STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

Northern Illinois Gas Company d/b/a Nicor Gas Proposed General Increase in Rates and Revisions to Other Terms and Conditions of Service.	)))))))	Docket No. 25-0055

DIRECT TESTIMONY OF SAAD SIDDIQUE

ON BEHALF OF

ENVIRONMENTAL LAW & POLICY CENTER,
ILLINOIS STATE PUBLIC INTEREST RESEARCH GROUP, INC.,
AND
ENVIRONMENTAL DEFENSE FUND

May 1, 2025

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I. INTRODUCTION AND WITNESS QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Saad Siddique. My business address is 35 East Wacker Drive, Suite 1600, Chicago, Illinois 60601.

Q. By whom are you employed and in what capacity?

A. I am an Economist and Energy Analyst at the Environmental Law & Policy Center (ELPC).

Q. Please describe your educational background and professional experience.

A. I have been employed at ELPC since November 2023. As an economist & energy analyst, I provide research, engineering and economic analyses, and data analysis in utility rate cases, grid and resource planning proceedings, and energy policy issues for ELPC.

Prior to ELPC, I served as a Senior Energy Systems Analyst at GTI Energy from 2022-2023, where I led projects related to the infrastructure and policy structures required for the United States to reach economy-wide net-zero carbon dioxide goals by 2050. Before joining GTI Energy, I worked as a Sustainability Analyst at Stanford University from 2021-2022. I attach a detailed resume as ELPC-PIO Ex. 1.1.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the ELPC, the Illinois State Public Interest Research Group, Inc. (PIRG), and the Environmental Defense Fund (EDF) (PIRG and EDF are collectively the "Public Interest Organizations" or PIO).

Q. Have you previously testified before the Illinois Commerce Commission (the Commission) or any other regulatory commissions?

A. I have not previously testified before the Commission. However, I testified before the Michigan Public Service Commission in DTE Gas Company's recent gas rate case, Case No. U-21291.

Q. Are you sponsoring any exhibits?

A. Yes, I am sponsoring the following exhibits:

- ELPC-PIO Exhibit 1.1: Siddique CV/Summary of Qualifications; and
- ELPC-PIO Exhibit 1.2: Compiled Discovery Responses.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to evaluate Northern Illinois Gas Company's (Nicor or the Company) proposals for its Rider 40 – TotalGreen offering (TotalGreen) and hybrid heat pumps program as presented in its rate case filing. The programs are two of the Company's proposed offerings to reach its goal of net-zero emissions by 2050.[1] I present analysis discussing how the proposals would impact Illinois ratepayers, the environmental benefits of the proposals, and their alignment with Illinois' climate and energy policy objectives.

[1] ELPC-PIO Ex. 1.2 at 4-5 (Nicor response to AG 11.03).

II. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize your key findings regarding TotalGreen.

A. Nicor's proposal to transition TotalGreen from a pilot to permanent program has several flaws that render it inappropriate for approval in its current form. The proposed program is expensive, produces minimal environmental benefits, and is not aligned with the State of Illinois' policy goals. To the extent that the Commission feels that customers should have the option to purchase the offsets associated with TotalGreen, customers can purchase these on the competitive market and do not need a utility offering.

Q. Please summarize your findings regarding Nicor's hybrid heat pumps proposal.

A. Nicor's proposal fails to recognize that all-electric heat pumps now offer similar performance and that installing hybrid heat pumps prolongs usage of the gas delivery system. Also, the program is ill-suited for approval in this rate case and Nicor should propose to include it in its energy efficiency program.

Q. What actions do you recommend that the Commission take regarding TotalGreen and the Company's hybrid heat pumps proposal?

A. I recommend that the Commission reject Nicor's request to make TotalGreen a permanent offering and allow the pilot version of the program to expire in 2027. With respect to hybrid heat pumps, I recommend that the Commission reject Nicor's request to incentivize the installation of hybrid heat pumps as part of its rate case and direct the Company to pursue this initiative as part of its energy efficiency program if the Company is interested in incentivizing this technology.

III. ANALYSIS OF TOTALGREEN

Q. Please describe your understanding of TotalGreen.

A. TotalGreen is a voluntary carbon offset initiative that allows customers to address the environmental impact of their natural gas usage. The Commission approved TotalGreen in Nicor's 2021 rate case as a five-year pilot program running from July 1, 2022 through June 30, 2027.[2] The program provides customers with the option to offset 100% of the direct carbon emissions associated with their natural gas usage through a combination of renewable natural gas (RNG) thermal credits and carbon offsets—but largely relying on carbon offsets. Currently, customers can choose between two options:

- Basic option: A combination of 99%+ carbon offsets and <1% RNG thermal credits
- Premium option: A combination of 80-95% carbon offsets and 5-20% RNG thermal credits

Nicor asserts that the program imposes no costs on non-participating customers and is funded by participants who purchase the carbon offsets and RNG thermal credits.[3] As of June 30, 2024, the program had 131 enrollments,[4] a small fraction of Nicor's over two million customers.

Q. What is RNG?

A. RNG is methane gas captured from landfills, wastewater treatment plants, or farm waste for commercial use instead of being released into the atmosphere. RNG can be processed and injected into the natural gas pipeline system as an alternative to traditional natural gas.

[2] Nicor Gas Ex. 19.0 at 5:86-87.
[3] *Id.* at 5:102.
[4] Nicor Gas Ex. 19.2 at 8.

Q. What are RNG thermal credits?

A. RNG thermal credits represent the environmental attributes of renewable natural gas.[5] RNG thermal credits are similar to renewable energy credits in that they are generated when a facility produces RNG. Purchase and retirement of the credits by a user of natural gas does not mean that the purchaser actually used the RNG; however, the purchaser is able to claim the environmental attributes of the RNG through the purchase and retirement of the RNG thermal credits.

Q. What are carbon offsets?

A. Carbon offsets are investments in environmental projects (like forest conservation or methane capture) that reduce atmospheric greenhouse gases elsewhere to compensate for emissions that continue to occur. For example, a business that burns natural gas and releases one ton of carbon dioxide may purchase an offset that pays to plant trees that absorb one ton of carbon dioxide.

Q. What changes does Nicor propose for TotalGreen in this rate case?

A. Nicor is seeking two significant modifications to TotalGreen. First, Nicor seeks to make the program permanent. As mentioned above, the Commission approved TotalGreen as a five-year pilot program set to expire in June 2027. Nicor wants to remove this end date and make the program a permanent offering. Second, the Company seeks to add additional pricing options to TotalGreen's pricing structure which would allow residential and commercial customers to pay a fixed fee per month for offsets. The Company seeks to implement these changes by July 2026.[6]

[5] Nicor Gas Ex. 19.1 at 10, n.4.
[6] Nicor Gas Ex. 19.0 at 16:331-332.

Q. Do you have concerns about making TotalGreen a permanent program?

A. Yes, I have concerns with making TotalGreen a permanent program. The results to date have shown that Nicor's customers are not interested in TotalGreen and that the Commission should not make it a permanent program. At the outset, I note that the program has not been very popular and is very expensive on a cost per customer basis. At the end of the second year of the program, it had 131 enrollments,[7] but the Company had actual administrative costs of $318,270.[8] That means that Nicor spent $2,429 per customer on a program with limited participation. The Company states that TotalGreen imposes no costs on non-participating customers.[9] If that is true, then participating customers are spending a large amount of money on a program that has minimal environmental impact (discussed further below) simply to cover the administrative costs of the program. A residential customer using 1,093 therms, the average customer usage in Illinois in 2019,[10] would have paid between $96.84[11] and $313.90[12] in 2024 to participate in TotalGreen depending on what pricing tier the customer enrolled in. Meanwhile, the average annual energy bill in Illinois is $2,466.[13] This means that the cost of TotalGreen, from the perspective of a participant in the program, would roughly correspond to 3.9-12.7% of the average annual

[7] Nicor Gas Ex. 19.2 at 8.
[8] *Id.* at 12.
[9] Nicor Gas Ex. 19.0 at 5:102.
[10] *TotalGreen*, NICOR GAS, https://www.nicorgas.com/sustainability/totalgreen/customers.html (last visited Apr. 30, 2025).
[11] Based on per therm cost for basic option of 8.86 cents described in Nicor Gas Ex. 19.0 at 15:319-320.
[12] Based on a per therm cost for premium option of 28.72 cents described on the TotalGreen homepage. *See TotalGreen*, NICOR GAS, https://www.nicorgas.com/sustainability/totalgreen/customers.html (last visited Apr. 30, 2025).
[13] *Energy Burden in Illinois*, ELEVATE ENERGY, https://www.elevatenp.org/wp-content/uploads/Energy-Burden-in-IL.pdf (last visited Apr. 30, 2025).

energy cost for an Illinois household. Aside from this concern about cost, TotalGreen has minimal environmental benefit and does not serve Illinois' clean energy goals.

Q. What is your concern about the environmental benefits of TotalGreen?

A. TotalGreen has produced limited environmental benefits. TotalGreen offset 1.65 million pounds of CO_2e as of December 10, 2024.[14] That is equivalent to 748 metric tons. In contrast, Nicor reported to the Environmental Protection Agency that the natural gas it delivered in 2023 produced **23,927,166** metric tons of carbon dioxide. This means that Nicor's customers have, over the lifetime of the program, offset 0.0031% of the Company's total system emissions for one year. And as noted above, the Company has provided these minimal environmental benefits at a significant cost per customer.

Other programs have provided much more significant emissions reductions and been much more popular with customers. For example, the Company's energy efficiency program has avoided more than 1,240,000 metric tons of carbon dioxide over the last fourteen years.[15] The program has also had more than 1,350,000 enrollees during that period.[16]

Q. Please describe your concerns regarding how TotalGreen aligns with Illinois' climate and energy policy objectives.

A. TotalGreen does not align with the objectives in the Climate and Equitable Jobs Act (CEJA) for the State of Illinois to transition to a clean energy economy by 2050. TotalGreen

[14] Nicor Gas Ex. 19.0 at 6:119-120.
[15] Nicor Gas Ex. 19.2 at 4.
[16] *Id.*

does not facilitate the accomplishment of CEJA's objectives due to structural limitations in Nicor's ability to deploy RNG as a replacement for non-renewable natural gas.

My first concern as it relates to Illinois' policy goals is that there is simply not enough RNG potential in the United States to serve current demand. As explained by Public Interest Organizations witness Cebulko in Nicor's 2023 rate case:

> With respect to RNG, there is limited technical and economic supply and there is significant competition for the fuel. An American Gas Association study found that even under optimistic assumptions for RNG development in the United States, the economic availability of RNG supplies in 2040 could only replace a portion of the country's average demand from residential customers. That estimate does not consider the natural gas used for power generation, commercial, or industrial uses. In 2022, demand from residential customers accounted for only 17% of all natural gas volumes delivered to consumers. Moreover, approximately half of the estimated "economic potential" of RNG comes from two technologies—thermal gasification and power-to-gas—that are far from being commercially viable or cost-competitive for blending into the gas distribution system.[17]

Thus, TotalGreen's purchase of RNG thermal credits provides an incentive to RNG producers to develop a resource that will not meaningfully replace current natural gas usage assuming current levels of demand and does not allow the state to reach its clean energy targets.

Second, RNG is costly to produce and may not lend itself to cost-effective scalability. The cost of RNG is likely to range from $12.50-$19.40/MMBtu.[18] In comparison, the cost of non-renewable natural gas ranges from $3-$6/MMBtu.[19] Even if

[17] PIO Ex. 1.4 (ICC Docket No. 23-0066, PIO Ex. 1.0 REV at 25:3-12 (May 22, 2023)).
[18] Building Decarbonization Coalition, The Future of Gas in Illinois at 64 (2024). Available at: https://buildingdecarb.org/wp-content/uploads/BDC-The-Future-of-Gas-in-Illinois.pdf.
[19] *Id.*

Illinois achieves its full potential for RNG production, the state may not realize a significant benefit from utilizing or subsidizing RNG because of the high costs to procure the gas and the limited emissions reductions potential. Currently, TotalGreen pays for the cost of RNG through its cost per therm under the Basic and Premium options and, as a result, shifts the significant cost of producing RNG entirely to participants.

Given the limited RNG supply and the high cost of RNG, TotalGreen is inadequately aligned with CEJA. TotalGreen subsidizes development of a resource which may have a limited future in helping Illinois accomplish its clean energy goals.

Q. Do you have any final comments regarding TotalGreen?

A. For the reasons described above, I believe that the Commission should not make TotalGreen a permanent program. Even with these limitations, I note that if the Commission were inclined to provide a similar program to customers that offerings would still exist if the Commission rejected Nicor's request to make TotalGreen a permanent program. That is because Illinois currently has a voluntary carbon offset market where private companies sell offsets like those procured through TotalGreen in the competitive market. Thus, it is unnecessary for the Commission to approve TotalGreen to provide customers with similar opportunities to reduce their carbon emissions.

Q. What is your recommendation regarding TotalGreen?

A. I recommend that the Commission reject Nicor's request to make TotalGreen a permanent program and allow the pilot version of the program to expire in 2027. From the data that Nicor has presented, the costs of maintaining the program exceed the value it produces.

IV. ANALYSIS OF THE HYBRID HEAT PUMPS PROPOSAL

Q. Please describe your understanding of the proposed hybrid heat pumps program.

A. Nicor proposes a three-year pilot program to evaluate hybrid heat pump systems as a decarbonization solution for residential heating. Under the program, the Company would provide incentives for participants to install hybrid heat pumps over the next three years, with the proposal targeting customers who are replacing their existing HVAC systems.[20] The Company plans to spend $1 million a year for a total of $3 million over the program's three-year run and $1 million each year thereafter on pilots and demonstrations of hybrid systems.[21]

Q. How do hybrid heat pumps work?

A. A hybrid heat pump automatically switches between an electric heat pump (for mild weather) and a natural gas furnace (for extreme cold). During shoulder months, when outdoor temperatures range between 40°F and 60°F, the heat pump operates efficiently, reducing reliance on fossil fuels. When temperatures drop below 40°F, the system prioritizes the furnace to maintain comfort while optimizing energy costs and emissions.

Q. Do you have concerns about Nicor's hybrid heat pump proposal?

A. I do. While I believe that hybrid heat pumps offer efficiencies above gas furnaces and could be a component of the clean energy transition, I have concerns regarding (1) the long-term prudency of incentivizing customers to install hybrid heat pumps, and (2) the appropriateness of pursuing the hybrid heat pumps incentive in this rate case rather than through the Company's energy efficiency program.

[20] Nicor Gas Ex. 15.0 at 8:152-154.
[21] *Id.* at 8:160-164.

Q. Please describe your concerns with the long-term prudency of incentivizing the Company to install hybrid heat pumps.

A. In effect, Nicor's hybrid heat pump program provides a transitional decarbonization strategy where customers could adopt a hybrid heat pump to reduce emissions associated with home heating and cooling on the path towards a fully electrified system. While in the short-term that strategy may make sense, I have concerns about incentivizing a bridge solution.

First, all-electric heat pumps can now serve Illinois' coldest regions, making them competitive with hybrid heat pumps. For example, modern cold-climate heat pumps now operate efficiently at -13°F, thus reducing the need for gas backups. Mitsubishi's Hyper-Heating models achieve 100% capacity at -5°F, while Carrier's Greenspeed systems maintain a coefficient of performance (COP) of 2.0 at -22°F. In the near-future, rapid advancements in all-electric heat pump systems, such as variable-speed compressors and thermal storage, could soon make gas backups redundant. Thus, by prioritizing hybrids, Nicor may slow the adoption and deployment of current or next-generation all-electric systems better suited to meet both customers' needs and CEJA's goals.

Second, incentivizing hybrid heat pumps delay the ability for the Commission, and or the Company, to retire segments of the natural gas infrastructure on the pathway to building electrification. The hybrid heat pumps will utilize Nicor's existing natural gas infrastructure and have 15-20-year lifespans, meaning that any system installed today will only reach the end of their useful lives if the Company maintains its natural gas delivery system well into the future. The systems will also provide a rationale for the Company to perform avoidable long-life repairs and replacements of infrastructure that would serve

these hybrid heat pumps. Meanwhile, CEJA set a goal of Illinois having a net-zero clean energy economy by 2050. To the extent that the Commission is inclined to approve this program, it should approve only a small, short-term program with a sunset date in the early 2030s by which time new hybrid heat pump installations would already have useful lives beyond the 2050 target set by CEJA.

Q. Could the Company offer hybrid heat pumps as part of its energy efficiency program instead of seeking approval in this rate case?

A. Yes, it is my understanding that Nicor generally would offer incentives for technologies such as hybrid heat pumps through its energy efficiency program and not via an incentive approved by the Commission. While I am not intimately familiar with the development of Nicor's energy efficiency program, I understand that Nicor can pursue measures such as hybrid heat pumps which reduce both gas and electric consumption through its energy efficiency program via joint offerings with the electric distribution utilities with overlapping service territories. As noted in discovery submitted by the Illinois Attorney General, the Company seemingly could offer hybrid heat pumps as part of its emerging technology and market transformation subprograms.[22] The Company seems to be deviating from traditional practice by asking the Commission to approve an incentive in this proceeding, rather than through the Illinois Energy Efficiency Stakeholder Advisory Group.

[22] ELPC-PIO Ex. 1.2 at 1-3 (Nicor response to AG 5.11).

Q. Why is it more appropriate for the Company to offer hybrid heat pumps as part of its energy efficiency program?

A. Offering the hybrid heat pumps as part of the Company's energy efficiency program would allow it the opportunity to pair the hybrid heat pumps with additional measures to improve their effectiveness. Based on Nicor's recent petition for approval of its 2026-2029 energy efficiency plan in ICC Docket No. 25-0209, I understand that Nicor offers comprehensive home weatherization to participants in its energy efficiency program.[23]

In contrast, Nicor's hybrid heat pump proposal included in this rate case does not offer critical building envelope upgrades which should accompany the installation of a heat pump. Without envelope improvements, hybrid systems face higher heating loads in poorly insulated homes, forcing heat pumps to operate at lower coefficients of performance. For example, a heat pump in a leaky Chicago home (5 ACH50) may achieve only COP 2.0 at 17°F, versus COP 3.2 in a weatherized home (3 ACH50). This inefficiency increases electricity and natural gas consumption and raises customers' bills. By contrast, the American Council for an Energy-Efficient Economy estimates that pairing heat pumps with insulation cuts annual energy costs by $500-$800 for low-income families.[24] If offered through the Company's energy efficiency program, Nicor can tie incentives for the installation of hybrid heat pumps with incentives for weatherization and limit the need for customers to install oversized heat pumps.

[23] *See, e.g.*, ICC Docket No. 25-0209, Nicor Gas Ex. 1.1 at 48-52.

[24] American Council for an Energy-Efficient Economy, Empowering Electrification through Building Envelope Improvements at 1 (2023). Available at: https://www.aceee.org/sites/default/files/pdfs/empowering_electrification_through_building_envelope_improvements_-_encrypt.pdf.

Q. Did the Company state why it did not seek to pursue this program as part of its energy efficiency program?

A. The Company reports that it is not offering this program because Commonwealth Edison Company declined to pursue a joint offering.[25]

Q. Does this answer change your opinion that Nicor should relocate its proposal to provide an incentive for hybrid heat pumps to its energy efficiency program?

A. No. My understanding is that the Company could coordinate with Ameren Illinois Company ("Ameren") to offer this measure if it chose to do so in places where Ameren's electric service territory overlaps with Nicor's gas service territory.

Q. What is your recommendation regarding Nicor's hybrid heat pumps proposal?

A. I recommend that the Commission reject Nicor's request to incentivize the installation of hybrid heat pumps as part of its rate case and direct the Company to pursue this initiative through its energy efficiency program if the Company is interested in incentivizing the installation of this technology.

Q. Does this conclude your testimony?

A. Yes, it does.

[25] ELPC-PIO Ex. 1.2 at 1-3 (Nicor response to AG 5.11).