural-gas-pipeline-system-transition/710115/>
 - Solar and battery storage to make up 81% of new U.S. electric-generating capacity in 2024. U.S. Energy Information Administration. February 15, 2024. Source: <https://www.eia.gov/todayinenergy/detail.php?id=61424>

F. Workshop #6: Monday, May 20, 2024

The purpose of the May 20, 2024 workshop was to introduce equity and environmental justice considerations related to the Future of Gas in Illinois, to understand the role of Regional Transmission Organizations (RTO) in future planning, and to introduce electric utility considerations related to the Future of Gas in Illinois.

During the Facilitator's meeting introduction, Commission Staff shared information about upcoming research on resource adequacy required by the Climate and Equitable Jobs Act (CEJA).²⁵ CEJA requires the Illinois Environmental Protection Agency, Illinois Power Agency, and the Commission to prepare and release a report in 2025²⁶ (and every 5 years thereafter), examining:

- Illinois' current progress toward its renewable energy resource development goals;
- Status of CO₂e and copollutant emissions reductions;
- Current status and progress toward developing and implementing green hydrogen technologies;
- Current and projected status of electric resource adequacy and reliability throughout the State for the period beginning five (5) years ahead; and
- Proposed solutions for any findings.

The Agencies referenced above will also consult with the Regional Transmission Organizations, MISO and PJM Interconnection, on the following:

- Forecasted resource adequacy and reliability needs;
- Anticipated new generation interconnection;
- New transmission development or upgrades; and
- Any announced large greenhouse gas (GHG)-emitting unit closure dates.

National Renewable Energy Laboratory (NREL) provided an overview of what a decarbonized transition could look like and introduced equity and environmental considerations, including current regulatory and economic barriers. NREL highlighted considerations for transforming the natural gas system, including infrastructure planning, addressing resilience and vulnerabilities, grid stability, and equity. NREL discussed that the success of a technology-centric approach is limited by socioeconomic factors. The presenter shared economic and regulatory barriers to be considered. NREL provided definitions for "climate justice", "environmental justice", and "energy

²⁵ Environmental Protection Act, 415 ILCS 5/9.15 subsection (o)

²⁶ The first resource adequacy report will be released by December 15, 2025.

justice (or energy equity).” NREL emphasized the need to expand equity-centered deployment to inform research and development. The presenter shared a five-step framework for equitable electrification, and discussed three case studies – the Los Angeles 100% Renewable Energy Study, New York State’s Climate Leadership and Community Protection Act, and the BlueGreenAlliance.

Midcontinent Independent System Operator (MISO) and PJM Interconnection (PJM) are two of ten Regional Transmission Organizations (RTOs) in North America, with oversight by the Federal Energy Regulatory Commission (FERC). An RTO is an entity that manages, coordinates and oversees the operation of electrical power transmission across multiple states or regions. RTOs are independent organizations that focus on the reliable and efficient operation of the electric grid in their respective geographic areas. Among other geographic areas, MISO covers Ameren Illinois’ service territory, while PJM covers ComEd’s service territory. Both MISO and PJM presented an introduction to the role of RTOs in future grid planning.

MISO shared an overview of their organization and operations, covering fifteen (15) U.S. States and Manitoba, Canada. MISO explained their role to provide independent transmission system access, deliver reliability through wholesale energy market platform and coordinated operations, and coordinate regional planning of transmission and generating resources. MISO introduced challenges to electric system reliability, and shared an overview of their “Reliability Imperative”, which includes a number of initiatives related to market operations and system enhancements. The presenter also discussed Long-Term Load Forecasting (LTLF) methodologies, and highlighted future focus areas. MISO also discussed additional new electric loads over the past few years, including manufacturing facilities and data centers. Lastly, the presenter referenced efforts to advance gas and electric utility coordination.

PJM provided an overview of their organization and operations, covering thirteen (13) U.S. States and Washington D.C. PJM discussed reliability considerations, including markets, operations, and regional planning. PJM defined “load forecasting”, including long-term forecasts (15 years), short-term forecasts (every hour for the next seven days) and very short-term forecasts (5 minutes). The presenter provided an overview of the load forecast process, which includes independently producing an annual load forecast that is used in transmission planning and markets analysis. Model changes and requested load adjustments are reviewed throughout the year with PJM’s stakeholder groups, the Load Analysis Subcommittee and Planning Committee. PJM also discussed electricity demand growth in recent years and highlighted Illinois’ 2024 load forecast report for ComEd.

Three investor-owned Illinois electric utilities presented introductions to electric utility considerations, including ComEd, Ameren Illinois, and MidAmerican Energy.

ComEd’s presentation included the need for future integrated systems planning between gas and electric systems and equitable transition considerations; the ability, costs, and timing of ramping up the electric distribution system to meet expanding load; and additional electric distribution infrastructure needs. On integrated systems planning, ComEd raised challenges with statutory sequencing, and highlighted the potential need for future integrated planning between gas and electric utilities that does not currently exist. On equity, ComEd shared their current Energy Efficiency, Beneficial Electrification, and pending Multi-Year Integrated Grid Plans include delivering benefits to low income and environmental justice communities. ComEd suggested ensuring an equitable clean energy transition should be a key component to future integrated systems planning. Presenters shared data from 2023, including how much generation

was produced compared to the load needed. ComEd also highlighted system capacity, including the amount of excess capacity compared to both all-time system peak and total available generation, particularly as it relates to supporting increased heat pump adoption in the winter. Presenters also discussed cold climate heat pumps in detail and shared how peak demand is anticipated to change. ComEd referenced an E3 study from 2022 on what full electrification could look like in Illinois economy-wide, system peaks/load considerations, and the need for accelerated development of renewables by 2030, to support growing demand, while at the same time gas generation is retired per CEJA.

Ameren Illinois (a dual-fuel utility) presented equity and environmental justice considerations, information on the electric distribution system, future integrated system planning, and key takeaways. Ameren Illinois highlighted the need for Future of Gas planning to consider equity and environmental justice and low income customers. The presenter shared an overview of the electric distribution system including recent trends (a declining and flattening peak) and long-term load growth, on a 5-year cycle. Ameren Illinois anticipates load growth due to overall electric vehicle adoption and potential large load customer inquiries even though current forecasting methodology indicates a flattened peak. The presenter mentioned the substantial demand increase in the current economic development pipeline is a leading indicator to the potential for increased energy demands. Ameren Illinois also shared considerations for a clean energy transition on the electric distribution system, including, timing, cost, and workforce development issues. The presenter discussed future integrated system planning, including the need for a forward-looking investment planning process that combines gas and electric integrated planning, uses proactive load forecasting and scenario analysis tools, and proactive hiring to avoid labor and supply chain constraints. Ameren Illinois shared that proactive investments in utility infrastructure coupled with incentives to electrify and the state of Illinois' focus on economic development will be key drivers of growth on the electric system. Ameren Illinois discussed scenario planning, including future scenario considerations. Lastly, the presenter introduced several key takeaways for Illinois to consider.

MidAmerican Energy (a dual-fuel utility) presented considerations when converting from natural gas to electric, including how a significant increase in additional electric load would impact the residential and commercial sectors, technology options to convert steam-driven cooling, and considerations for producing steam from non-carbon sources in the industrial sector. The presenter also shared that additional electric load would impact the upstream electric substations and transmission system, and the electric generation needed for supply. MidAmerican Energy also shared an analysis on what complete conversion to electricity in their natural gas system would look like from the perspective of winter electric demand, and land use needed to produce additional load.

ICC Staff requested written comments following Workshop #6, including the following questions:

1. What topics should be further explored related to equity and environmental justice considerations?
2. What topics should be further explored related to electric utility considerations?

Written comments received following Workshop #6 are included in Appendix H.

The following additional information was shared during and after the May 20 Workshop:

- **Research:**
 - Illinois Decarbonization Study: Climate and Equitable Jobs Act and Net Zero by 2050. E3 (December 2022). Source: [E3-Commonwealth-Edison-Decarbonization-Strategy-Report.-December-2022-1.pdf](https://www.ethree.com/wp-content/uploads/2022/12/E3-Commonwealth-Edison-Decarbonization-Strategy-Report-December-2022-1.pdf) ([ethree.com](https://www.ethree.com))

- Natural Renewable Energy Laboratory (NREL), University of Southern California, and Colorado State University: The Los Angeles 100% Renewable Energy Study and Equity Strategies (LA100) (March 2021). Source: <https://www.nrel.gov/docs/fy21osti/79444-ES.pdf>
- PJM Interconnection: Energy Transition in PJM – Resource Retirements, Replacements & Risks (February 24, 2023). Source: <https://www.pjm.com/-/media/library/reports-notice/special-reports/2023/energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx>
- **Resources:**
 - ComEd Environmental Disclosure Report: https://azure-na-assets.contentstack.com/v3/assets/blt3ebb3fed6084be2a/blt5940210a9555dec5/65f4849bebca8e000a668aa9/19915_Environmental_Disclosure_12_months_end_ing_12312023.pdf?branch=prod_alias
 - MISO Future Planning Scenarios: <https://www.misoenergy.org/planning/futures-development/>
 - MISO Reliability Imperative: https://www.misoenergy.org/meet-miso/MISO_Strategy/reliability-imperative/
 - NREL Energy Analysis, Cambium: <https://www.nrel.gov/analysis/cambium.html>
 - PJM 2024 Load Forecast Supplement (January 2024): <https://www.pjm.com/-/media/planning/res-adeq/load-forecast/load-forecast-supplement.ashx>
 - PJM Load Analysis Subcommittee: <https://www.pjm.com/committees-and-groups/subcommittees/las>
 - PJM Load Forecast Development Process: <https://www.pjm.com/planning/resource-adequacy-planning/load-forecast-dev-process>
- **Articles:**
 - Minnesota advocates push for pause on utility shutoffs after study reveals racial disparities. Energy News Network. May 20, 2024. Source: <https://energynews.us/2024/05/20/minnesota-advocates-push-for-pause-on-utility-shutoffs-after-study-reveals-racial-disparities/>
 - PJM Details Resource Retirements, Replacement and Risks. PJM Inside Lines. February 24, 2023. Source: <https://insidelines.pjm.com/pjm-details-resource-retirements-replacements-and-risks/>

G. Workshop #7: Wednesday, May 29, 2024

The May 29, 2024 Workshop was the final Phase 1 Workshop. The May 29 Workshop focused on introducing considerations around Illinois manufacturing, Illinois workforce and labor, and wastewater agencies.

Several manufacturing perspectives were presented by the Illinois Manufacturers' Association, the Chemical Industry Council of Illinois, the American Chemistry Council, ADM, and FTI Consulting. Presenters shared information about future growth of manufacturing and current energy usage including potential impacts on cost, reliability, safety and efficiency. The Illinois Manufacturers' Association (IMA) discussed the economic impacts of manufacturing in Illinois. The presenter cautioned that decarbonization policies in Illinois need to carefully consider the impact on industrial manufacturing. IMA shared that manufacturing uses one-third of the energy consumed in the U.S., with many manufacturing facilities powered by steam. The presenter shared that manufacturers are concerned about cost, reliability, safety, and efficiency. A key concern for Illinois manufacturers is technology not being available to facilitate decarbonization.

The Chemical Industry Council of Illinois and the American Chemistry Council shared information about the chemical industry in Illinois, and explained how chemical manufacturing uses natural gas as the primary source for carbon. Archer Daniels Midland (ADM) presented information about the company's profile, which includes agriculture processing and commodity trading, nutrition manufacturing, biofuel manufacturing, and more. The ADM presenter highlighted their "Strive 35" plan, which includes a goal to reduce direct emissions by 25% by 2035, compared to a 2019 baseline. ADM shared that natural gas is key to their decarbonization strategy, and referenced pursuing a number of decarbonization strategies and energy efficiency improvement opportunities. FTI Consulting shared additional information about the use of natural gas in manufacturing facilities across the U.S. The presenter highlighted the use of and potential for additional natural gas needs for data centers and AI (Artificial Intelligence) facilities. FTI Consulting also discussed hydrogen as a manufacturing technology opportunity, and shared information about the increased use of natural gas across the U.S. Lastly, the presenter discussed heat pump trends, policy trends, and consumer preferences.

Illinois workforce and labor considerations were presented by Local 150 International Union of Operating Engineers, Local 18007 Gasworkers Union, International Brotherhood of Electrical Workers (I.B.E.W.) Local 19, the Chicago Laborers' District Council of the Laborers' International Union of North America (LIUNA), and the Illinois Pipe Trades Association.

The Local 150 International Union of Operating Engineers presenter discussed historical energy transitions from coal to nuclear to renewable energy, including the need to balance reliability and safety in a clean energy transition. Local 150 highlighted potential economic implications of a transition from natural gas, including the displacement of jobs and development of a trained workforce as key concerns. The Local 18007 Gasworkers Union presenter explained the need for maintenance of natural gas pipelines, sharing safety concerns if they are not maintained. The presenter also shared the impact on jobs due to the suspension by the Commission of the Peoples Gas pipeline replacement program in December 2023. The I.B.E.W. Local 19 presenter shared the number of union members working directly for natural gas utilities, and the work needed at those jobs. The presenter shared the economic benefits to workers, including fair wages, benefits and career growth. The LIUNA Chicago Laborers' District Council shared information about wages and benefits for workers and the types of work by Laborer members in both the private and public sectors. LIUNA presenters expressed concerns about both current and projected job losses. Finally, the Illinois Pipe Trades Association shared their role as a state association for 21 individual local unions, representing a number of different types of work. Presenters highlighted the need for training for a career, not only a job, for a skilled workforce. Pipe Trades explained what a "just transition" could look like, and the need to prioritize labor standards and training programs. Presenters also shared options for a clean energy or decarbonization transition, highlighting several new technologies that could be explored as careers for the existing workforce.

The Fox Metro Water Reclamation District presented considerations around a clean energy transition from the perspective of wastewater agencies that convey and treat wastewater. The presenter summarized how wastewater treatment facilities use natural gas, and how biogas (methane) is naturally produced by these facilities and how it can be harvested. Fox Metro shared a previous combined heat and power effort with ComEd that was decommissioned in the mid-2010s due to inefficiency and excessive maintenance needs. The presenter highlighted a Renewable Natural Gas (NRG) concept plan with Nicor Gas, including developing rules for connecting to the Nicor Gas pipeline. Fox Metro also shared a regional facility / gas transport concept and U.S. Environmental Protection Agency Climate Pollution Reduction Grant application for a regional project.

To conclude the final Phase 1 Workshop series, the Facilitator presented a report-out on Future of Gas topics identified by community organizations in small group meetings that occurred during Phase 1. This information is summarized in this report in Section II.F., Engaging Community Organizations. The Facilitator and Commission Staff also presented a Phase 1 conclusion summary, identifying next steps.

ICC Staff requested written comments following Workshop #7, including the following questions:

1. What topics should be further explored related to Illinois manufacturing?
2. What topics should be further explored related to workforce and organized labor?
3. What topics should be further explored related to wastewater?

Written comments received following Workshop #7 are included in Appendix I.

The following additional information was shared during and after the May 29 Workshop:

- **Research:**
 - American Council for an Energy Efficient Economy (ACEEE): Analysis of Electric and Gas Decarbonization Options for Homes and Apartments (July 27, 2022). Source: <https://www.aceee.org/research-report/b2205>
 - Electrification of grain drying to reduce the impact of carbon pricing – preliminary investigation. PAMI (March 2021). Source: https://pami.ca/wp-content/uploads/2021/05/Carbon_Reduced_Grain_Drying_Final_Mar-17-21.pdf
 - Greenberg, Sallie; Whittaker, Steve; O'Brien, Kevin C; Hemrich, Veronica E. Carbon Capture, Utilization, and Storage in Illinois. University of Illinois. December 2022. Source: <https://hdl.handle.net/2142/116416>
- **Resources:**
 - Antora (thermal batteries): <https://antoraenergy.com/>
 - Rondo (heat batteries): <https://rondo.com/>
 - U.S. Environmental Protection Agency, Benefits of Anaerobic Digestion: <https://www.epa.gov/agstar/benefits-anaerobic-digestion>
 - U.S. Environmental Protection Agency, Clean Watersheds Needs Survey: <https://www.epa.gov/cwns>
 - University of Illinois Prairie Research Institute, Carbon Management: <https://prairie.illinois.edu/research/carbon-management/#Carbon%20Capture>
- **Articles:**
 - ECB and cheap gas to blame for heat pump slump, says lobby group. Euractiv (April 15, 2024). Source: <https://www.euractiv.com/section/energy-environment/news/donagh-ecb-and-cheap-gas-to-blame-for-heat-pump-slump-says-lobby-group/>
 - More heat pumps purchased than gas furnaces in 2022 in the US. EFI (February 13, 2023). Source: <https://efi.org/resources/blog/more-heat-pumps-were-purchased-than-gas-furnaces-last-year-in-the-us/#:~:text=%22Americans%20are%20buying%20more%20heat%20pumps%20or%20their,times%20more%20efficient%20than%20gas%20furnaces%20for%20heating>
 - Why are Heat Pump Sales Decreasing? Energy Institute Blog (April 29, 2024). Source: <https://energyathaas.wordpress.com/2024/04/29/why-are-heat-pump-sales-decreasing/>

IV. Topics Identified During Phase 1 Workshops

The purpose of the ICC Future of Gas Workshops Phase 1 Workshop series was to identify all relevant topics and issues related to the future of natural gas in Illinois and decarbonizing the State of Illinois' natural gas distribution system. Section IV includes a summary of topics identified during Phase 1 Workshops. This topics summary was created based on the list of initial issues identified by the Commission in the March 2024 Initiating Order, as well as Phase 1 meeting presentations, meeting discussion, and written comments received. Two versions of a draft "Working Topics" document were circulated to Phase 1 Workshop participants for review and feedback. The topics list included in Section IV was created based on the "Working Topics" document. Topics are summarized into twelve (12) categories, with additional sub-topics identified.

The order of topics in Section IV does not reflect priority at this time. The Facilitator and Commission Staff will utilize this topics list to plan for the Phase 2 Workshop series. The Facilitator and Commission Staff recognize the list of topics is broad and extensive in scope. The Facilitator and Commission Staff may need to prioritize topics discussed during Phase 2 Workshops.

The Facilitator and Commission Staff appreciate the comments received on the draft Phase 1 Report related to the topics identified during Phase 1. While Section IV summarizes Future of Gas topics and incorporates a variety of feedback, it was not possible to include every individual suggestion in this Phase 1 Report. However, the Phase 1 Report attempts to capture key points and themes from the written feedback received.

For the purposes of this Section IV topics list, "decarbonization" refers to the process of reducing or eliminating carbon dioxide (CO₂) and other greenhouse gas emissions released into the atmosphere. The definition of decarbonization is subject to future refinement during Phase 2 Workshops.

1. Decarbonization Targets, Timelines, and Milestones

- A. Targets, Timelines and Milestones: Explore decarbonization targets and milestones both in the aggregate, for specific customer classes and types, and by geographic location to guide the building and gas sectors, including assessment of short (present through 2035), medium (2035-2045), and long-term (beyond 2045) time horizons.
 - i. Compliance/Consistency with Policy/Law/Regulations: Explore goal timing and achievement to meet decarbonization goals and requirements of federal, state, and local policies/laws/regulations (e.g., the Climate and Equitable Jobs Act, the Clean Air Act, the Paris Climate Agreement, the Chicago Climate Action Plan) and the urgency of responding to climate change, including exploring goal timing.
 - ii. Scope: Explore the appropriate scope of gas utility emissions reductions (e.g., consider reductions in carbon emissions from combustion of gas end uses, from the transmission and delivery system, from storage fields, and from production).
 - iii. Best Practices: Explore specific goals and targets in other states and the consequences in those states for not meeting them.
 - iv. Planning: Explore the need for a decarbonization transition plan.
 - v. End Goals: Explore types of goals and targets (e.g., net zero vs. absolute zero).

2. Foundational Data and Methodologies

A. Foundational Data

- a. Pollutant Emissions Impacts: Explore the health and welfare impacts of all types of natural gas related pollutant emissions, including those from storage fields, on indoor and outdoor air quality and the environment in general (e.g., how storage field leaks impact crop yields and surface and ground water).
- b. Gas Usage and Pollutant Emissions: Explore each gas utility's GHG inventory. Explore gas usage and the current pollutant emissions related to natural gas usage, including which areas and/or users create the most natural gas related pollutant emissions.
- c. Building Stock and Commercial/Industrial Status: Explore the status of building stock and current commercial/industrial gas usage to determine the potential for electrification or the use of other low-carbon/carbon-free emission technologies.
- d. Ownership and Leasehold Structures: Explore institutional arrangements to determine the potential for taking advantage of incentives and/or adopting electrification or the use of other low-carbon/carbon-free emission technologies.
- e. Equity and Environmental Justice Data: Identify the number and percentage of customers in Illinois living at or below 100%, 150%, 200%, and 300% of the federal poverty level (both statewide and by utility service territory).
- f. Comparative Decarbonization Data: For both natural gas utility services and alternatives to natural gas utility services, explore the following informational data:
 - i. Costs (initial and ongoing, direct and indirect, by impacted party)
 - ii. Applicability (i.e., ability to meet the needs of hard to decarbonize uses, including but not limited to heavy industrial processes and aviation)
 - iii. Affordability (including the impact on customer bills, energy wallets, and/or customer energy burden and the overall decarbonization cost or impact of emissions reductions)
 - iv. Emission/climate/health impacts
 - v. Reliability/resiliency (including to nature and weather)
 - vi. Adequacy (to meet peak period needs)
 - vii. Safety (including safety of alternative fuels and alternative fuels appliances and equipment)
 - viii. Customer comfort
 - ix. Availability/market readiness
 - x. Operational versatility, responsiveness, and efficiency under varying conditions
 - xi. Technical limitations
 - xii. Implementation workforce needs/availability
 - xiii. Access to financing, tax treatment, and other financing considerations
 - xiv. Ability to measure and verify benefits
 - xv. Ability to serve various geographic areas (e.g., remote areas),
 - xvi. Difficulty of implementation
 - xvii. Difficulty of adoption
 - xviii. Impact(s) of each decarbonization option on existing energy infrastructure
 - xix. The appropriate timing for implementation of each decarbonization option
 - xx. The direct and indirect economic development impacts of each decarbonization option
 - xxi. The pace of adoption under the status quo, if no new decarbonization targets are adopted

- xxii. Physical security and cybersecurity issues
- xxiii. How evaluation changes with increasing usage of each decarbonization option

B. Methodologies:

- a. Consistency in Definitions and Categorization: Explore the use of common definitions (e.g., how to ensure that disadvantaged populations/communities are consistently defined so that eligibility is clear and consistent, how should decarbonization be more precisely defined). Explore the use of common categorizations (e.g., categorization of potential actions in to demand and supply-side measures) for analysis purposes.
- b. Transparency and Information Verification: Explore how participants can share methodologies they use in this process and identify sources of information (e.g., U.S. Department of Energy). Explore how to verify/fact check information and/or standards for analysis (e.g., require transparent methodology, data sources, assumptions, and citations).
- c. Standards, Metrics, and Evaluation Criteria and Accountability: Explore how emission reduction technologies examined can be subject to the same evaluation criteria and analysis (e.g., lifecycle emissions reductions and costs). Explore creating common data reporting metrics (e.g., \$ per ton CO₂e reduced) and how to create such metrics (e.g., using social determinates of health to track impacts). Explore benefit cost evaluation frameworks and how to apply such frameworks. Explore forecast uncertainty and its impact on evaluation frameworks.
- d. Accuracy in Emissions Data: Explore the accuracy of measurements and options for obtaining accurate emissions measurements.

C. Information Collection

- a. Research and Experience: Explore what we can learn from researchers that have modeled net-zero scenarios as well as information from utilities, other providers, other states and other nations that have implemented low or zero-carbon-emitting technologies. Explore what further research and development may be needed.
- b. Pathway Study: Explore completion of a pathway study or studies (e.g., separate studies for residential, commercial, industrial customers or separate studies for different geographic areas) that analyzes approaches to decarbonization over time. Explore what pathway studies already exist that could inform the decarbonization transition.
- c. Commissioning Information: Explore whether analyses, or subparts thereof, are optimally performed by electric or gas utilities or non-utility parties such as a state entity, a consultant, or an academic center with relevant expertise.

- D. Education and Inclusion:** Explore what education is necessary for stakeholders to meaningfully form positions and provide feedback. Explore the use of inclusive decision making and how to incorporate direct participation of all stakeholders, including disadvantaged communities.

3. Decarbonization Pathways

A. Reducing Natural Gas Pollutant Emissions Through Natural Gas Efficiency

- a. End Use Natural Gas Energy Efficiency: Explore how to enhance natural gas end use energy efficiency (e.g., duct sealing, industrial efficiency technologies, building retro-commissioning, etc.).
 - i. Budgets: Explore the impacts of increasing gas energy efficiency budgets on decarbonization, including the impact of increased budgets on ratepayers.
 - ii. Existing Natural Gas Utility EE Programs: Explore the energy efficiency technologies and programs currently offered by gas utilities.
 - iii. Non-Utility EE Programs: Explore non-utility natural gas energy efficiency programs.
 - b. Non-End Use Natural Gas Efficiency: Explore ways to decrease emissions from gas utility service that are not end-use changes.
 - i. Leak Reduction: Explore repair, replacement, and upgrades to pipelines, meters, regulating stations, etc. that reduce emissions from leaks on the distribution system and techniques such as cross-compression, vacuum pumping, advanced leak detection, use of ultrasonic meters, and other leak reduction plans.
 - ii. Upstream Gas Emissions Reductions: Explore procurement of certified/differentiated natural gas and how certified/differentiated natural gas differs in emissions characteristics from non-certified/non-differentiated natural gas under current rules and regulations
 - c. Natural Gas Demand Response: Explore the potential for natural gas demand response including consideration of metering techniques, software, or products to implement and measure effectively.
 - d. Rate Structures and Rate Design: Explore how rates, terms, and conditions for gas utility service, including line extension policies for both mains and services, impact decarbonization.
- B. Alternative Carbon-Emission-Free or Low-Carbon-Emissions Technologies for Consideration include, but are not limited to:
- a. Electrification: Explore electrification of uses that currently rely on utility natural gas service.
 - b. Renewable Natural Gas/Waste-Derived Biofuels: Explore the use of renewable natural gas and biofuels from anaerobic digestion, gasification of feedstocks, or other processes from sources such as municipal solid waste landfills, digesters at water resource recovery facilities (wastewater treatment plants), livestock farms, food production facilities and organic waste management operations.
 - i. Sustainable Agricultural Practices: Explore options to pair sustainable agricultural practices with energy production (e.g., agrovoltatics, and cover crops being harvested to produce biogas, rather than being chemically terminated), including whether such practices might incent agricultural operations to produce more methane, such as by switching to wet lagoon manure storage or increasing operation size.
 - ii. Waste vs. Crop Based Biofuels: Explore distinctions between waste and crop-based biofuels with respect to pollutant emissions and land use impacts.
 - iii. RNG Standards: Explore engineering and gas quality characteristics associated with RNG sources in order to address how the utility can set accommodative standards while also ensuring the natural gas quality meets accepted standards.

- iv. Electricity Production: Explore whether and where landfills in Illinois are already using captured biomethane on site to produce electricity.
- v. Interconnection/Delivery Costs: Explore the pipeline infrastructure costs of connecting biomethane-producing facilities to the gas system.
- c. Other Clean or Lower Carbon Gases or Liquids: Explore the feasibility of using hydrogen, and other gaseous or liquid fuels with lifecycle carbon emissions potentially lower than their natural gas counterparts. Explore the costs associated with lower carbon fuels, both on the production side and infrastructure side.
 - i. Use of Existing Infrastructure: Explore the cost to maintain and/or retrofit the gas distribution network to accommodate the introduction of new substances into the pipes (including the potential addition of corrosive substances).
 - 1. Gas Blending: Explore hydrogen blending or the use of other lower carbon gases in the existing natural gas pipelines, including consideration of the full lifecycle costs (supply and infrastructure costs), risks, limitations, and environmental justice and health impacts of hydrogen blending.
 - 2. Leveraging Existing Gas System Efficiencies: Explore the efficiencies associated with leveraging existing operational capabilities, utility workforce, rights of way, and gas distribution network infrastructure needed to accommodate the introduction of hydrogen or other new substances into the existing natural gas pipelines.
 - ii. Use of New Infrastructure. Explore the cost to develop new gas distribution network infrastructure to accommodate the introduction of new substances like hydrogen into the pipes to support customer end use applications seeking lower carbon fuels to support their decarbonization objectives and other energy needs.
 - iii. Producing Fuels Using Low Carbon Production Techniques: Explore the ability to produce fuels like Hydrogen using renewable generation, renewable natural gas, methane pyrolysis or other carbon emission reducing technologies.
- d. Synthetic Fuels: Explore net zero synthetic fuels.
- e. Carbon Capture/Destruction and Carbon Sequestration/Carbon Use: Explore technology to manage emissions at the source (e.g., capturing furnace exhaust) or to capture carbon from the air and examine sequestration/destruction/carbon use technologies. Explore Illinois' unique geology and opportunities for carbon capture relative to other states. Explore carbon utilization technologies.
- f. Gas Powered, Non-Combustion Technologies: Explore non-combustion electricity technologies like fuel cells and linear generators.
- g. Synthetic Air Combustion: Explore forms of oxygen-fired combustion that can lower fuel demand and decrease emissions.
- h. Combined Heat and Power: Explore combined heat and power technologies, including technologies like industrial heat pumps for heat recovery.
- i. Thermal Energy and Geothermal Technologies: Explore thermal energy networks, geothermal heat pumps, district heating.
- j. Thermal Storage: Explore water tanks, underground thermal energy storage, and concentrated solar power.
- k. Photovoltaic Thermal Collectors (PV/T): Explore PV/T or solar cogeneration systems.

- I. Negative Emissions Technologies: Explore negative emissions technologies such as direct air capture technologies.
- C. Other Considerations in Comparing Alternatives
- a. End Use Electric or Other Non-Natural Gas Technology Energy Efficiency: In examining electrification or use of non-natural gas technology to replace natural gas uses, explore how to enhance electric or other non-natural gas technology end use energy efficiency.
 - i. Efficiency Before Electrification or Other Non-Gas Emission Reduction Technology Adoption: Explore an efficiency first approach to electrification, pairing complementary measures together (e.g., explore higher utility rebates for customers undertaking weatherization measures prior to installing an electric heat pump).
 - ii. Existing Electric and other Non-Natural Gas EE Programs: Explore electric or other non-natural gas technology end use energy efficiency technologies and programs.
 - iii. Budget and Ratepayer Impacts: Explore the size of energy efficiency budgets on decarbonization effectiveness and the impact of budgets on ratepayers.
 - b. Back Up Systems with Electrification or Other Non-Natural Gas Technology: Explore how backup systems (e.g., back up electric generators) impact service in cases of electrification or other alternative technology use.
 - i. Emissions Impact of Back Up Systems: Explore how much fossil fueled backup generation is used and the associated emissions when electrification or other emission reduction technology is adopted.
 - ii. Reliability Impact of Back Up Systems: Explore how microgrids, electric storage, distributed energy resources, gas and gasoline powered backup generators, propane, and other similar systems impact the reliability of service provided through electrification or other adopted emission reduction technology.
 - iii. Rate and Bill Impacts: Explore the energy rate and bill impacts of maintaining a back-up gas or other fuel system.
 - iv. Loss of Backup Generation: Explore how limiting the availability of natural gas impacts customers that rely on natural gas backup generation.
 - c. Non-Space Heat Uses: Explore the impact of non-space heating uses on electrification or other non-natural gas technology adoption (e.g., do customers electrify these uses as well or retain gas for these other uses including, for example, cooking and decorative appliances).
 - d. Supply Chain Impacts and Resource and Component Availability: Explore supply chain and resource (e.g., land) and component availability impacts on the decarbonization transition.
 - e. Electric System Capacity: Explore how local electric system capacity/congestion impact the potential for electrification or the use of other low carbon or carbon free emission technologies. Explore how use of advanced rate design, distributed generation, distributed storage, and energy efficiency load management techniques facilitated by automated grid-edge technologies, may help mitigate the impact of both transportation and building electrification on the grid.
 - f. Electrification End-Use Costs: Explore opportunities to avoid electrification-related panel upgrades, including smart panels, circuit-sharing devices, and emerging low-volt appliances such as 120-volt induction cooking appliances.

- g. Fuel and Resource Diversity: Explore fuel and resource diversity as it relates to reliability, resiliency, and security.
- h. Adaptation to Change: Explore how changes over time, such as those in weather patterns, technology developments, and the electric grid, impact all of these assessments and how to accommodate such changes in planning and actions.
- i. Emergency Preparedness and Management: Look at how any transition will impact emergency preparedness and management.
- j. Continued Use of Gas: Explore whether continued use of gas will be a cost-effective strategy for reducing emissions.

4. Decarbonization Impacts on the Natural Gas System and Responses

- A. Gas System Forecasting: Explore decarbonization and pollutant emissions reduction impacts on gas system usage and whether and how gas utility forecasting should be adjusted.
 - a. Electric Utility Program Driven Changes: Explore how building decarbonization resulting from electric energy efficiency, electrification, and beneficial electrification plans is and will change gas utility service usage.
 - b. Gas Utility Program Driven Changes: Explore how natural gas energy efficiency, demand response, or other programs will change utility gas service usage.
 - c. Laws, Rules, Regulations and Policies: Explore how local, state, and federal and international policies, rules, and regulations are and will change utility service gas usage.
 - d. Decarbonization of Electric Generation: Explore how decarbonization of electric generation is and will change gas utility service usage.
 - e. Consumer Preferences and Behavior: Explore how consumer preferences and choices regarding decarbonization are and will change gas utility service usage, including the impact of green influence (i.e., how consumers are influenced by businesses adopting sustainable practices).
 - f. Uncertainty: Explore how to account for uncertainty associated with long term (20-30 year) forecasts.
 - g. Gas Investment Drivers: Explore changes in the number of gas customers, in the demand for gas, the need to replace aging infrastructure, the need for safety and reliability improvements, and the need to invest for regulatory compliance.
- B. Gas Systems Operations, Maintenance, and Investment with Decarbonization: Explore how decarbonization related changes in gas usage should change gas utility operations, maintenance, and investment.
 - a. Gas System Status: Explore the status of the natural gas distribution system (e.g., identify areas with new or newly replaced facilities, areas with pipeline near or exceeding its useful life) and how the status of the system may impact gas operations, maintenance, and investment. Explore the economic life of new natural gas infrastructure. Explore mapping of the systems.
 - b. Implementation Impacts: Explore how operations, maintenance, and investment changes vary depending on which customer segments decarbonize, including variation in customer types and whether customers are connected to the transmission or distribution system. Explore how operations, maintenance, and investment changes impact labor force needs. Explore how a decarbonization transition impacts gas infrastructure modernization programs. Explore best practices in gas planning from other states that have already undergone gas

- planning processes. Explore gas contracting (e.g., for natural gas supply and pipeline capacity) planning and practices.
- c. Gas Backup Systems: Explore how the natural gas infrastructure can play a role as the fuel/backup fuel for microgrids, solar, wind intermittency, etc., using existing assets while also planning for future growth.
 - d. Federal Rules: Explore how new rules, such as those from PHMSA regarding leak detection and remediation, impact natural gas utility operations, maintenance, and investment and should be accounted for in the natural gas decarbonization transition.
 - e. Stranded Infrastructure: Explore the probability of underutilized or stranded assets and impacts of gas distribution system infrastructure, including storage fields, that is underutilized or stranded.
 - i. Customer Costs: Explore what happens to residential and commercial and industrial customers, including the affordability of their gas service, that need gas if most gas usage significantly declines and further explore potential mitigation (e.g., Explore the need for changes to the low-income discount rates or PIPP programs).
 - ii. Reliability, Resource Adequacy, Resiliency, and Safety: Explore how reducing gas emissions will impact energy reliability, resource adequacy, resiliency, and safety.
 - iii. Shareholder Impact: Explore the impact to gas utilities and their shareholders if usage significantly declines. In cases of community-owned systems, explore the community/customer impact if usage significantly declines.
 - iv. Ongoing Costs: Explore whether there would be ongoing maintenance cost recovery associated with stranded infrastructure for safety and environmental reasons.
 - v. Safety: When considering ways to mitigate the level of stranded costs, consider strategies to preserve the safety of those working on the natural gas system.
 - f. Risk Reducing Strategies: Explore strategies to reduce risk by addressing the rate base that could end up stranded if gas infrastructure is not used for typical depreciation timelines (e.g., accelerated depreciation, reduced line extension allowances, finding other uses for/repurposing the infrastructure, securitization, targeted decommissioning, reduced capital spending (repair versus replace) and intersectoral cost recovery). Explore the circumstances under which gas energy efficiency programs should cover gas appliances.
 - g. Interstate Pipelines: Explore the impacts of decarbonization on interstate pipelines and the backbone natural gas system.
 - h. Interstate Operations: Explore the impacts of decarbonization on interstate operations of utilities with operations in multiple states.

5. Customer Choice and Protections

- A. Customer Choice in Utility Selection and Technology Selection: Explore whether people should be able to choose the fuel or technology they prefer, including past patterns of voluntary switching, the conditions or circumstances necessary for customer switching, and customer satisfaction with switching, and the benefits and costs of providing for customer choice.

- a. Open Market Options: Explore customer fuel choices and technology choices available on the open market (including choices from electric utilities), including whether customers can opt for such choices in place of gas utility service.
 - b. Utility Provided Alternatives: Explore customer fuel choices and technology choices that that may be provided by gas utilities in place of or in combination with traditional gas service.
 - c. Full Participation: Explore whether partial transitions are effective/efficient (i.e., explore whether 100% of affected customers in an area need to transition all gas heating equipment and appliances for decarbonization project success).
 - d. Unserviced Areas: Explore the conditions under which customers can or cannot receive gas service (e.g., what determines whether unserved communities can obtain gas service).
- B. Education: Explore what education is necessary to inform consumers, businesses, and governments and communities regarding the natural gas decarbonization transition including general information on the transition and specific information on fuel and technology options, including energy efficiency options.
- C. Engagement: Explore what engagement, and support for engagement, is necessary with consumers, businesses, and governments and communities throughout the natural gas decarbonization transition.
- a. Customer Polling and Feedback: Explore whether customers should be polled regarding their energy needs and preferences or how to best ensure comprehensive engagement.
- D. Customer Protections: Explore how to protect customers from adverse impacts (e.g., cost spikes, targeting for fraud, discrimination, increased rents, inequities when current rate designs are applied in a decarbonizing transition) during the natural gas decarbonization transition.
- a. First Adopters: Explore how to close the gap between first adopters and those in marginalized communities while mitigating the risk to early adopters from marginalized communities.
- E. Analytical Tools: Explore the creation of analytic tools to help customers of all types make informed decisions, including assisting owners to create a building-by-building plan of action to hit carbon reduction targets cost effectively.

6. Cost and Affordability Considerations

- A. Systemwide Costs: Explore the systemwide cost of the natural gas decarbonization transition, including the costs over short (present through 2035), medium (2035-2045), and long-term (beyond 2045) time horizons.
- a. Subsidies: Explore the degree to which various technologies, including natural gas technologies, are or may be subsidized.
- B. Affordability: Explore the impact of reducing emissions from gas on customer affordability in service areas across the state including customer bill impacts and the overall decarbonization cost or impact of emissions reductions. Explore creating a standard approach for calculating the impact on customer bills as a result of changing fuel sources, including access to a customer's gas bills to obtain accurate forecasts of impacts on monthly bills.

- C. Cost Allocation: Explore how the costs of the natural gas decarbonization transition will be allocated across ratepayers, taxpayers, and citizens and businesses in general and how these may change over time.
- D. Public Funding: Explore public funding opportunities that may help facilitate certain technologies or outcomes (e.g., using Inflation Reduction Act Q45 Carbon Capture Tax Credits). Explore how any public funding distribution will be tracked and how the resulting impacts will be evaluated.
- E. Quantifying Societal Costs: Explore measurable impacts on society from gas related pollutant emissions and from decarbonization. Explore the societal cost of carbon, methane, and other pollutant emissions, including those in other states related to Illinois activities.
- F. Housing Stock: Explore how aging housing will be addressed when considering implementation including, for example, costs to retrofit housing or commercial premises and costs to decarbonize new housing stock or commercial premises.
- G. End User Sunk Cost/Stranded Assets: Explore the impact of required changes in technology for customers who have new or relatively new natural gas appliances and business operations that rely on gas fired equipment.

7. Equity, Environmental Justice and Community Issues

- A. Impacts to Communities: Explore the impacts of the natural gas decarbonization transition to communities, including BIPOC, equity investment eligible communities (EIECs), disadvantaged, regenerative living, and rural communities as well as to multi-family, renter, and commercial customers in such communities, including:
 - a. Strategies to ensure that transitions do not disproportionately impact and proactively benefit low-income and marginalized communities;
 - b. Strategies to ensure rural areas receive services commensurate with urban areas;
 - c. Protection of non-first movers from bearing a disproportionate cost of the remaining gas systems;
 - d. Ensuring appropriate inclusion of and impacts for renters, including but not limited to protecting multi-family customers from cost increases when heat is included in rent and the building is electrified;
 - e. Ensuring that non-energy impacts (e.g., impacts on the risk of foreclosure) are considered;
 - f. How to include communities in each step to a transition process;
 - g. Land management impacts and strategies from new technologies or increased electrification;
 - h. The impact of the transition on wildlands and wildlife and natural resources; and
 - i. The impact of the transition on air quality.
- B. Low-Income Inclusion and Participation: Explore prioritizing low-income areas for electrification where it is affordable and where it makes technical sense, or where doing so creates synergies with other types of building upgrades designed to improve health, comfort, safety, and affordability, including identifying the numbers and locations of low-income customers in Illinois.

- C. Energy Assistance: Explore how the natural gas decarbonization transition changes may impact households' eligibility for energy assistance and consider perspectives from LIHEAP and IHWAP administrators and recipients.
- D. Wealth Creation: Explore how communities can benefit from this transition, including through community wealth creation.
- E. Tools: Explore what tools will be used to align resources with needs, such as tools to identify environmental justice and BIPOC communities
- F. Consistency with Local, State, and Federal Equity Policies: Explore how the decarbonization transition can be done consistent with local, state, and federal equity policies (e.g., Federal Justice40 Initiative established in Executive Order 14008 and The Good Jobs Initiative from the U.S. Departments of Commerce and Labor).
- G. Building Stock Health and Safety Issues: Explore how health and safety issues may prevent participation in energy efficiency programs (e.g., mold or roof leakage which disqualifies participation in weatherization programs) and explore remediation measures.

8. Electric Utility Considerations

- A. Forecasting: Explore how to make accurate and reliable forecasts regarding electric loads and capacity requirements and resources available to meet load and capacity needs, including how much electric energy, capacity, transmission, and distribution is needed to replace natural gas end uses over time and how electric forecasts relate to forecasts of replaced natural gas usage.
- B. Resource Adequacy, Reliability, and Resiliency:
 - a. Resource Adequacy: Explore how we meet electricity generation needs (consider the expressed concerns of Regional Transmission Organizations (RTOs) and others regarding the ability to meet generating capacity needs), including in different areas, considering both transportation and building electrification and other sources of growth such as data centers, including examination of existing and new demand response, renewables, electricity storage systems, and advanced nuclear power resources, and including consideration of generation retirements. Explore regulation of generation for Illinois load-serving utilities.
 - i. Incenting Deployment: Explore how laws, rules, and regulations can incent additional resources (e.g., how net metering rules impact deployment of distributed generation).
 - b. Resiliency and Reliability: Explore whether electricity generation, transmission and distribution infrastructure provide reliability and resiliency benefits, including resiliency to nature and weather.
 - c. Peaker Plants and Storage: Explore the role of back-up/peaker generators, including gas powered generators, and energy storage systems to ensure reliability and resiliency, and where, if gas is used for generation, that gas will come from to meet IL electric generation needs
 - d. Peak Energy Needs: Explore how, considering costs, emissions, etc. do various fuels including electricity meet peak needs?

- e. Distribution: Explore needed upgrades to the electric distribution system and the interaction between these needs and existing electric utility multi-year integrated grid plans.
 - f. Transmission: Explore the need for additional transmission including methods to minimize costs, for example, analysis of grid enhancing technologies or advanced reconductoring of electric transmission lines.
- C. Environmental Impacts of the Generation Fleet Transition: Explore how projected changes in the electric generation fleet will impact emissions (e.g., how will moving to natural gas generation from coal generation impact emissions).
- D. Safety Considerations: Explore whether risk of wildfires increases with electrification and whether the risk of electric outages during the winter create additional risks to customers.
- E. Affordability Impacts of the Generation Fleet Transition: Explore whether electricity service will be affordable with electrification.
- F. Prioritization of Electric Demand: Explore, where electric supply is constrained, either by demand, capacity, or cost, which electrified end uses contribute to the overall policy goals of Illinois and explore prioritizing such end uses in Illinois Policy.
- G. Municipal and Cooperative Impacts: Explore how increasing electricity needs on the grid impact municipal utilities and cooperatives and their customers and the cost implications of upgrading municipal and electric cooperative distribution networks.

9. Economic Development and Businesses

- A. Attracting Investment: Explore how Illinois will attract investment and development during the natural gas decarbonization transition (including potential reductions in the availability of natural gas as a fuel for heating or generation or as a feedstock), including examination of how fuel diversity impacts businesses and how decarbonization efforts impact business decisions and competitiveness of Illinois' businesses.
- B. Impact on Illinois Businesses: Explore the impact on existing manufacturing, industrial, and commercial operations of the natural gas decarbonization transition (including potential reductions in the availability of natural gas as a fuel for heating or generation or as a feedstock), including examination of how fuel diversity impacts businesses, how decarbonization efforts impact business decisions and competitiveness of Illinois' businesses, and whether reductions in natural gas availability will create demand for more pollution emitting technologies (e.g., used oil, propane, and diesel fuel).
- C. Macroeconomic Impacts: Explore the impacts to specific industries (e.g., Pharmaceuticals, Chemicals, Agriculture, Healthcare, Housing, Wastewater and Water Treatment, Data Centers and Technology Companies) and how they flow through to the economy in general.
- D. Equal Access: Explore how to provide small businesses and manufacturers equal access to capital and opportunities (including minority owned businesses and businesses in disadvantaged communities).

10. Workforce Considerations

- A. Job Impacts: Explore job impacts related to the natural gas decarbonization transition, including impacts on communities (low-income, environmental justice, and other disadvantaged communities, as well as on specific workforce segments like the Latino and Black workforce), impacts on specific job classifications, impacts on the current gas utility workforce including both in-house and contract workers, and impacts on union versus non-union jobs.
- B. New Jobs Assessment: Explore how newly created jobs compare with any lost jobs with respect to payment levels, benefits, health and safety, and other employment conditions.
- C. Skill Transference: Explore whether the skills related to any lost jobs compare with the skills related to newly created jobs – exploring how skills do or do not transfer and what technologies best leverage existing skills.
- D. Workforce Development: Explore the availability of a workforce necessary to fill jobs created by the natural gas decarbonization transition and the need for workforce development. Explore these issues examining disadvantaged communities and workers and any considerations unique to these workers and communities. Explore the timing (e.g., putting workforce development in place before transition programs begin).
- E. Just Transition for Workers: Explore how to mitigate the impacts to or improve the job quality of workers impacted by the natural gas decarbonization transition.
- F. Impact of Automation: Explore job impacts of automation technologies (e.g., artificial intelligence) used in the natural gas decarbonization transition.
- G. Training and Retraining: Explore what will be needed in terms of training and certification needs for existing and non-natural gas workers, including the rollout and timing of potential training programs.
- H. Utility Role in Workforce Development: Explore what role utilities should play in workforce development.
- I. Community Engagement: Explore how labor organizations can collaborate with local communities to address their specific needs and support a just transition.

11. Utility Structure/Market Structure Issues

- A. Aggregation of Utility Rates and Planning: Explore considering electric and gas rates in the aggregate.
- B. Aggregation of Utility Planning: Explore the need for integrated systems planning between gas and electric systems, including consideration of instances when natural gas utilities may need to integrate planning with unregulated electric utilities.
- C. Dual Fuel and Single Fuel Utilities: Explore considerations unique to dual fuel (e.g., gas and electric) utilities and those unique to single fuel utilities (e.g., gas only or electric only utilities).

- D. Market Power: Explore whether the transition will create monopoly power for energy provision in some communities.
- E. Competitive Retail and Wholesale Markets: Explore the role of competitive retail and wholesale markets, including incentivizing or removing barriers to participation.
- F. Utility Variation: Explore how differences in utility size, geography, and customer density should impact natural gas decarbonization transition policies.
- G. Municipal and Cooperatives: Explore how the natural gas decarbonization transition will impact municipal and cooperative gas providers and their customer bases (which can be small). Explore opportunities for decarbonization of such providers.
- H. Propane and Liquid Fuel Customer Impacts: Explore how the gas decarbonization transition will impact customers that currently rely on propane or liquid fuels for energy. Explore whether such customers should be incentivized to adopt carbon-emission-free or low-carbon-emissions technologies.
- I. Exporting Emissions: Explore whether decarbonization in Illinois will transfer (including potential reductions in the availability of natural gas as a fuel for heating or generation or as a feedstock) carbon emissions to other states.

12. Regulatory Changes and Strategies

- A. Agency Roles and Authorities: Explore the roles and authorities of the Commission, the General Assembly, the Department of Agriculture, the Illinois Environmental Protection Agency and other agencies in securing a managed and affordable gas transition.
 - a. CEJA Natural Gas Authority: Explore the extent to which CEJA's decarbonization provisions implicate natural gas utilities.
 - b. ICC Case Interactions: Explore how the Future of Gas proceeding relates to other Commission natural gas and electric dockets.
- B. Multijurisdictional Coordination: Explore how to coordinate decarbonization efforts with local units of government or what might be expected/asked of municipalities regarding the transition. Explore how to ensure state efforts are consistent with federal law.
- C. Regulatory Strategies: Explore existing ICC and other authorities' policies, rules, and regulations, applicable to gas utility service operations, maintenance and planning and identify what may need to change going forward.
 - a. Non-Pipeline Gas Frameworks: Explore how non-pipeline gas frameworks can be embedded within gas planning processes so that they can be compared to traditional solutions. Include an exploration of screening criteria and project eligibility, cost-benefit methodologies, timelines, the use of competitive solicitations and role of markets.
 - b. Alternative Uses of Gas Infrastructure: Explore how RNG or alternatives used in the natural gas system should be regulated.
 - c. Cost Recovery: Explore gas system cost recovery approaches during the natural gas decarbonization transition including examination of capital cost recovery and operations and maintenance cost recovery and how infrastructure planning metrics can be evaluated during any decommissioning of natural gas infrastructure.

- d. Transition Management: Explore the use of performance metrics, performance incentive mechanisms, savings sharing, multi-year planning, software capitalization, securitization. Explore strategies such as transition upon burn-out or pre-burnout of existing systems.
 - e. Flexibility: Explore whether policies should provide for flexibility (e.g., provide exemptions from mandatory non-pipeline alternatives analyses for system safety and integrity programs).
 - f. Pilot Programs: Explore pilot programs that effectuate decarbonization including how to evaluate the results of the pilots and consideration of processes to scale successful pilot programs quickly.
 - g. Tools: Explore rate designs, incentives, carbon taxes, carbon credits, clean heat standards, and requirements/mandates.
 - h. Technological Neutrality: Explore gas emissions reduction policies grounded in technological neutrality.
- D. Legislative Solutions: Explore legislative solutions in Illinois for decarbonization of the gas distribution system.

V. Conclusion

The Facilitator and Commission Staff thank the participants in the Phase 1 Workshop process, including Workshop presenters, Workshop meeting participants, and those who submitted written comments. Phase 1 Workshops provided an opportunity to introduce a variety of important considerations related to decarbonization and the future of the natural gas distribution system in Illinois. The Facilitator and Commission Staff look forward to continuing Future of Gas discussions in the Phase 2 ICC Future of Gas Workshop series.

VI. Appendices

The following appendices are attached to this report:

- Appendix A: March 7, 2024 Illinois Commerce Commission Initiating Order
- Appendix B: Phase 1 Workshop Participants
- Appendix C: General Comments Received
- Appendix D: Written Comments Received Following Phase 1 Workshop #2 (April 8, 2024)
- Appendix E: Written Comments Received Following Phase 1 Workshop #3 (April 22, 2024)
- Appendix F: Written Comments Received Following Phase 1 Workshop #4 (April 29, 2024)
- Appendix G: Written Comments Received Following Phase 1 Workshop #5 (May 6, 2024)
- Appendix H: Written Comments Received Following Phase 1 Workshop #6 (May 20, 2024)
- Appendix I: Written Comments Received Following Phase 1 Workshop #7 (May 29, 2024)
- Appendix J: Written Comments Received on Draft Phase 1 Report