



Building Operator Certification Impact Evaluation Report

Energy Efficiency: Program Year 2023
(1/1/2023-12/31/2023)

Prepared for:

Nicor Gas Company

FINAL

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1. Introduction

This report presents the results of the impact evaluation of the Nicor Gas 2023 Building Operator Certification (BOC) program and summarizes the total energy impacts for the program as well as relevant measure and program structure details. The appendices provide the impact analysis methodology and details of the total resource cost (TRC) analysis inputs. Program Year 2023 covers savings from January 1 to December 31, 2023.

2. Program Description

BOC is a training and certification program for commercial building operators. The curriculum teaches participants how to improve building comfort and efficiency by optimizing a building’s systems. The curriculum has been offered for several years and is implemented throughout the region by the Midwest Energy Efficiency Alliance.

The BOC program offers full tuition reimbursement for ComEd, Ameren Illinois and natural gas customers who complete the curriculum. The sponsoring utilities’ goal is to have participants implement energy-saving practices at their facilities. BOC training has two curricula: BOC Level I and BOC Level II.¹ Both curricula require a time commitment of more than 60 hours for class training and assigned projects spread over several months.

The Nicor Gas BOC program coordinates with ComEd and Ameren Illinois where their service areas overlap. The program had 13 participants from the Nicor Gas territory in 2023 as shown in Table 2-1.

Table 2-1. 2023 Volumetric Findings Detail

Participation	Total
Level I Participants*	13
Level II Participants*	0
Total Participants	13

* Participants are defined as the number of BOC participants from Nicor Gas territory.

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis

¹ Level I BOC Training is Building Systems Maintenance, and Level II BOC Training is Improving Building Operational Performance. The difference between Level I and Level II trainings includes the eligibility criteria: Level II training eligibility requires more years of operations and maintenance experience, higher levels of education, or the completion of Level I BOC training. Source: <https://www.theboc.info/building-operator-training/boc-eligibility/>.

3. Program Savings Detail

Table 3-1 summarizes the energy savings the BOC program achieved in 2023.

Table 3-1. 2023 Annual Energy Savings Summary

Program Path	Ex Ante Gross Savings (therms)	Verified Gross RR*	Verified Gross Savings (therms)	NTG†	Verified Net Savings (therms)
BOC	21,346	68%	16,812	1.00	16,812

*Realization rate (RR) is the ratio of verified gross savings to ex ante gross savings based on evaluation research findings.

†A deemed value. Available on the Stakeholder Advisory Group website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/>

Source: Guidehouse evaluation team analysis

4. Program Savings by Measure

The BOC program does not claim savings by measure, so this report does not present measure-level savings. Evaluation-verified savings for the program are calculated and reported at the participant level.

5. Impact Analysis Findings and Recommendations

Table 5-1 shows the unit therm savings and realization rate (RR) findings from Guidehouse’s review. The RR is the ratio of the verified savings to the ex ante savings. Following Table 5-1, Section 5.1 provides findings and recommendations. Appendix A provides a description of the impact analysis methodology.

Table 5-1. 2023 Verified Gross Gas Savings Parameters

Program Path	Unit Basis	Ex Ante Gross (therms/ft ² (capped))	Verified Gross (therms/ ft ² (capped))	RR	Data Source(s)
BOC	Participant	0.0046	0.0046	100%	Nicor Gas PTD* and IL-TRM, v11.0†, Section 4.8.24

*Program tracking data (PTD) provided by Nicor Gas, extract dated March 4, 2024.

†Illinois Statewide Technical Reference Manual (IL-TRM) version 11.0 from <http://www.ilsag.info/technical-reference-manual.html>.

Source: Guidehouse evaluation team analysis

5.1 Findings and Recommendations

Finding 1. The program incorrectly calculated savings for three cases where multiple participants operated the same building (i.e., service address) or group of buildings.

- Three participants (Participant 1, Participant 2, and Participant 10) working for a common employer indicated they manage the same building with the total building area operated by the three participants totaling 526,260 ft². The ex ante savings capped the managed square footage for all three participants at 500,000 ft² each. The evaluation team capped the managed square footage for one of the participants at 500,000 ft² and verified savings only for the remaining 26,260 ft² for the second participant and verified no savings for the third participant as per the guidance in the Illinois Statewide Technical Reference Manual (IL-TRM) v11.0, Section 4.8.24.

Recommendation 1. In cases where multiple participants operate the same building (i.e., service address) or group of buildings and the managed square footage exceeds 500,000 ft², the program should claim savings up to the 500,000 ft² per participant cap until the total square footage has been accounted for.

Finding 2. One participant (Participant 5) did not completely fill in the Building Information section of the BOC Participant Information Template since they manage a very large number of buildings². That participant provided building name and building service address only for three buildings. The evaluation team gathered building area information for these three buildings managed by the participant to verify savings for this participant in 2023.

Recommendation 2. For participant employers with large numbers of buildings, continue to work with them to gather building area information for all available buildings. This approach will allow accurate tracking of eligible building area over time and across multiple participants from the same employer.

Finding 3. The participant facility data captured from the BOC trainees had adequate data to calculate impacts using the IL-TRM v11.0 algorithm. The evaluation team researched online sources and confirmed facility details including square footage.

Recommendation 3. To ensure the evaluation team has sufficient information to determine verified savings for each participant, the implementation contractor should continue to require BOC participants to provide the completed BOC Participant Information Template.

² This participant manages 66 individual buildings.

Appendix A. Impact Analysis Methodology

The impact evaluation team applied the algorithms from measure 4.8.24 Building Operator Certification from the IL-TRM v11.0. Guidehouse used information collected from the participants (building area provided in the Nicor Gas tracking data and coordinated with ComEd to gather information for large participants with several building addresses) and internet research (checking building square footage) to determine the inputs into the IL-TRM algorithm. Savings are capped at 500,000 square feet per participant. Table A-1 shows the savings coefficients from the IL-TRM, which are used in Equation A-1 to verify the estimated annual energy savings. Table A-2 shows the savings and managed building area for each participant.

Table A-1. Program Savings Coefficients

Savings Type	Variable Name	Value	Unit
Natural Gas	C_g	0.0046	therms/ft ² /participant

Source: IL-TRM v11.0, Section 4.8.24

Equation A-1. Annual Savings per Participant

$$\text{Natural Gas Savings} = C_g \times \text{Area (Minimum of participant ft}^2 \text{ or 500,000 ft}^2\text{)}$$

Table A-2. 2023 Participant-Level Savings

Participant No.	BOC Level	No. of Buildings	Managed Square Footage per Participant	TRM Capped Square Footage per Participant*	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
1	Level I	1	500,000	500,000	2,300	2,300
2	Level I	1	500,000	0	0	0
3	Level I	4	464,661	464,661	2,137	2,137
4	Level I	2	49,000	49,000	225	225
5	Level I	66	500,000	500,000	2,300	2,300
6	Level I	3	33,000	33,000	152	152
7	Level I	1	1,000,000	500,000	2,300	2,300
8	Level I	13	515,666	500,000	2,300	2,300
9	Level I	3	324,000	324,000	1,490	1,490
10	Level I	1	526,260	26,260	121	121
11	Level I	9	499,080	219,504	2,296	2,296
12	Level I	1	50,000	50,000	230	230
13	Level I	8	208,715	208,715	960	960
Total		113	5,605,929	3,166,425	16,812	16,812

* Savings are capped at 500,000 square feet per participant, according to the IL-TRM.

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis

Appendix B. Program-Specific Inputs for the Illinois TRC

Table B-1 shows the 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 B-1. 2023 Verified Cost-Effectiveness Inputs

Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (therms)	Verified Gross Savings (therms)	Verified Net Savings (therms)
BOC	Training	Participant	13	13	21,346	16,812	16,812
Total					21,346	16,812	16,812

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis