



Home Energy Efficiency Rebates Impact Evaluation Report

Energy Efficiency Plan Program Year 2021
(1/1/2021-12/31/2021)

Prepared for:

Nicor Gas

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1. Introduction

This report presents the results of the impact evaluation of the Nicor Gas 2021 Home Energy Efficiency Rebates 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 2021 (2021) covers January 1, 2021 through December 31, 2021.

2. Program Description

The Nicor Gas Home Energy Efficiency Rebate (HEER) Program provides Nicor Gas customers with rebate incentives for purchasing high annual fuel utilization efficiency (AFUE) furnaces and boilers, and advanced thermostats. Participants may apply for the rebates themselves, or contractors may assist them in the rebate application process. Rebates are processed and sent to residential customers after installation of qualified measures. Members of the Nicor Gas Contractor Circle may offer rebates as instant discounts.

The program had 37,732 participants in 2021 and completed 38,297 projects as shown in Table 2-1.

Table 2-1. 2021 Volumetric Summary

Participation	2021 Quantity
Participants *	37,732
Installed Projects †	38,297
Installed Measures	40,083

* Participants are defined as count of unique site addresses.

† Installed Projects are defined as count of unique project IDs.

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis.

Table 2-2 summarizes the installed measure quantities that are the basis for verified energy savings.

Table 2-2. 2021 Installed Measure Quantities

Measure	Quantity Unit	Installed Quantity
Advanced Thermostat - Manual Baseline	Each	10,239
Advanced Thermostat - Programmable Baseline	Each	14,999
Advanced Thermostat - Unknown Baseline	Each	1,074
Boilers, >95% AFUE <300 MBH	Each	132
Combination Boilers, >95% AFUE <300 MBH	Each	17
Furnace, >95% AFUE	Each	12,622
Furnace, >97% AFUE	Each	1,001

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis.

3. Savings Summary

Table 3-1 summarizes the energy savings the HEER Program achieved by path in 2021.

Table 3-1. 2021 Annual Energy Savings Summary

Program Path	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Advanced Thermostats	2,183,581	100%	2,183,581	0.90	1,965,223
Boilers and Furnaces	2,570,587	100%	2,570,587	Furnaces >95 AFUE and Boilers = 0.84 Furnaces > 97 AFUE = 0.86	2,163,629
Total or Weighted Average	4,754,168	100%	4,754,168	0.87	4,128,852

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

† Net-to-Gross (NTG) is the ratio of verified net savings to verified gross savings. The NTG is a deemed value. Source: Illinois SAG web site: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021/>

Source: Nicor Gas tracking data and Guidehouse team analysis.

4. Program Savings by Measure

The program includes seven measures as shown in Table 4-1. High efficiency furnaces contributed the most savings.

Table 4-1. 2021 Annual Energy Savings by Measure

Program Management	Ex Ante Gross Savings (Therms)	Verified Gross RR	Verified Gross Savings (Therms)	NTG	Verified Net Savings (Therms)
Advanced Thermostat - Manual Baseline	1,037,258	100%	1,037,258	0.90	933,532
Advanced Thermostat - Programmable Baseline	1,056,128	100%	1,056,128	0.90	950,515
Advanced Thermostat - Unknown Baseline	90,195	100%	90,195	0.90	81,176
Boilers, >95% AFUE <300 MBH	32,507	100%	32,507	0.84	27,306
Combination Boilers, >95% AFUE <300 MBH	5,601	100%	5,601	0.84	4,705
Furnace, >95% AFUE	2,315,726	100%	2,315,726	0.84	1,945,210
Furnace, >97% AFUE	216,753	100%	216,753	0.86	186,408
Total or Weighted Average	4,754,168	100%	4,754,168	0.87	4,128,852

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis.

5. Impact Analysis Findings and Recommendations

5.1 Impact Parameter Estimates

Table 5-1 shows the unit therm savings and realization rate findings by measure from our review. The realization rate is the ratio of the verified savings to the ex ante savings. Following Table 5-1, we provide findings and recommendations, including discussion of all measures with realization rates above or below 100%. Appendix A provides a description of the impact analysis methodology. Table B-1 in Appendix B shows the Total Resource Cost (TRC) cost-effectiveness analysis inputs available at the time of producing this impact evaluation report.

Table 5-1. Verified Gross Savings Parameters

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Advanced Thermostat - Manual Baseline	Unit	101.30	101.30	100%	Nicor Gas Program Tracking Data (PTD*), TRM, v9.0†, Section 5.3.16
Advanced Thermostat - Programmable Baseline	Unit	70.41	70.41	100%	PTD, TRM, v9.0, Section 5.3.16
Advanced Thermostat - Unknown Baseline	Unit	83.98	83.98	100%	PTD, TRM, v9.0, Section 5.3.16
Boilers, >95% AFUE <300 MBH	Unit	246.27	246.27	100%	PTD, TRM, v9.0, Section 5.3.6
Combination Boilers, >95% AFUE <300 MBH	Unit	329.45	329.45	100%	PTD, TRM, v9.0, Section 5.3.17
Furnace, >95% AFUE	Unit	183.48	183.48	100%	PTD, TRM, v9.0, Section 5.3.7
Furnace, >97% AFUE	Unit	216.54	216.54	100%	PTD, TRM, v9.0, Section 5.3.7

* Program Tracking Data (PTD) provided by Nicor Gas, extract dated February 8, 2022 and March 22, 2022.

† State of Illinois Technical Reference Manual version 9.0 from <http://www.ilsag.info/technical-reference-manual.html>.

Appendix A. Impact Analysis Methodology

Guidehouse determined verified gross savings for each program measure by conducting a tracking system review. Guidehouse used the Illinois TRM v9.0¹ methodology to calculate verified gross savings. Guidehouse calculated verified net energy savings by multiplying the verified gross savings estimates by a deemed net-to-gross ratio (NTG). In 2021, the NTG estimates used to calculate the net verified savings were based on past evaluation research and defined by a consensus process through SAG.²

¹ Available on the SAG web site: <http://www.ilsag.info/technical-reference-manual.html>

² A deemed value. Available on the SAG web site: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021/>

Appendix B. Program-Specific Inputs for the Illinois TRC

Table B-1 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 B-1. Verified Cost Effectiveness Inputs

Research Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Advanced Thermostat - Manual Baseline	Unit	10,239	11.0	1,037,258	1,037,258	933,532
Advanced Thermostat - Programmable Baseline	Unit	14,999	11.0	1,056,128	1,056,128	950,515
Advanced Thermostat - Unknown Baseline	Unit	1,074	11.0	90,195	90,195	81,176
Boilers, >95% AFUE <300 MBH	Unit	132	25.0	32,507	32,507	27,306
Combination Boilers, >95% AFUE <300 MBH	Unit	17	21.5	5,601	5,601	4,705
Furnace, >95% AFUE	Unit	12,622	20.0	2,315,726	2,315,726	1,945,210
Furnace, >97% AFUE	Unit	1,001	20.0	216,753	216,753	186,408
Total or Weighted Average			15.9	4,754,168	4,754,168	4,128,852

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis.