# Coordinated RetroCommissioning Program Impact Evaluation Report

Energy Efficiency Plan: Program Year 2025

(01/01/2025-12/31/2025)

**Prepared for:**

**Nicor Gas Company**

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# 1 Introduction

This report presents the results of the impact evaluation of the Nicor Gas 2025 Coordinated RetroCommissioning program. It presents a summary of the energy impacts for the total program and broken out by relevant measure and program structure details. The appendix presents the impact analysis methodology. Program year 2025 covers January 1 to December 31, 2025 (2025).

The 2025 RetroCommissioning program is offered jointly to customers served by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas. This report presents results of the impact evaluation for Nicor Gas.

# 2 Program Description

The RetroCommissioning program has been part of ComEd's Energy Efficiency program portfolio since 2007. In 2010, ComEd began coordinating the program with the gas utilities that also serve ComEd customers. ComEd manages and funds the program, and the gas utilities have the option to share the program costs and savings with ComEd on a project-by-project basis. The overlapping gas territories include Nicor Gas, Peoples Gas, and North Shore Gas.

The RetroCommissioning program helps commercial and industrial customers improve the energy performance of their facilities through systematic analysis of existing building systems. Program-qualified energy efficiency service providers (EESPs) recruit participants, conduct energy studies, and recommend energy saving measures. EESPs are required to verify implemented projects and measures before the project is considered complete. A single implementation contractor verifies, tracks, and reports savings for the coordinating utilities.

Generally, the program pays 100% for a detailed study, contingent on a participant's commitment to spend a defined amount of its own funds implementing study recommendations with a simple payback of 18 months or less. In 2025, this component consisted of two tracks: Monitoring-Based Commissioning (MBCx), and RetroCommissioning Flex (RCx).

- MBCx projects are supported by a multiyear agreement between the building owner and the EESP. This approach identifies, analyses, implements, and verifies multiple bundles of measures on a rolling basis with the EESP monitoring building automation system (BAS) data periodically using integrated, program-installed software to document ongoing savings. Measure savings are counted toward program goals in the calendar year they are submitted based on EESP monitoring since the prior submitted savings. In 2025, Nicor Gas implemented six MBCx projects.
- RCx projects generally last 6-15 months and include a fully funded RCx Flex study covering the costs of engineering services and additional performance-based incentives. To receive the study, participants must agree to implement mutually agreed upon energy conservation measures with a simple payback of 1.5 years or less. In 2025, Nicor Gas implemented four RCx projects.

Nicor Gas participated in the program with 7 participants in 2025 and completed 10 projects as shown in Table 1.

**Table 1. 2025 Volumetric Findings Detail**

| Participation | Direct Install |
|---|---|
| **Private Sector** | |
| Participants * | 5 |
| Installed Projects † | 7 |
| **Public Sector** | |
| Participants * | 2 |
| Installed Projects † | 3 |
| **Program 2024 Total** | |
| Participants * | 7 |
| Installed Projects † | 10 |

** Participants are defined as unique Project Name*
*† Installed Projects are defined as unique project and bundle combination*
*Source: Nicor Gas tracking data and evaluation team analysis.*

# 3 Program Savings Detail

Table 2 summarizes the energy savings the RetroCommissioning Program achieved by path in 2025.

**Table 2. 2025 Annual Energy Savings Summary**

| Program Category | Ex Ante Gross Savings (Therms) | Verified Gross RR* | Verified Gross Savings (Therms | NTG† | Verified Net Savings (Therms) |
|---|---|---|---|---|---|
| Private, Non-Disadvantaged Communities | 45,815 | 97% | 44,216 | 0.86 | 38,025 |
| Public, Non-Disadvantaged Communities | 11,165 | 103% | 11,467 | 0.86 | 9,861 |
| **Total** | **56,980** | **98%** | **55,682** | **0.86** | **47,887** |

*Note: Savings and realization rates presented in this table are rounded and may not sum precisely to the total.*
** Realization Rate (RR) is the ratio of verified gross savings to ex ante gross savings, based on evaluation research findings.*
*† NTG, Net to Gross is the deemed value available on the SAG website: https://www.ilsag.info/evaluator-ntg-recommendations-for-2025/.*
*Source: Evaluation team analysis.*

# 4 Program Savings by Measure

The savings for this program reported at the project-level and are not reported for the individual measures.

# 5 Impact Analysis Findings and Recommendations

The CY2025 realization rate for the gas savings in the RetroCommissioning program for Nicor Gas was 98%. In general, the evaluation team did not find any systemic concerns resulting in large adjustments to project-level ex ante gross savings.

**Finding 1.** For 24-0019, Bundle #2, the evaluation team identified inconsistencies in the application of fan speed assumptions within the custom ex ante calculation. Fan speed was appropriately applied in the fan power calculation but was not accurately reflected in the heating and cooling energy savings calculations, resulting in an inconsistent savings methodology for the measure. This project has a gross kWh and gross therms realization rate of 92% and 65% respectively.

> **Recommendation 1.** Reinforce quality control practices for custom calculations to ensure that key operational assumptions, such as fan speed, are applied consistently across all affected end uses. Verify internal consistency within custom models so that inputs influencing fan power are also reflected in the associated heating and cooling energy calculations, improving the accuracy and defensibility of claimed savings.

**Finding 2.** For 23-0008, Bundle #7, the measure was submitted with limited baseline data as the control failure was corrected shortly after it was identified. As a result, the available data did not capture equipment operation across a sufficient range of ambient conditions, making it difficult to reliably characterize how the failure would have affected energy use throughout the year. The ex ante savings estimates relied on extrapolation from this limited dataset and did not account for the partial benefits from the leaking cooling valve at higher ambient temperatures, which ultimately overstated savings. The evaluation team corrected the extrapolation to account for system performance across all operating conditions. This project has a gross kWh and gross therms realization rate of 80% and 70% respectively.

This highlights the risk of developing savings estimates from datasets that do not adequately represent the full range of expected operating conditions.

> **Recommendation 2.** Strengthen program guidance and quality control procedures to ensure that sufficient baseline data is collected before developing savings estimates, particularly when extrapolation is required. In cases where the baseline data is limited, the program team should require either additional data collection or the use of conservative assumptions that account for uncertainty. Ensuring that datasets span a representative range of operating conditions will improve the accuracy and defensibility of extrapolated savings estimates.

**Finding 3.** In CY2025, the evaluation team observed improved adherence to weather station selection guidelines across most RCx projects; however, occasional instances of incorrect weather station selection in the ex ante savings estimates persist. For these projects, the evaluation team updated the weather station to ensure savings were normalized using weather data that most accurately represents site conditions.

- **24-0019 Bundle #2, ECM 5**[1]. The evaluation team updated the weather station to Waukegan TMYx 2007-2021, which was more representative of the project location.
- **23-0008 Bundle #7, ECM 8**. The evaluation team updated the weather station from the originally selected station to Meigs/Northerly Island TMYx 2007-2021 to better reflect local conditions.

**Recommendation 3.** Maintain and reinforce program guidance on weather station selection by implementing targeted quality control checks to confirm that the most appropriate and proximate TMYx 2007-2021 weather station is used for each project. Emphasis should be placed on verifying weather station choices during initial savings development to minimize the need for evaluator corrections and ensure consistency and accuracy in normalized savings estimates.

[1] Project 24-0019 and 23-0008This are not Nicor Gas projects but part of the overall joint utility gas projects selected independent of the gas utility. The findings and recommendations are presented here since savings for every sampled project (even if it is a non-Nicor Gas project) informs the strata-level realization rates ultimately used to calculate the verified savings for Nicor Gas.

# Appendix A. Impact Analysis Methodology

## Ex Ante Estimates

The EESPs estimated ex ante energy savings with custom algorithms, frequently using hourly weather data and time-series trend data applied in engineering relationships of energy, temperature, and mass transfer. Alternatively, when data supported the method, EESPs determined savings by regressions of utility-metered energy use versus outdoor temperature and other independent variables. When energy efficiency measures had a climate related component, service providers used standard weather data sets (typical meteorological year, or TMY)[2] for proximal locations to estimate weather-normalized savings.

## Evaluation Methods

The evaluation team used a stratified random sampling approach to select the gross impact sample, which included projects for customers served by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas. In CY2025, the evaluation team reviewed 23 projects[3] (39% of the total), 13,868 MWh (73% of the total claimed), and 524,911 therms (78% of the total claimed). The team sorted projects based on the level of ex ante kWh savings and presence or absence of therms savings and then placed the projects into six strata. Within each stratum, the team selected a random sample of projects for analysis. In 2025, 15 of the 27 projects with gas savings in the population were served by Nicor Gas. Gas savings for 10 of these 15 projects were claimed by Nicor Gas as shown in Table 5.

The evaluation team reviewed each sampled project and its measures individually to validate the savings, usually using the same methods as the ex ante estimate. Savings calculation reviews ensured the savings estimates were accurately modeled, used consistent inputs, and included reasonable assumptions, as required. In some cases, the team acquired additional trend data or interval meter data to verify savings with more data and data concurrent with expected savings (e.g., winter data for winter measures). In most cases, the impact evaluation involved analysis of time-series trend and measured data both pre and post implementation. In all cases, the evaluation team normalized savings estimates to TMYx 2007-2021[4] weather data to minimize the effects of atypical weather variation.

For a nested sample of projects (selected from projects sampled for engineering review), Guidehouse performed onsite inspections to determine whether implemented measures were still operating as described in project documentation (setpoints, affected equipment, hours of operation, etc.). For projects

[2] A TMY data set provides an annual data set at the hourly level that typify weather conditions for a certain location over a long period of time (e.g., 30 years)

[3] The evaluation team reviewed 30 individual sample points because the team randomly selected multiple bundles for four projects in CY2025.

[4] https://climate.onebuilding.org/WMO_Region_4_North_and_Central_America/USA_United_States_of_America/index.html#IDIL_Illinois-

not selected for an onsite inspection, evaluators supplemented desk reviews with phone interviews with building operators and reviewed BAS via remote connection or teleconferencing.

In cases where the evaluation team's verified inputs were inconsistent with EESP reported data, such as setpoints or operational hours, the team re-estimated savings with available data, additional data requested from the participant or EESP, or program guideline inputs.

Table 3 shows a profile of the sample selection.

**Table 3. Profile of Gross Impact Sample for RCx Projects**

| Population Summary | | | | Sample Summary | | |
|---|---|---|---|---|---|---|
| Program | Sampling Strata | Number of Projects (N) | Ex Ante Gross Savings (Therms) | n | Ex Ante Gross Savings (Therms) | Sampled % of Population (% Therms) |
| RetroCommissioning | Large | 4 | - | 4 | - | N/A |
| | Large – Gas | 1 | 3,839 | 1 | 3,839 | 100% |
| | Medium | 7 | - | 4 | - | N/A |
| | Medium – Gas | 5 | 256,414 | 4 | 238,507 | 93% |
| | Small | 35 | - | 9 | - | N/A |
| | Small – Gas | 24 | 414,263 | 8 | 282,565 | 68% |
| **TOTAL** | | **76** | **674,516** | **30** | **524,911** | **78%** |

*Note: This table includes gas savings from all projects reported in CY2025. This includes projects for customers served by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas.*
*Source: Evaluation team analysis.*

## Savings Rollup

There are two basic statistical methods for combining individual gross realization rates from the sample projects into an estimate of verified gross kWh savings for the population when using stratified random sampling: separate and combined ratio estimation.[5] In the case of a separate ratio estimator, a separate gross kWh savings realization rate is calculated for each stratum and then combined. In the case of a combined ratio estimator, the evaluation completes a single gross kWh savings realization rate calculation without first calculating separate gross realization rates by stratum.

The evaluation team used the separate ratio estimation technique to estimate verified gross impacts for the RetroCommissioning component. The separate ratio estimation technique follows the steps outlined in the California Evaluation Framework,[6] which identifies best practices in program evaluation. The team

[5] A full discussion and comparison of separate versus combined ratio estimation can be found in *Sampling Techniques* (Cochran, 1977), pp. 164-169.
[6] Tec Market Works, *The California Evaluation Framework*, prepared for the California Energy Commission, June 2004, available at http://www.calmac.org.

matched these steps to the stratified random sampling method it used to create the sample for the component.

Consistent with the stratified random sampling approach, the evaluation team rolled up the savings to the entire population, which included projects for customers served by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas using the stratum-level realization rate. The program-level gas savings for each utility were then calculated as the total of the project-level verified savings for all projects claimed by that gas utility in the program year.

# Appendix B. Impact Analysis Detailed Results

Table 4 provides the ex ante and verified gas savings for each stratum. This table includes gas savings from all projects evaluated in CY2025. This includes projects for customers served by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas.

**Table 4. 2025 Gas Savings by Strata (All Projects)**

| Strata | Sample Size | Ex Ante Gross Savings (Therms) | Verified Gross Realization Rate* | Verified Gross Savings (Therms) |
|---|---|---|---|---|
| Large | 4 | 0 | N/A | 0 |
| Large - Gas | 1 | 3,839 | 97% | 3,709 |
| Medium | 4 | 0 | N/A | 0 |
| Medium - Gas | 4 | 238,507 | 89% | 211,872 |
| Small | 9 | 0 | N/A | 0 |
| Small - Gas | 8 | 282,565 | 103% | 290,195 |
| **Total** | **30** | **524,911** | **96%** | **505,776** |

*Note: This table includes gas savings from all projects evaluated in CY2025. This includes projects for customers served by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas.*
** The realization rate is the ratio of verified gross savings to ex ante gross savings, based on evaluation research findings.*
*Source: Evaluation team analysis.*

Table 5 shows the strata classification and ex ante and verified gas savings for all projects claimed by Nicor Gas in 2025.

**Table 5. 2025 Gas Savings by Project (Nicor Gas Projects Only)**

| Project ID | Bundle # | Strata | Ex Ante Gross Savings (Therms) | Verified Gross Realization Rate* | Verified Gross Savings (Therms) | NTG† | Verified Net Savings (Therms) |
|---|---|---|---|---|---|---|---|
| 22-0066 | Bundle #1 | Small – Gas | 3,968 | 103% | 4,075 | 0.86 | 3,505 |
| 23-0004 | Bundle #1 | Medium – Gas | 20,454 | 89% | 18,170 | 0.86 | 15,626 |
| 23-0047 | Bundle #2 | Small – Gas | 365 | 103% | 375 | 0.86 | 322 |
| 24-0046 | Bundle #1 | Small – Gas | 15,360 | 103% | 15,775 | 0.86 | 13,566 |

| Project ID | Bundle # | Strata | Ex Ante Gross Savings (Therms) | Verified Gross Realization Rate* | Verified Gross Savings (Therms) | NTG† | Verified Net Savings (Therms) |
|---|---|---|---|---|---|---|---|
| 18-113 | Bundle #2 | Small – Gas | 3,218 | 103% | 3,305 | 0.86 | 2,842 |
| 18-113 | Bundle #3 | Small – Gas | 1,461 | 103% | 1,500 | 0.86 | 1,290 |
| 20-0036 | Bundle #12 | Small – Gas | 1,351 | 103% | 1,387 | 0.86 | 1,193 |
| 20-0036 | Bundle #13 | Small – Gas | 1,654 | 103% | 1,699 | 0.86 | 1,461 |
| 20-0036 | Bundle #14 | Small – Gas | 2,663 | 103% | 2,735 | 0.86 | 2,352 |
| 24-0025 | Bundle #1 | Small – Gas | 6,486 | 103% | 6,661 | 0.86 | 5,729 |
| **Total** | | | **56,980** | **98%** | **55,682** | | **47,887** |

** The realization rate is the ratio of verified gross savings to ex ante gross savings, based on evaluation research findings.*

*† NTG, Net to Gross is the deemed value available on the SAG website: https://www.ilsag.info/evaluator-ntg-recommendations-for-2025/.*

*Source: Evaluation team analysis.*

Table 6 details the verified gas savings and realization rates for all sampled gas projects.

**Table 6. 2025 Gas Savings by Project (All Sampled Projects)**

| Project ID | Bundle # | Strata | Ex Ante Gross Savings (Therms) | Verified Gross Realization Rate* | Verified Gross Savings (Therms) |
|---|---|---|---|---|---|
| 22-0010 | Bundle #24 | Medium - Gas | 136,718 | 100% | 136,831 |
| 22-0010 | Bundle #20 | Small - Gas | 133,364 | 109% | 145,513 |
| 23-0008 | Bundle #6 | Small - Gas | 113,882 | 100% | 113,882 |
| 23-0008 | Bundle #7 | Medium - Gas | 74,412 | 70% | 51,781 |
| 23-0004 | Bundle #1 | Medium - Gas | 20,454 | 100% | 20,454 |
| 24-0046 | Bundle #1 | Small - Gas | 15,360 | 100% | 15,360 |
| 23-0042 | Bundle #1 | Small - Gas | 8,381 | 83% | 6,944 |
| 22-0010 | Bundle #23 | Medium - Gas | 6,923 | 41% | 2,805 |
| 24-0019 | Bundle #2 | Small - Gas | 5,990 | 65% | 3,901 |
| 22-0066 | Bundle #1 | Small - Gas | 3,968 | 75% | 2,972 |
| 25-0031 | Bundle #1 | Large - Gas | 3,839 | 97% | 3,709 |
| 20-0036 | Bundle #13 | Small - Gas | 1,654 | 100% | 1,657 |
| 22-0063 | Bundle #1 | Small - Gas | -34 | 101% | -34 |

*Note: This table includes gas savings from all projects evaluated in CY2025. This includes projects for customers served by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas.*

*Note: Participants can submit multiple bundles at different times during the year. Each project bundle submitted in CY2025 was counted as one project for impact evaluation sampling purposes.*

** The realization rate is the ratio of verified gross savings to ex ante gross savings, based on evaluation research findings.*

*Source: Evaluation team analysis.*

# Appendix C. Program Specific Inputs for the Illinois TRC

Table 7 shows the Total Resource Cost (TRC) cost-effectiveness analysis inputs available at the time of producing this impact evaluation report. Additional required cost data (e.g., measure costs, program level incentive and non-incentive costs) are not included in this table and will be provided to the evaluation team later. Guidehouse will include annual and lifetime water savings and greenhouse gas reductions in the end of year summary report.

**Table 7. Verified Cost Effectiveness Inputs**

| Program Category | Savings Category | DAC Project | Units | Quantity | Effective Useful Life | Early Replacement Flag | Verified Gross Annual Water Savings (Gallons) | Ex Ante Gross Savings (Therms) | Verified Gross Savings (Therms) | Verified Net Savings (Therms) |
|---|---|---|---|---|---|---|---|---|---|---|
| Private | RetroCommissioning Project | FALSE | Project | 7 | 8.6 | NO | N/A | 45,815 | 44,216 | 38,025 |
| Public | RetroCommissioning Project | FALSE | Project | 3 | 8.6 | NO | N/A | 11,165 | 11,467 | 9,861 |
| **Total or Weighted Average** | | | | | **8.6** | | **N/A** | **56,980** | **55,682** | **47,887** |

*Source: Evaluation team analysis.*