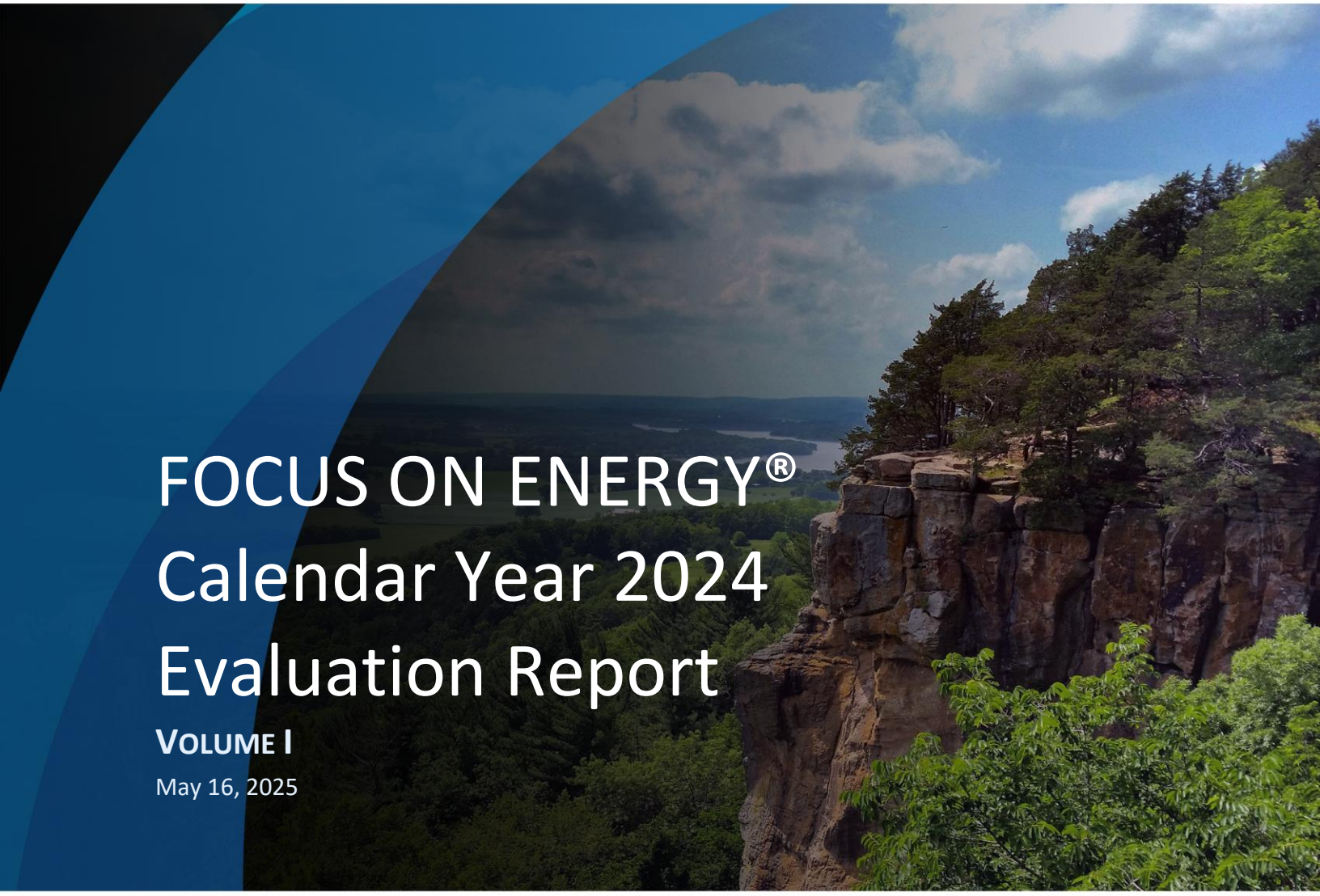
CADMUS



FOCUS ON ENERGY® Calendar Year 2024 Evaluation Report

VOLUME I

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Table of Contents

1. Executive Summary v

1.1. Summary of Methods v

1.2. Key Achievements vii

2. Introduction 1

2.1. CY 2024 Evaluation 2

2.2. Summary of Measures by Channel 2

2.3. Overview of Evaluation Activities 4

3. Evaluation Findings 6

3.1. Summary of Impacts by Offering 8

3.2. Summary of Impacts by Measure Category 14

3.3. Portfolio Participant Satisfaction Findings 17

3.4. Residential Process Evaluation Findings 18

3.5. Nonresidential Process Evaluation Findings 27

3.6. Midstream/Instant Discount Process Evaluation Findings 32

4. Cost-Effectiveness Findings 36

4.1. Test Description 36

4.2. Interpreting Test Results 37

4.3. Value of Net Saved Energy 38

4.4. Emissions Benefits 39

4.5. Program Costs 41

4.6. Incremental Costs 42

5. Key Performance Indicators Achievement 45

6. Outcomes and Recommendations 46

6.1. Residential 46

6.2. Nonresidential 47

6.3. Midstream/Instant Discount 50

6.4. Cost-Effectiveness 51

Tables

Table 1. Focus on Energy Gross Quadrennium IV Goals vii
Table 2. CY 2024 Lifecycle Savings by Channel vii
Table 3. CY 2023 and CY 2024 Verified Gross Lifecycle Savings by Channel viii
Table 4. CY 2024 First-Year Annual Savings by Channel ix
Table 5. CY 2023 and CY 2024 First-Year Annual Verified Net Savings by Channel ix
Table 6. CY 2024 Cost-Effectiveness Results x
Table 7. CY 2024 Residential and Nonresidential Programs and Offerings 2
Table 8. CY 2024 Residential, Nonresidential, and Midstream Measure Categories 3
Table 9. CY 2024 Evaluation Activities and Number of Completions by Channel 5
Table 10. Overall Portfolio Verified Gross Lifecycle Savings by Calendar Year 6
Table 11. Overall Portfolio Net Lifecycle Savings by Calendar Year 7
Table 12. Focus on Energy Quadrennium IV Net Goals 7
Table 13. CY 2024 Total Participation by Offering 9
Table 14. Summary of CY 2024 Annual Savings by Offering 12
Table 15. Summary of CY 2024 Annual Savings by Measure Category in the Residential Channel 14
Table 16. Summary of CY 2024 Annual Savings by Measure Category in the Nonresidential Channel 15
Table 17. Summary of CY 2024 Annual Savings by Measure Category in the Midstream Channel 16
Table 18. CY 2024 Residential Process Evaluation Activities by Program and Offering 18
Table 19. CY 2024 Residential Number of Survey Completions and Survey Mode by Offering 20
Table 20. CY 2024 Nonresidential Process Evaluation Activities by Program and Offering 27
Table 21. CY 2023 and CY 2024 Avoided Cost Comparison 39
Table 22. Emissions Factors and Allowance Price 40
Table 23. Total Emissions Benefits by Gas Type by Calendar Year 41
Table 24. Total Emissions Benefits by Segment by Calendar Year 41
Table 25. Sector Costs Comparison by Calendar Year 41
Table 26. Net Incremental Measure Cost Comparison by Calendar Year 42
Table 27. CY 2024 Incentive Costs by Sector (with Renewables Incorporated) 42
Table 28. CY 2024 Benefit and Costs Portfolio Breakout 43
Table 29. CY 2024 Costs, Benefits, and Modified Total Resource Cost Test Results by Sector 43
Table 30. Cost-Effectiveness Results for Focus on Energy Portfolio by Calendar Year 43
Table 31. CY 2024 Portfolio-Level Cost-Effectiveness Results for Additional Benefit/Cost Tests 44
Table 32. Quadrennium IV Key Performance Indicators and Verified Results for CY 2024 45

Figures

Figure 1. Achievement of Four-Year (CY 2023-CY 2026) Verified Gross Lifecycle Savings Goals viii
Figure 2. Evaluation Steps to Determine CY 2024 Gross and Net Savings 4
Figure 3. Achievement of Four-Year (CY 2023-CY 2026) Verified Gross Lifecycle Savings Goals 6
Figure 4. Achievement of CY 2024 Verified Gross Lifecycle Savings Goals 7
Figure 5. Achievement of Four-Year (CY 2023-CY 2026) Net Lifecycle Savings Goals 8
Figure 6. CY 2024 Verified Gross Lifecycle Savings Impacts by Channel 10
Figure 7. CY 2024 Verified Gross Lifecycle Electric Energy Impacts by Offering 11
Figure 8. CY 2024 Verified Gross Lifecycle Natural Gas Energy Impacts by Offering 11
Figure 9. CY 2024 Portfolio Average Overall Satisfaction Ratings 17
Figure 10. CY 2024 Average Overall Satisfaction Ratings for Residential Offerings 19
Figure 11. Residential Participants' Top Sources of Awareness by Offering 21
Figure 12. Residential Participants' Awareness and Opinion of Utility Partnerships with Focus on Energy 23
Figure 13. Residential Participants' Age 24
Figure 14. Residential Participants' Income Level 25
Figure 15. Residential Participants' Suggestions for Improving Offerings 26
Figure 16. CY 2024 Average Overall Satisfaction Ratings for Nonresidential Offerings 28
Figure 17. Nonresidential Participants' Awareness and Opinion of Utility Partnerships with Focus on Energy 29
Figure 18. Estimated Stocking of High-Efficiency Equipment Before Enrolling in the Instant Discount Program 34
Figure 19. Most and Least Influential Factors in Stocking High-Efficiency Equipment 35

Acronyms and Abbreviations

Acronym	Term
AVERT	AVoided Emissions and geneRation Tool
DHW	Domestic Hot Water
CY	Calendar year
EDA/EDR	Energy Design Assistance/Energy Design Review
EPA	Environmental Protection Agency
HVAC	Heating, ventilation, and air conditioning
IRA	Inflation Reduction Act
KPI	Key performance indicator
kW	Kilowatt
kWh	Kilowatt-hour
LED	Light-emitting diode
MMBtu	Million British thermal unit
MThm	Thousand therms
MWh	Megawatt-hour
NPS	Net promoter score
NTG	Net-to-gross
PSC	Public Service Commission of Wisconsin
PV	Photovoltaic
SPECTRUM	Statewide Program for Energy Customer Tracking, Resource Utilization, and Data Management
T&D	Transmission and Distribution
TRC	Total resource cost test
TRM	Technical reference manual
UAT	Utility administrator cost test
VSD	Variable speed drive

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Executive Summary

This report, presented in three volumes, describes the evaluation findings and impacts achieved by Focus on Energy for calendar year (CY) 2024. When appropriate, each volume includes previous evaluation results alongside CY 2023 results for comparison:

- Volume I (this report) is a summary of findings across all programs, offerings, and measure categories in the portfolio.
- Volume II includes detailed findings for each Focus on Energy program and offering.
- Volume III includes the appendices with additional details on the evaluation methodologies as well as supporting data and evaluation materials.

The Wisconsin Focus on Energy Evaluation Dashboard is another tool that allows users to review energy savings by year, customer sector, and measure category.[1]

All four resources (Volume I, Volume II, Volume III, and the online Evaluation Dashboard) should be read together to gain a comprehensive perspective of the Focus on Energy portfolio.

SUMMARY OF METHODS

Each year, the evaluation team produces results for three consistent evaluation research areas—impact analysis, customer satisfaction, and cost-effectiveness—in addition to more targeted research that varies annually and is designed to meet Focus on Energy's specific program evaluation needs. In Quadrennium IV, the evaluation team also reports on the achievement of key performance indicators (KPIs) outlined in the program administrator's contract and evaluation activities related to the Public Service Commission of Wisconsin (PSC) priorities for Quadrennium IV. The five ongoing research areas of the evaluation are briefly described below. Specific annual program-related evaluation efforts are described in the program chapters of Volume II.

Impact Analysis

The following key terms are briefly defined here and further detailed in Appendix B. Glossary of Terms in Volume III:

- ***Gross savings:*** Program-reported change in energy consumption, demand, or both resulting from an efficiency offering.
- ***Verified gross savings:*** Energy savings or impact verified by the independent evaluation team.[2]
- ***Net savings:*** Savings directly attributable to offering efforts (net of what would have occurred in the absence of the offering).

[1] *The Wisconsin Focus on Energy Evaluation Dashboard tool is available here:* ***https://focusonenergy.com/evaluation-dashboard***

[2] *The independent evaluation team comprises Cadmus and Apex Analytics.*

To determine verified gross savings, the evaluation team reviewed and assessed the technical assumptions used by Focus on Energy to calculate savings, participation levels, and measure installation and retention rates. To determine net savings, the evaluation team conducted primary research in CY 2024 and applied evaluation results from previous years.

Customer Satisfaction

To monitor participants' satisfaction with Focus on Energy and its programs, the evaluation team analyzed ongoing participant surveys that the administrator distributed to all CY 2024 participants with contact information. The team reported on various satisfaction topics, including overall satisfaction with the program and Focus on Energy as a whole, as well as a net promoter score. These analyses are further described in specific program chapters of Volume II.

Cost-Effectiveness

The evaluation team used an approved cost-effectiveness calculator to determine the cost-effectiveness of individual programs and offerings, as well as of the entire Focus on Energy portfolio. Volume I includes the results for the primary test: the modified total resource cost (TRC) test. The PSC also requires the use of three secondary tests for informational purposes. Results of all four tests conducted as part of Focus on Energy's evaluation—including the modified TRC—are provided in Appendix J. Cost-Effectiveness and Emissions Methodology and Analysis in Volume III.

Key Performance Indicators

The evaluation team reviewed tracking data and verified savings to assess the achievement of the KPIs outlined in the program administrator's contract.[3] The evaluation team collaborated with the program administrator and PSC staff to establish the data sources, processes, and procedures necessary for the evaluation team to assess the achievement of the contractual KPIs. Five KPIs are outlined in the administrator's contract; however, since certain KPIs concern the program's performance at particular points within the quadrennium, the evaluation team will not report on all five KPIs each year of the quadrennium. The *Key Performance Indicators Achievement* section of this report presents the five KPIs and CY 2024 KPI verification results.

Quadrennium IV Public Service Commission Priorities

In the Quadrennium IV planning process, the PSC charged Focus on Energy with making measurable progress on various transitional priorities that will prepare the program for a shift in emphasis if the Commission wishes to establish new goals and measurable targets for the program in Quadrennium V. To help address the PSC's priorities, the evaluation team conducted a variety of research and analysis activities that will allow Focus on Energy to improve or expand its savings methodologies and tracking. Appendix L. Quadrennium IV Commission Priorities Progress in Volume III presents a summary of the team's CY 2024 activities.

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[3] *Contractual KPIs are established in Attachment E of the Contract for Services between the Statewide Energy Efficiency and Renewables Administration and APTIM Government Solutions, LLC. Contract Number 9501-FE-128.* ***PSC REF#: 457108****.*

KEY ACHIEVEMENTS

The PSC ordered that the Focus on Energy administrator track quadrennium savings with respect to verified gross lifecycle savings targets.[4] Lifecycle savings represent the savings that programs can realize through measures over their expected useful lives. The PSC set an overall gross lifecycle savings goal for Focus on Energy in the 2023-2026 quadrennium in millions of British thermal units (MMBtu). The PSC also established a quadrennium peak demand savings goal and 70% minimum goal thresholds for kWh and therms savings.[5] The minimum goal thresholds were set to allow flexibility in meeting the overall MMBtu goal using both types of savings.

Table 1 lists the 2023-2026 quadrennial goals. This report presents kWh and therms savings achievement of the overall goals.[6]

Table 1. Focus on Energy Gross Quadrennium IV Goals

UNIT	GOAL
Lifecycle MMBtu	185,692,431
Lifecycle kWh	31,676,270,000
kW	293,900
Lifecycle therms	776,085,000

Note: Lifecycle kWh and Lifecycle therms goals reflect full targets; they are not adjusted for the 70% minimum threshold.

Table 2 shows CY 2024 lifecycle reported gross savings, verified gross savings, and verified net savings for residential, nonresidential, and midstream offerings.

Table 2. CY 2024 Lifecycle Savings by Channel

SAVINGS TYPE	UNIT	RESIDENTIAL	NONRESIDENTIAL	MIDSTREAM	TOTAL
Gross	MMBtu	15,300,113	37,921,864	1,727,245	**54,949,222**
	kWh	1,279,861,460	6,378,220,767	-9,862,472	**7,648,219,755**
	kW	12,031	53,326	648	**66,005**
	therms	109,332,257	161,593,752	17,608,957	**288,534,966**
Verified Gross	MMBtu	16,243,821	37,995,610	1,738,779	**55,978,211**
	kWh	1,307,919,009	6,397,784,104	-10,228,812	**7,695,474,300**
	kW	11,293	53,017	631	**64,941**
	therms	117,812,018	161,663,711	17,736,797	**297,212,526**
Verified Net	MMBtu	12,077,679	31,735,016	1,070,062	**44,882,758**
	kWh	769,516,744	5,376,018,133	-14,165,218	**6,131,369,659**
	kW	6,563	44,130	390	**51,083**
	therms	94,520,879	133,920,426	11,183,939	**239,625,243**

Note: Totals may not match the sum of channel savings due to rounding.

[4]*Public Service Commission of Wisconsin. November 14, 2022. Quadrennial Planning Process IV – Final Decision. PSC Docket 5-FE-104, PSC REF#:453081.* ***https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=45308***.

[5]*In its Order of November 14, 2024, the Public Service Commission of Wisconsin revised the Quadrennium IV minimum savings thresholds by fuel from 90 percent to 70 percent of the overall fuel-specific goals. PSC REF#: 524088.* ***https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=524088***.

[6]*Revisions to the Quadrennium IV savings goals were under consideration at the time this report was published and may be updated by PSC Order later in 2025. Any such revisions will be updated as appropriate in the CY 2025 Evaluation Report.*

Table 3 lists verified gross lifecycle savings achieved in CY 2023 and CY 2024, as well as Quadrennium IV totals through CY 2024.

Table 3. CY 2023 and CY 2024 Verified Gross Lifecycle Savings by Channel

CALENDAR YEAR	UNIT	RESIDENTIAL	NONRESIDENTIAL	MIDSTREAM[a]	TOTAL
CY 2023	MMBtu	14,989,920	45,825,188	3,661,855	**64,476,964**
	kWh	1,226,256,941	6,036,620,993	183,236,319	**7,446,114,252**
	kW	16,974	59,004	2,432	**78,410**
	therms	108,059,315	252,282,376	30,366,531	**390,708,223**
CY 2024	MMBtu	16,243,821	37,995,610	1,738,779	**55,978,211**
	kWh	1,307,919,009	6,397,784,104	-10,228,812	**7,695,474,300**
	kW	11,293	53,017	631	**64,941**
	therms	117,812,018	161,663,711	17,736,797	**297,212,526**
Quad IV Totals	**MMBtu**	**31,233,742**	**83,820,799**	**5,400,634**	**120,455,175**
	kWh	**2,534,175,950**	**12,434,405,096**	**173,007,507**	**15,141,588,553**
	kW	**28,267**	**112,021**	**3,063**	**143,351**
	therms	**225,871,334**	**413,946,087**	**48,103,329**	**687,920,749**

Note: Totals may not match the sum of channel savings due to rounding.

[a] *In CY 2024, the midstream channel transitioned from the Midstream Program to the Instant Discount Program. The differences in savings between CY 2023 and CY 2024 for the midstream channel are attributed to the variations in measures offered by the two programs. For more details, see the Midstream and Instant Discount chapter of Volume II.*

Figure 1 shows achievement toward the 2023-2026 quadrennium savings goals as of CY 2024. Focus on Energy achieved 65% of the MMBtu savings goal, 48% of the electric energy savings goal, 49% of the electric demand reduction goal, and 89% of the natural gas savings goal.

Figure 1. Achievement of Four-Year (CY 2023-CY 2026) Verified Gross Lifecycle Savings Goals

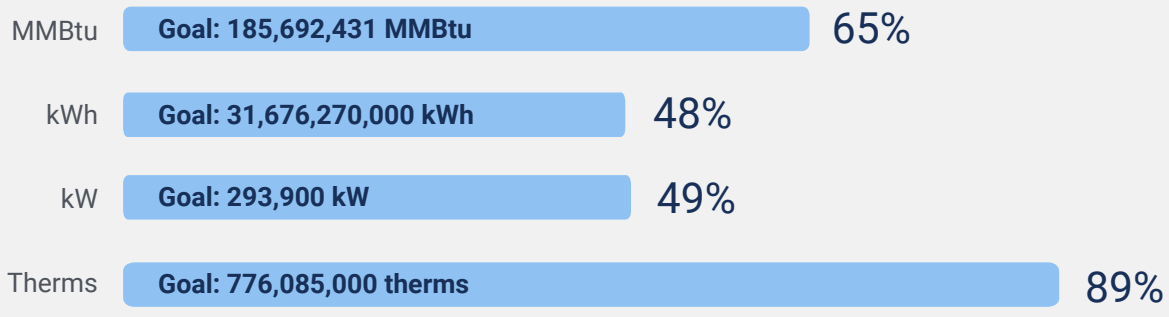


Table 4 lists CY 2024 annual reported gross savings, verified gross savings, and verified net savings for residential, nonresidential, and midstream offerings.

Table 4. CY 2024 First-Year Annual Savings by Channel

SAVINGS TYPE	UNIT	RESIDENTIAL	NONRESIDENTIAL	MIDSTREAM	TOTAL
Gross	MMBtu	863,860	2,395,316	96,905	**3,356,082**
	kWh	59,263,552	386,201,414	24,755	**445,489,721**
	kW	12,031	53,326	648	**66,005**
	therms	6,616,531	10,775,968	968,208	**18,360,707**
Verified Gross	MMBtu	914,625	2,396,201	97,558	**3,408,384**
	kWh	59,549,664	386,460,770	14,014	**446,024,448**
	kW	11,293	53,017	631	**64,941**
	therms	7,114,413	10,775,968	975,104	**18,865,485**
Verified Net	MMBtu	694,117	2,005,446	59,986	**2,759,549**
	kWh	38,967,580	325,897,506	-481,738	**364,383,347**
	kW	6,563	44,130	390	**51,083**
	therms	5,611,596	8,934,837	616,294	**15,162,726**

Note: Totals may not match the sum of residential and nonresidential savings due to rounding.

Table 5 lists the annual verified net savings achieved in CY 2023 and CY 2024.

Table 5. CY 2023 and CY 2024 First-Year Annual Verified Net Savings by Channel

SAVINGS TYPE	UNIT	RESIDENTIAL[a]	NONRESIDENTIAL	MIDSTREAM[b]	TOTAL
CY 2023	MMBtu	625,585	2,404,259	365,435	**3,395,279**
	kWh	42,182,190	290,177,057	31,531,226	**363,890,472**
	kW	9,968	45,168	2,287	**57,423**
	therms	4,816,595	14,141,745	2,578,507	**21,536,847**
CY 2024	MMBtu	761,139	2,005,446	59,986	**2,759,549**
	kWh	58,610,562	325,897,506	-481,738	**364,383,347**
	kW	11,092	44,130	390	**51,083**
	therms	5,611,596	8,934,837	616,294	**15,162,726**
Quad IV Totals	**MMBtu**	**1,386,724**	**4,409,705**	**425,421**	**6,154,828**
	kWh	**100,792,751**	**616,074,563**	**31,049,487**	**728,273,820**
	kW	**21,060**	**89,298**	**2,677**	**108,506**
	therms	**10,428,191**	**23,076,582**	**3,194,800**	**36,699,573**

Note: Totals may not match the sum of residential and nonresidential savings due to rounding.

[a] CY 2023 net residential savings include additional market effect savings that account for the program's long-term effect on the Wisconsin residential new construction and lighting markets. CY 2024 net residential savings include additional market effects savings for the Residential New Construction Program. Additional details about market effects can be found in the Market Effects for Non-Program Homes section of the Residential New Construction chapter within Volume II. Additional details about lighting market effects can be found in the 2023 Upstream Lighting Market Effects section of the Direct to Customer chapter within Volume II of the 2023 report.

[b] In CY 2024, the midstream channel transitioned from the Midstream Program to the Instant Discount Program. The differences in savings between CY 2023 and CY 2024 for the midstream channel are attributed to the variations in measures offered by the two programs. For more details, see the Midstream and Instant Discount chapter of Volume II.

The administrator has a goal to ensure that the portfolio passes a benefit/cost analysis, specifically the modified TRC test. Table 6 lists findings from the evaluation team's benefit/cost analysis of the CY 2024 portfolio. The residential and nonresidential channels and overall portfolio were cost-effective.

Table 6. CY 2024 Cost-Effectiveness Results

FOCUS ON ENERGY BENEFITS AND COSTS	FULL PORTFOLIO	CORE PROGRAMS ALONE	RENEWABLES ALONE
Incentives	$53,779,295	$49,782,302	$3,996,993
Modified TRC Benefits ($ millions)	$679,984,953	$576,513,742	$103,471,211
Modified TRC Costs ($ millions)	$277,146,909	$193,015,117	$84,131,792
Portfolio Modified TRC Ratio	**2.45**	**2.99**	**1.23**

2. Introduction

Focus on Energy, Wisconsin's statewide energy efficiency and renewable resource program, is funded by the state's investor-owned energy utilities—as required under Wisconsin Statute §196.374(2)(a)—and by participating municipal and electric cooperative utilities. The PSC provides oversight of Focus on Energy.

Focus on Energy works with eligible Wisconsin residents and businesses to complete cost-effective energy efficiency and renewable energy projects. Information, resources, and financial incentives enable consumers to implement and complete energy projects they otherwise would not have been able to complete or to complete projects ahead of schedule. Focus on Energy helps Wisconsin residents and businesses manage rising energy costs, promotes in-state economic development, protects the environment, and helps manage Wisconsin's demand for electricity and natural gas.

The state's investor-owned utilities, with PSC approval, contracted with APTIM to administer the CY 2023-2026 quadrennium. The administrator, in collaboration with the implementers, is responsible for designing all Focus on Energy programs and for the overall performance of these programs to meet Wisconsin's energy-savings goals. The administrator is also responsible for managing and coordinating individual offerings, supporting customers and trade allies through a customer service center, coordinating with participating utilities, guiding marketing and communication activities, and reporting to the Statewide Energy Efficiency and Renewables Administration and to the PSC.

The Statewide Energy Efficiency and Renewables Administration, formed by the state's investor-owned utilities, is responsible for collecting utility funding for Focus on Energy and contracting with the administrator.

In CY 2024, Focus on Energy maintained three separate program delivery channels:

- The **residential channel** serves single-family, multifamily units, and multifamily buildings.
- The **nonresidential channel** serves commercial, industrial, school, government, and agribusiness customers.
- The **midstream channel** serves residential and nonresidential customers via distributors of eligible equipment.

2.1. CY 2024 Evaluation

The evaluation team investigated the performance of 12 programs and 25 offerings that delivered energy savings during CY 2024.[5] Table 7 lists the programs and offerings evaluated in the residential and nonresidential sectors in CY 2024.

Table 7. CY 2024 Residential and Nonresidential Programs and Offerings

Channel	Program	Offering
Residential	Direct to Customer	Online Marketplace Packs
	Multifamily	Multifamily Energy Design Assistance/Energy Design Review
	Renewable Rewards	Residential Renewable Rewards Affordable Housing Solar Photovoltaics (PV) Pilot Department of Administration Solar/Heat Pump Pilot
	Residential New Construction	Residential New Construction New Manufactured Homes Pilot
	Trade Ally Solutions	Heating and Cooling Insulation and Air Sealing Tribal
Nonresidential	Agribusiness	Agribusiness
	Business and Industry	Commercial and Industrial Energy Design Assistance/Energy Design Review
	Large Industrial	Large Industrial Energy Design Assistance/Energy Design Review
	Renewable Rewards	Business Renewable Rewards
	Schools and Government	Government Schools Energy Design Assistance/Energy Design Review
	Pilots	Community Impact Life Sciences Midstream
Midstream	Midstream/Instant Discount	Commercial Residential

2.2. Summary of Measures by Channel

The evaluation team assessed the electric and natural gas savings achieved by each measure installed in CY 2024 during its first year of operation, as well as any impacts incurred by each measure during its effective useful life. Reporting on both first-year annual and lifecycle savings provides a full picture of each program's performance.

Table 8 lists all measure categories in the residential, nonresidential, and midstream programs.

[5] The independent evaluation team comprises Cadmus and Apex Analytics.

Table 8. CY 2024 Residential, Nonresidential, and Midstream Measure Categories

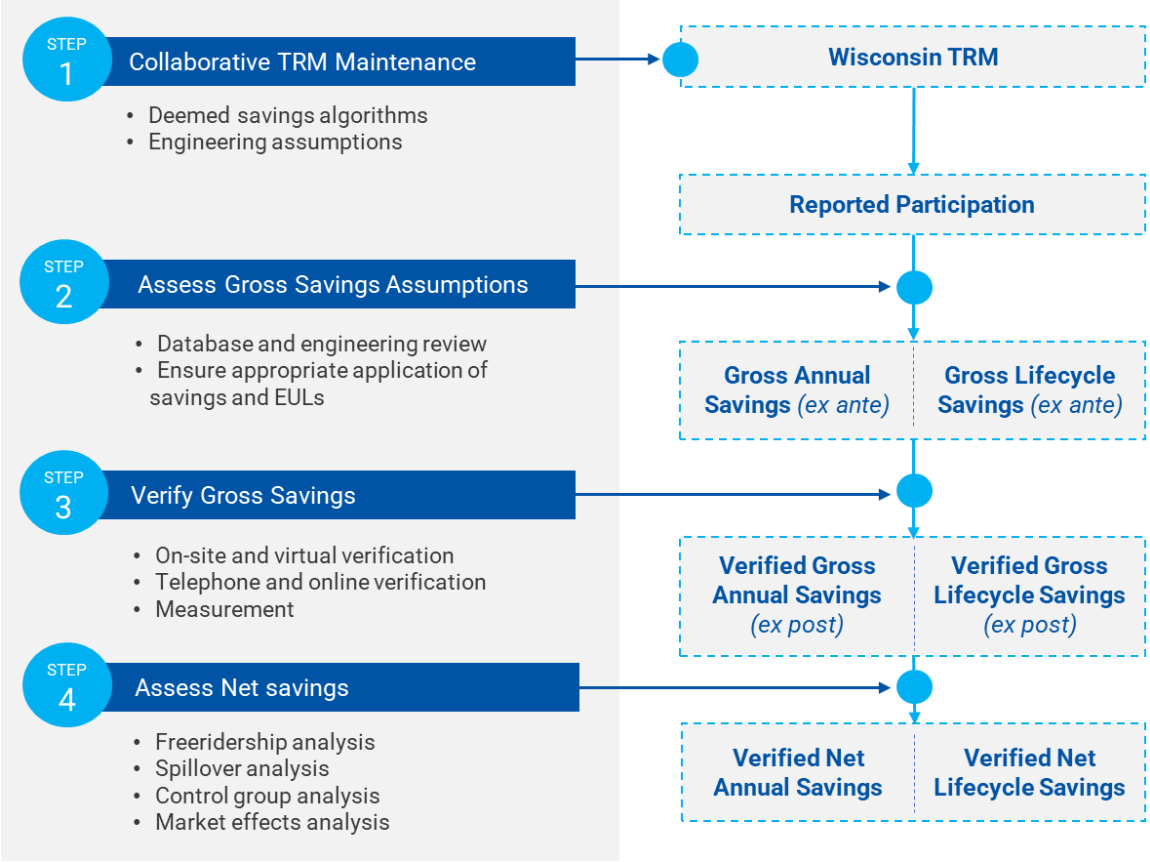
Measure Categories	
Residential Only	
Appliance Plug Loads - Advanced Power Strip	DHW - Other DHW - Pipe Insulation
Appliance Plug Loads - Room Air Cleaner	HVAC - Distribution Improvements
Building Shell - Air Sealing	New Construction - Product Equipment Performance
DHW - Low-Flow Devices	New Construction - Residential New Construction
Residential and Nonresidential	
Boilers and Burners - Tune-up/Repair	Lighting - LED Fixtures
Bonus - Equipment	Lighting - LED Screw-in Lamps
Bonus - Other	Lighting - Lighting Controls
Bonus - Survey/Study	Lighting - Other
Building Shell - Insulation	Lighting - TLED
Energy Management - Strategic Energy	Lighting - LED
Management	Miscellaneous - Other
HVAC - Controls	New Construction - Energy Design Assistance (EDA)
HVAC - Fans	New Construction - Energy Design Review (EDR)
HVAC - Heat Recovery	Process Equipment - Other
HVAC - Tune-up/Repair	Renewables - PV
Nonresidential Only	
Ag Equipment - Controls	DHW - Electronically Commutated Motor Pumps
Ag Equipment - DHW	Energy Management - Retrocommissioning
Ag Equipment - Fan	Energy Management - Utility Bill Verified Savings
Ag Equipment - Grain Dryer	Food Service - Other
Ag Equipment - Heat Exchanger	Greenhouse - Greenhouse Perimeter
Ag Equipment - Irrigation	Greenhouse - Thermal Curtains
Ag Equipment - Other	HVAC - Chiller
Ag Equipment - Tune-up/Repair	HVAC - Cooling Equipment
Ag Equipment - Variable Speed Drive (VSD)	HVAC - Other
Ag Equipment - Waterer	HVAC - VSD
Boilers and Burners - Burners	HVAC - Ventilation Equipment
Boilers and Burners - Controls	HVAC - Controls
Boilers and Burners - Heat Recovery	Lighting - LED, Other
Boilers and Burners - Insulation	Lighting – New Construction Lighting
Boilers and Burners - Steam Traps	Miscellaneous - School Challenge
Boilers and Burners - Variable Speed Drive (VSD)	Process Equipment - Data Center/IT
Bonus - Planning	Process Equipment - Paper
Bonus - Trade Ally	Process Equipment - Process Cooling
Building Shell - Building Element	Process Equipment - Process Heating
Building Shell - Docks and Doors	Process Equipment - Pumping/Piping
Building Shell - Unspecified	Process Equipment - VSD
Compressed Air Vacuum - Air Compressor	Process Equipment - Waste Water Treatment Plant
Compressed Air Vacuum - Air Treatment	Refrigeration - Cases
Compressed Air Vacuum - Controls	Refrigeration - Controls
Compressed Air Vacuum - Demand-Side	Refrigeration - Fans
Compressed Air Vacuum - Heat Recovery	Refrigeration - Heat Recovery
Compressed Air Vacuum - Other	Refrigeration - Lighting
Compressed Air Vacuum - Tune-up/Repair	Refrigeration - Other
Compressed Air Vacuum - Vacuum Pump	Refrigeration - Walk-ins

Nonresidential and Midstream	
Food Service - Dishwashing	HVAC - Pumps
Midstream Only	
Appliance Plug Loads - Hand Dryer Food Service - Cooking Food Service - Refrigeration	Food Service - Ventilation HVAC - Other
Residential, Nonresidential, and Midstream	
Boilers and Burners - Boiler DHW - Water Heater HVAC - Heat Pump	HVAC - Heating Equipment Miscellaneous - Adjustment Measure Miscellaneous - Packs Kits

2.3. Overview of Evaluation Activities

Figure 2 depicts the four-step process the evaluation team used to conduct the CY 2024 evaluation. This process is further explained below.

Figure 2. Evaluation Steps to Determine CY 2024 Gross and Net Savings



Step 1. Collaborative Technical Reference Manual (TRM) Maintenance. The evaluation team collaborated with the PSC and key Focus on Energy stakeholders to ensure that the programs' deemed savings, algorithms, and input assumptions were appropriate. Specific activities included developing measure-specific work papers and updating the Wisconsin Focus on Energy TRM.

Step 2. Gross Savings Assumptions Assessment. The evaluation team reviewed the implementation database to check for data entry errors, inconsistencies, ineligible equipment, and any other possible errors. The team reconciled this information with data from the administrator and the implementers. This process produced the *ex ante* gross annual and lifecycle savings.

Step 3. Gross Savings Verification. The evaluation team verified the installation of measures—either through site visits or phone surveys—and assessed gross savings, which included revisiting baseline assumptions and engineering inputs. The team also re-calculated or measured the actual performance of installed measures, particularly for hybrid and custom projects. The team applied the data collection and analysis methods appropriate for the specific programs, offerings, and installed measures. This process produced the *ex post* (verified) gross annual and lifecycle savings.

Step 4. Net Savings Assessment. The evaluation team estimated net-to-gross (NTG) ratios that represent the proportion of gross savings directly attributable to the influence of the programs. In deriving these ratios, the team accounted for—and deducted—reported savings that were associated with freeriders (participants who would have undertaken the same action and achieved the same savings in the absence of an offering) and also accounted for—and added—spillover (savings that were the result of an offering's influence, but for which no incentive was paid and for which no program had recorded savings).

The evaluation team applied NTG ratios to the *ex post* gross savings from Step 3 to determine verified net savings.

Table 9 lists the specific data collection activities and number of completions in the residential, nonresidential, and midstream channels for the CY 2024 evaluation.

Table 9. CY 2024 Evaluation Activities and Number of Completions by Channel

Evaluation Activity	Residential	Nonresidential	Midstream	Total CY 2024
On-Site and Virtual Site Visits Evaluation, Measurement, and Verification[a]	14	147	0	**161**
Engineering Desk Reviews	90	309	0	**399**
Participant Surveys and Interviews	2,561	112	0	**2,673**
Ongoing Participant Satisfaction Surveys[b]	4,192	242	0	**4,434**
Trade Ally/Market Actor Interviews	57[c]	28	9	**94**
Regression Modeling/Billing Analyses	4,653	3	0	**4,656**

[a] All evaluated measures included in the on-site and virtual evaluation, measurement, and verification also received an engineering desk review.

[b] This row includes only the 17% sample from all Direct to Customer Packs ongoing participant satisfaction survey responses that the team analyzed for the CY 2024 evaluation.

[c] Five interviewed Renewable Rewards trade allies completed both residential and business projects. These five trade allies are counted under residential in this table.

3. Evaluation Findings

Table 10 lists the overall verified gross lifecycle electric savings, peak demand reduction, and natural gas savings for the portfolio in CY 2023 and CY 2024.

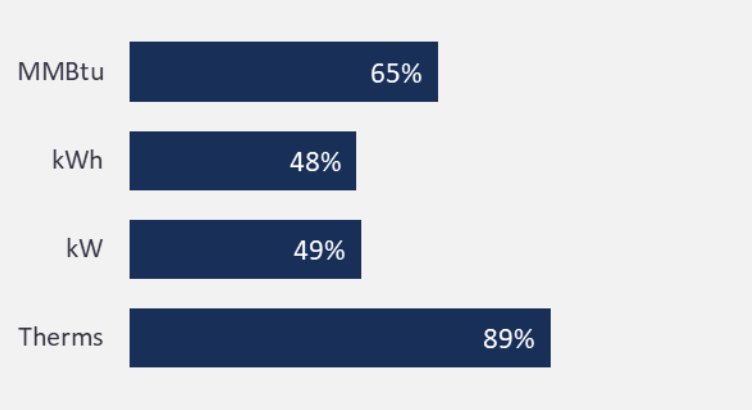
Table 10. Overall Portfolio Verified Gross Lifecycle Savings by Calendar Year

Calendar Year	Overall Savings (MMBtu)	Electric Savings (kWh)	Demand Reduction (kW)	Natural Gas Savings (therms)
CY 2023	64,476,964	7,446,114,252	78,410	390,708,223
CY 2024	55,978,211	7,695,474,300	64,941	297,212,526
Quad IV Total	**120,455,175**	**15,141,588,553**	**143,351**	**687,920,749**

As outlined under *Key Achievements* above, the PSC ordered that the Focus on Energy administrator track quadrennium savings goals compared to verified gross lifecycle savings targets. In CY 2024, the administrator reached 65% of the MMBtu savings goal, 48% of the electric energy savings goal, 49% of the peak demand reduction goal, and 89% of the natural gas savings goal.

Figure 3 shows the actual quadrennium savings totals compared to the administrator's quadrennium savings goals.

Figure 3. Achievement of Four-Year (CY 2023-CY 2026) Verified Gross Lifecycle Savings Goals

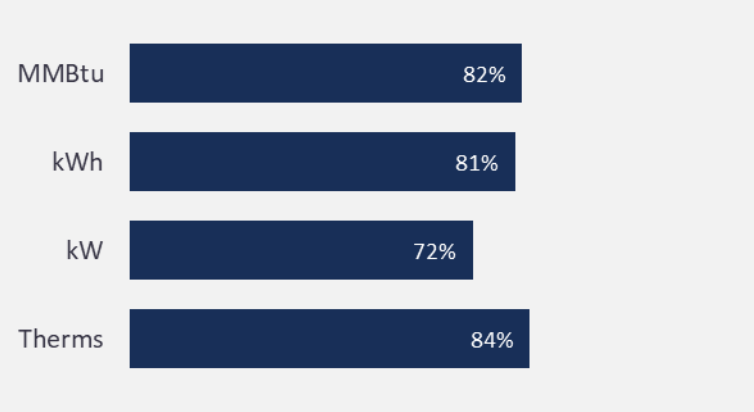


Note: Percentages represent achievements to date (CY 2024) of the administrator's established overall verified gross lifecycle goals for the quadrennium.

The administrator also sets its own interim annual verified gross lifecycle targets as it tracks toward the overall CY 2023-2026 quadrennium savings goals. In CY 2024, these targets represented 67,898,823 MMBtu, 9,518,565,132 kWh, 90,218 kW, and 354,214,789 therms.

The administrator reached 82% of the CY 2024 MMBtu savings goal, 81% of the electric energy savings goal, 72% of the electric demand reduction goal, and 84% of the natural gas verified gross lifecycle savings goal. Figure 4 shows the CY 2024 actual savings totals compared to the administrator's CY 2024 savings goals.

Figure 4. Achievement of CY 2024 Verified Gross Lifecycle Savings Goals



Note: Percentages represent achievements of the administrator's verified gross lifecycle goals for CY 2024.

Table 11 lists the overall net lifecycle MMBtu, electricity, peak demand, and natural gas savings for Focus on Energy's portfolio in CY 2023 and CY 2024.

Table 11. Overall Portfolio Net Lifecycle Savings by Calendar Year

Calendar Year	Overall Savings (MMBtu)	Electric Savings (kWh)	Demand Reduction (kW)	Natural Gas Savings (therms)
CY 2023	52,714,227	5,681,402,139	57,423	333,292,828
CY 2024	44,882,758	6,131,369,659	51,083	239,625,243
Quadrennium IV Total	**97,596,984**	**11,812,771,797**	**108,506**	**572,918,071**

The PSC Final Decision for Quadrennial Planning Process IV (PSC Ref#:453081) set four-year net lifecycle savings goals for the PSC at 70% of the gross lifecycle goals. Following the gross savings goal structure, the portfolio is required to meet only 70% of the electric energy savings and natural gas savings goals over the full quadrennium; remaining MMBtu savings above the 70% threshold can be met with either fuel. These minimum thresholds allow flexibility in offering delivery in the changing markets.

The 2023-2026 net quadrennial goals are listed in Table 12. These goals represent 70% of the gross quadrennial goals listed in Table 1.

Table 12. Focus on Energy Quadrennium IV Net Goals

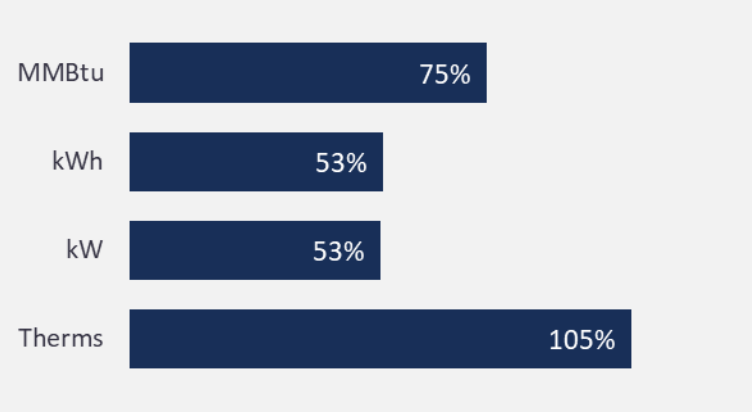
Unit	Net Goal
Lifecycle MMBtu	129,984,702
Lifecycle kWh	22,173,389,000
kW	205,730
Lifecycle therms	543,259,500

Lifecycle kWh and Lifecycle therms goals reflect full targets; they are not adjusted for the 70% minimum threshold.

Figure 5 compares Focus on Energy's actual quadrennium verified net savings to the PSC's established verified net savings goals for the full four-year quadrennium. The Focus on Energy offerings reached 75%

of the MMBtu net savings goal, 53% of the electric energy net savings goal, 53% of the electric net demand reduction goal, and 105% of the natural gas quadrennium net savings goal to date.

Figure 5. Achievement of Four-Year (CY 2023-CY 2026) Net Lifecycle Savings Goals



Note: Percentages represent achievement to date (CY 2024) of PSC's established overall net lifecycle goals for the quadrennium.

3.1. Summary of Impacts by Offering

This section summarizes the CY 2024 savings and participation for each offering in the Focus on Energy portfolio. Volume II details the savings for each offering and the approaches the team used to calculate them. The evaluation team varied the calculation approach and activities by offering, depending on the level of participation, savings achieved, and information available.

Across all offerings, the evaluation team applied equations for verified gross lifecycle, net annual, and net lifecycle savings:

$$Verified\ Gross\ Lifecycle\ Savings\ = \sum(Verified\ Gross\ Annual\ Savings \times EUL\ for\ each\ measure)$$

$$Verified\ Net\ Annual\ Savings = \sum(Verified\ Gross\ Annual\ Savings\ \times NTG\ for\ each\ measure)$$

$$Verified\ Net\ Lifecycle\ Savings = \sum(Verified\ Gross\ Lifecycle\ Savings \times NTG\ for\ each\ measure)$$

Table 13 lists the total CY 2024 participation (measured as the number of participating customers) in each offering and channel.

Table 13. CY 2024 Total Participation by Offering

Channel	Program	Offering	CY 2024 Participation
Residential	Direct to Customer	Online Marketplace	19,424
		Packs	120,566
	Multifamily	Multifamily	469
		Energy Design Assistance/Energy Design Review	77
	Renewable Rewards	Residential Renewable Rewards	2,446
		Affordable Housing Solar Photovoltaic (PV) Pilot	4
		Department of Administration Solar/Heat Pump Pilot	2
	Residential New Construction	Residential New Construction	126
		New Manufactured Homes Pilot	9
	Trade Ally Solutions	Heating and Cooling	17,163
		Insulation and Air Sealing	2,177
		Tribal	23
Residential Subtotal			**162,486**
Nonresidential	Agribusiness	Agribusiness	803
	Business and Industry	Commercial and Industrial	1,358
		Energy Design Assistance/Energy Design Review	54
	Large Industrial	Large Industrial	226
		Energy Design Assistance/Energy Design Review	7
	Renewable Rewards	Business Renewable Rewards	215
	Schools and Government	Government	192
		Schools	260
		Energy Design Assistance/Energy Design Review	44
	Pilots	Community Impact	51
		Life Sciences Midstream	25
Nonresidential Subtotal			**3,235**
Midstream	Midstream/ Instant Discount	Commercial Midstream, Agricultural	2
		Commercial Midstream, Commercial	319
		Commercial Midstream, Industrial	5
		Commercial Midstream, Schools, and Government	85
		Residential Midstream[a]	9,126
Midstream Subtotal			**9,537**
Total			**175,258**

[a] The Residential Midstream offering targeted residential customers; however, the evaluation team cannot confidently determine whether measures were delivered to residential or nonresidential customers.

Figure 6 shows verified gross lifecycle savings by channel.

Figure 6. CY 2024 Verified Gross Lifecycle Savings Impacts by Channel

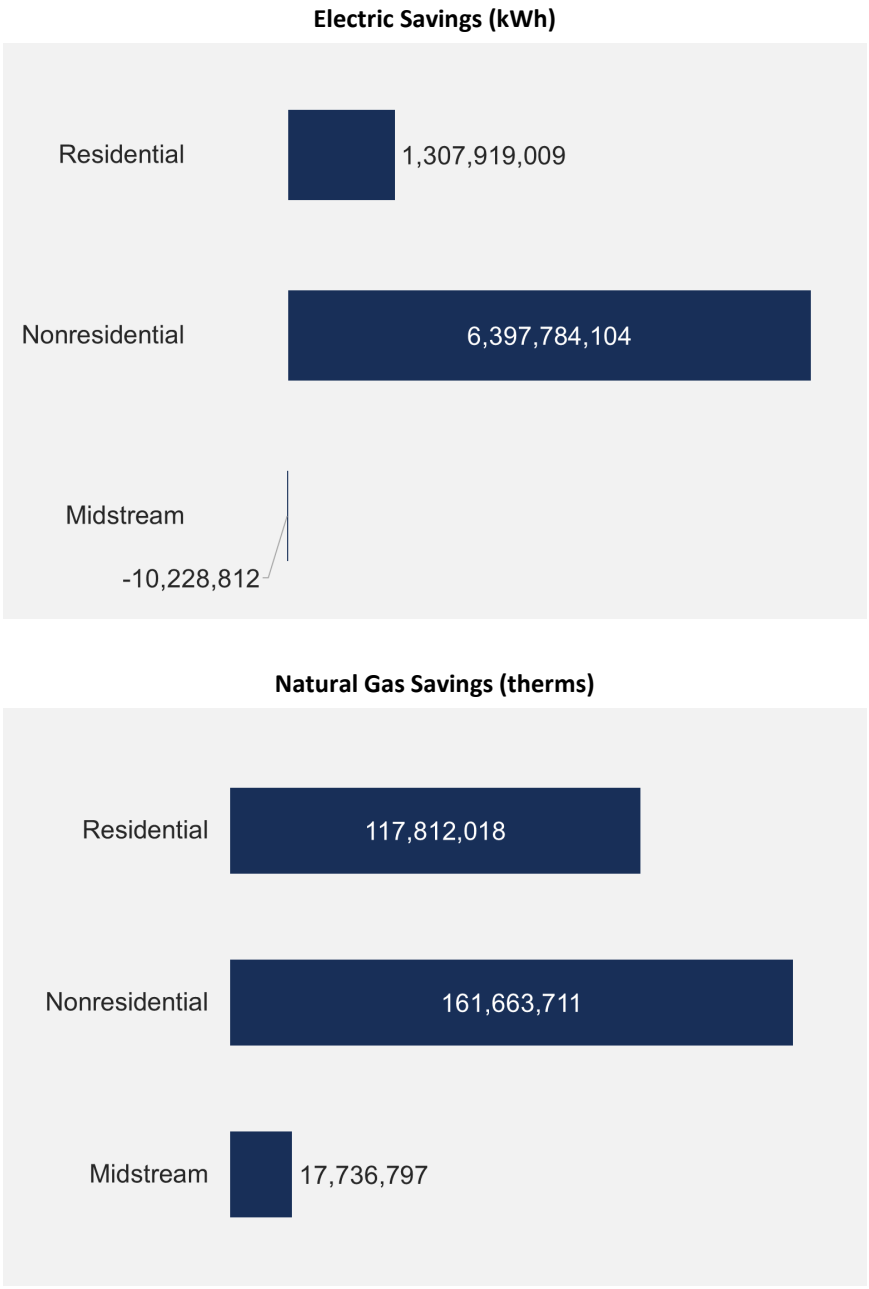


Figure 7 and Figure 8 show the percentage of lifecycle electric and natural gas savings that each offering contributes to the residential and nonresidential channels. The residential Heating and Cooling offering had a negative impact on the residential portfolio's lifecycle electric savings. This is primarily due to the substantial increase in kWh consumption associated with participants installing air-source heat pumps that replaced gas heating systems. See the Trade Ally Solutions chapter in Volume II for more details.

Figure 7. CY 2024 Verified Gross Lifecycle Electric Energy Impacts by Offering

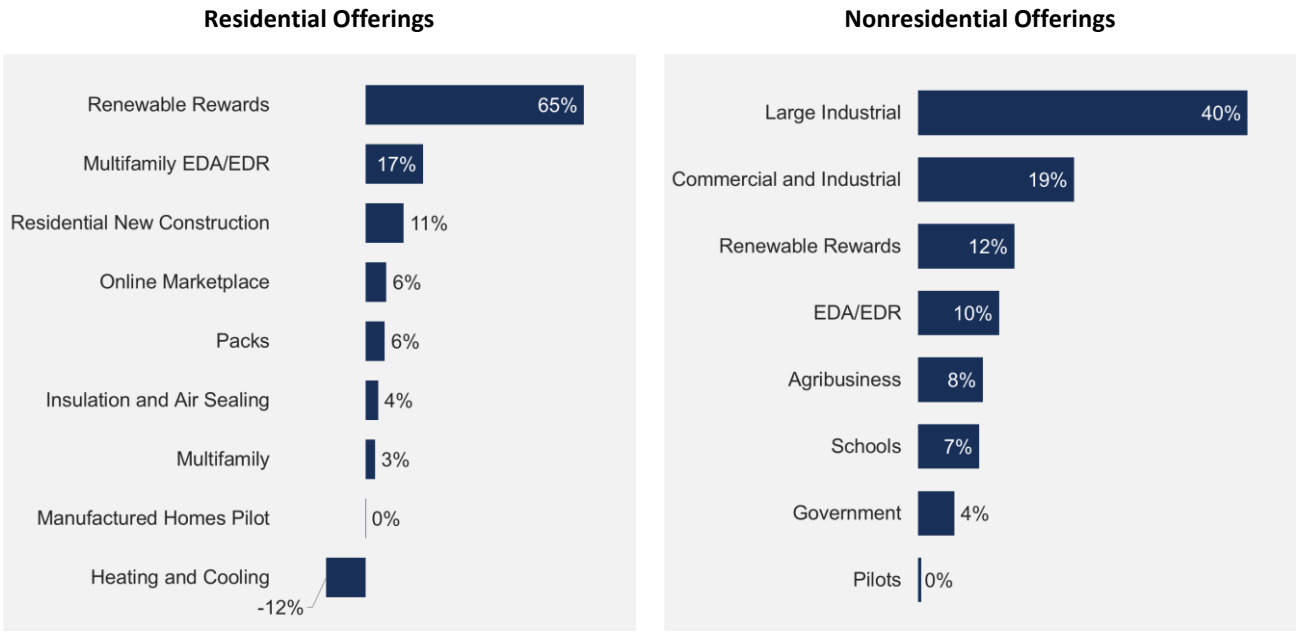


Figure 8. CY 2024 Verified Gross Lifecycle Natural Gas Energy Impacts by Offering

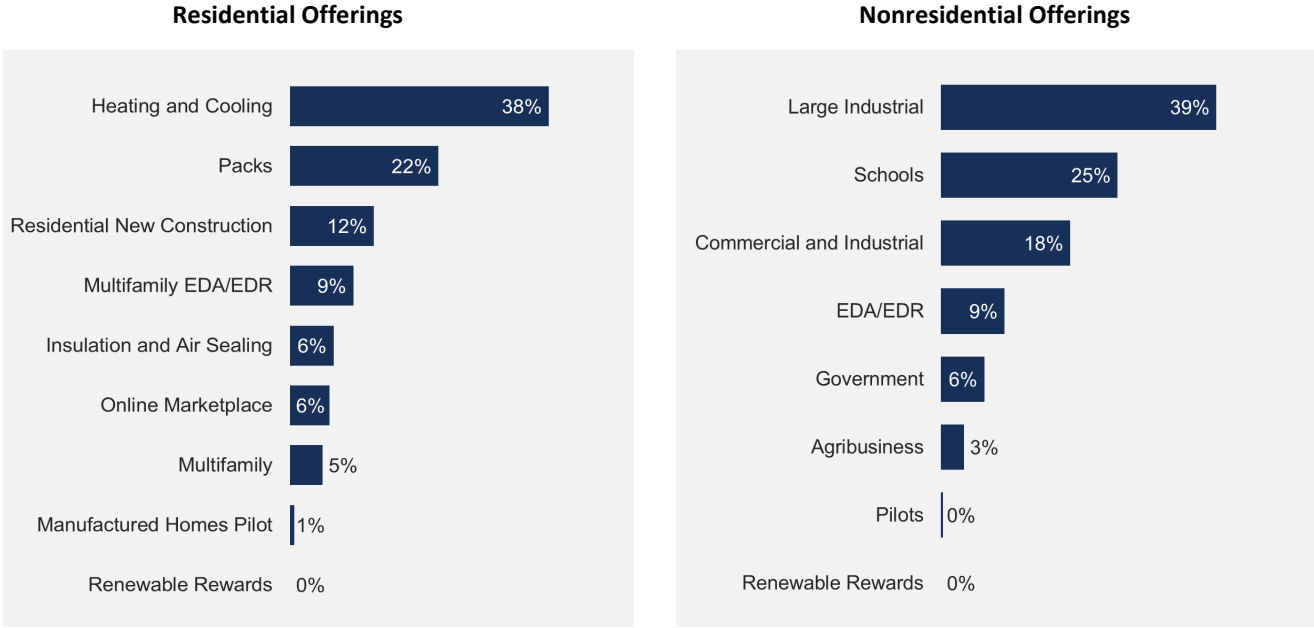


Table 14 lists the first-year annual gross savings, verified gross savings, and verified net demand reduction for electricity and natural gas by offering, channel, and overall portfolio.

Table 14. Summary of CY 2024 Annual Savings by Offering

Program Name	Offering Name	Gross			Verified Gross			Verified Net		
		kWh	kW	therms	kWh	kW	therms	kWh	kW	therms
Residential Programs										
Direct to Customer	Online Marketplace	8,588,950	33	669,523	8,810,010	54	700,563	7,723,860	45	609,533
	Packs	6,199,516	496	1,930,222	6,315,605	622	2,341,164	5,062,087	505	1,796,869
Multifamily	Multifamily	2,768,816	123	278,669	2,768,816	123	278,669	2,298,117	102	231,295
	EDA/EDR	11,157,448	1,599	549,869	11,045,874	1,583	549,869	10,272,662	1,472	511,378
Renewable Rewards	Residential Renewable Rewards	30,135,827	7,186	0	30,019,625	6,317	0	16,210,598	3,411	0
Residential New Construction	Residential New Construction	4,880,552	1,542	485,145	4,880,552	1,542	485,145	488,055	154	578,994
	New Manufactured Homes Pilot	91,838	68	27,200	91,838	68	26,680	10,102	7	2,935
Trade Ally Solutions	Heating and Cooling	-6,482,789	74	2,361,817	-6,306,716	74	2,418,244	-4,851,078	32	1,600,723
	Insulation and Air Sealing	1,941,368	908	302,746	1,941,368	908	302,746	1,761,478	831	270,675
	Tribal	-17,974	1	11,339	-17,308	1	11,333	-8,303	3	9,194
Residential Total		**59,263,552**	**12,031**	**6,616,531**	**59,549,664**	**11,293**	**7,114,413**	**38,967,580**	**6,563**	**5,611,596**
Midstream Programs										
Midstream/ Instant Discount	Commercial Midstream	1,349,895	255	164,282	1,370,334	253	166,754	666,459	123	83,431
	Residential Midstream	-1,325,140	393	803,927	-1,356,320	378	808,351	-1,148,197	266	532,863
Midstream Total		**24,755**	**648**	**968,208**	**14,014**	**631**	**975,104**	**-481,738**	**390**	**616,294**

Program Name	Offering Name	Gross			Verified Gross			Verified Net		
		kWh	kW	therms	kWh	kW	therms	kWh	kW	therms
Nonresidential Programs										
Agribusiness	Agribusiness	32,884,928	4,478	316,885	32,884,928	4,478	316,885	25,650,244	3,493	247,170
Business and Industry	Commercial and Industrial	83,514,298	11,006	1,996,233	83,514,298	11,006	1,996,233	65,976,296	8,695	1,577,024
	EDA/EDR	17,228,540	3,640	349,793	17,573,111	3,640	349,793	16,342,993	3,385	325,307
Large Industrial	Large Industrial	163,410,467	17,339	4,443,657	163,410,467	17,339	4,443,657	150,337,629	15,952	4,088,165
	EDA/EDR	10,386,466	2,159	258,853	10,386,466	2,159	258,853	9,659,413	2,008	240,733
Renewable Rewards	Business Renewable Rewards	26,629,786	6,430	0	26,544,570	6,120	0	19,642,982	4,529	0
Schools and Government	Government	17,893,733	2,259	587,700	17,893,733	2,259	587,700	12,704,551	1,604	417,267
	Schools	29,097,186	5,217	2,675,618	29,097,186	5,217	2,675,618	20,659,002	3,704	1,899,689
	EDA/EDR	3,308,775	545	110,677	3,308,775	545	110,677	3,077,161	506	102,930
Pilots[a]	Community Impact	1,049,673	121	0	1,049,673	121	0	1,049,673	121	0
	Life Sciences Midstream	797,562	133	36,551	797,562	133	36,551	797,562	133	36,551
Nonresidential Total		**386,201,414**	**53,326**	**10,775,968**	**386,460,770**	**53,017**	**10,775,968**	**325,897,506**	**44,130**	**8,934,837**
Total All Offerings		**445,489,721**	**66,005**	**18,360,707**	**446,024,448**	**64,941**	**18,865,485**	**364,383,347**	**51,083**	**15,162,726**

Note: Totals may not match the sum of channel savings due to rounding.

[a] CY 2024 is the first year that the evaluation team is reporting savings for the Community Impact and Life Sciences Midstream Pilots. Gross (*ex ante*) and verified gross savings in this report include CY 2023 and CY 2024 pilot activity because CY 2023 savings were not previously reported.

3.2. Summary of Impacts by Measure Category

Table 15 lists annual energy savings, peak demand reduction, and incentive costs for the top 10 highest-saving residential measure categories in CY 2024, based on lifecycle MMBtu savings. See Appendix E. Detailed Findings in Volume III for a full list of all residential measure categories and their associated CY 2024 savings.

Table 15. Summary of CY 2024 Annual Savings by Measure Category in the Residential Channel

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	therms	therms %		
Miscellaneous-Packs Kits	5,620,471	9.44%	555	4.91%	2,076,776	29.19%	$4,277,072	19.42%
New Construction-Residential New Construction (RNC)	4,972,390	8.35%	1,610	14.26%	511,825	7.19%	$3,102,116	14.09%
HVAC-Heat Pump	-11,247,444	-18.89%	13	0.12%	1,406,968	19.78%	$3,044,245	13.82%
Building Shell-Insulation	2,146,707	3.60%	965	8.54%	370,351	5.21%	$1,718,217	7.80%
Renewables-Solar Photovoltaic (PV)	30,019,625	50.41%	6,317	55.94%	0	0.00%	$1,643,841	7.46%
HVAC-Heating Equipment	1,370,071	2.30%	1	0.01%	684,470	9.62%	$1,580,275	7.18%
HVAC-Controls	12,552,976	21.08%	0	0.00%	832,880	11.71%	$1,340,396	6.09%
New Construction-EDA	8,541,569	14.34%	1,082	9.58%	410,802	5.77%	$1,101,483	5.00%
Other-Other [a]	695,133	1.17%	67	0.60%	264,388	3.72%	$516,863	2.35%
Boilers and Burners-Boiler	0	0.00%	0	0.00%	188,973	2.66%	$320,895	1.46%

[a] Other-Other in the residential channel includes bundled packs in the Packs offering.

Table 16 lists the 10 highest-saving nonresidential measure categories in CY 2024, based on lifecycle MMBtu savings.

Table 16. Summary of CY 2024 Annual Savings by Measure Category in the Nonresidential Channel

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	therms	therms %		
Other [a]	23,096,205	5.98%	2,460	4.64%	1,354,337	12.57%	$5,185,719	16.15%
LED Fixtures	79,051,696	20.46%	9,561	18.03%	0	0.00%	$4,893,018	15.24%
Boiler	288,612	0.07%	34	0.06%	1,829,167	16.97%	$2,871,025	8.94%
EDA	29,156,263	7.54%	6,011	11.34%	702,534	6.52%	$2,863,288	8.92%
VSD	101,208,964	26.19%	12,320	23.24%	39,465	0.37%	$2,344,710	7.30%
Solar PV	26,544,570	6.87%	6,120	11.54%	0	0.00%	$2,087,615	6.50%
Controls	13,079,880	3.38%	406	0.76%	775,897	7.20%	$1,159,349	3.61%
Heat Recovery	233,047	0.06%	200	0.38%	2,421,973	22.48%	$967,197	3.01%
Burners	0	0.00%	0	0.00%	562,687	5.22%	$312,092	0.97%
Tune-up/Repair	11,890,439	3.08%	1,418	2.67%	916,805	8.51%	$193,360	0.60%

[a] Other in the nonresidential channel encompasses a wide variety of measures, such as unspecified process improvements, unspecified HVAC improvements, unspecified refrigeration improvements, and industrial oven/furnace.

Table 17 lists the 10 highest-saving midstream measure categories in CY 2024, based on lifecycle MMBtu savings.

Table 17. Summary of CY 2024 Annual Savings by Measure Category in the Midstream Channel

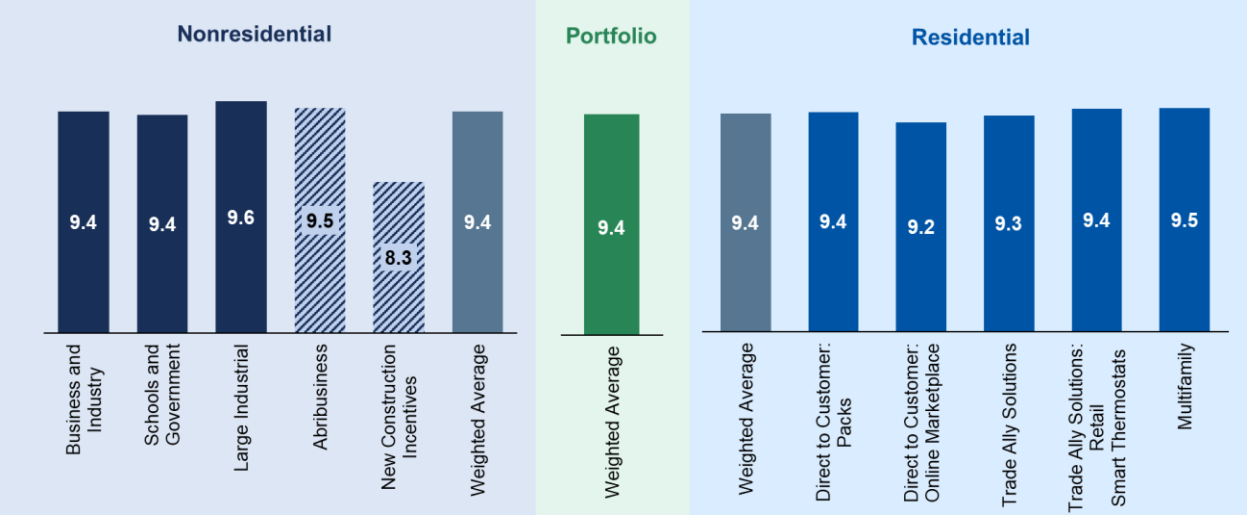
Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %[a]	kW	kW %	therms	therms %		
Domestic Hot Water (DHW)-Water Heater	300,680	N/A	19	2.94%	76,695	7.87%	$475,022	26.59%
HVAC-Heat Pump	-2,472,943	N/A	342	54.14%	471,077	48.31%	$457,400	25.61%
HVAC-Heating Equipment	524,667	N/A	0	0.00%	232,855	23.88%	$336,150	18.82%
Cooking	177,284	N/A	177	28.00%	120,730	12.38%	$236,400	13.23%
HVAC-Pumps	283,550	N/A	17	2.75%	0	0.00%	$58,350	3.27%
Boilers and Burners-Boiler	0	N/A	0	0.00%	26,338	2.70%	$47,800	2.68%
Dishwashing	993,671	N/A	48	7.65%	1,827	0.19%	$22,700	1.27%
Heat Pump	20,861	N/A	6	0.89%	3,720	0.38%	$6,800	0.38%
Boiler	0	N/A	0	0.00%	13,956	1.43%	$6,000	0.34%
Heating Equipment	880	N/A	0	0.00%	3,752	0.38%	$900	0.05%

[a] Measure-level kWh percentages are not included in this table because the substantial negative kWh impacts from heat pumps offset positive impacts from other measures. This resulted in relatively modest kWh savings at the channel level. As such, comparing large measure-level kWh savings or impacts to small channel-level savings can produce misleading or illogical measure-level percentages of savings.

3.3. Portfolio Participant Satisfaction Findings

The program administrator fielded online customer satisfaction surveys throughout CY 2024 to residential and nonresidential program participants. Across all offerings surveyed in CY 2024, the average participation-weighted overall satisfaction rating for the portfolio was 9.4. The participation-weighted average for the residential programs was 9.4, and the average for nonresidential programs was 9.4. Figure 9 shows the average overall satisfaction ratings for the CY 2024 portfolio.

Figure 9. CY 2024 Portfolio Average Overall Satisfaction Ratings



Source: Ongoing Participant Satisfaction Online Survey Question. "Overall, how satisfied are you with your most recent experience with Focus on Energy?" Business and Industry CY 2024 (n=95); Schools and Government CY 2024 (n=71); Large Industrial CY 2024 (n=56); Agribusiness CY 2024 (n=17); New Construction Business Prescriptive CY 2024 (n=3); Packs CY 2024 (n=1,556); Online Marketplace CY 2024 (n=1,446); Trade Ally Solutions CY 2024 (n=1,007); Retail Smart thermostats CY 2024 (n=138); Multifamily CY 2024 (n=31).

The portfolio, residential, and nonresidential averages are weighted by total participation in the offerings surveyed. Textured bars represent results from less than 20 surveys; interpret with caution.

3.4. Residential Process Evaluation Findings

For the CY 2024 process evaluation of residential offerings, the evaluation team collected information and perspectives from Focus on Energy participants and trade allies. Table 18 shows residential process evaluation activities conducted in CY 2024 by offering.

Table 18. CY 2024 Residential Process Evaluation Activities by Program and Offering

Program	Offering	Participant Surveys	Ongoing Participant Satisfaction Surveys	Trade Ally Interviews
Direct to Customer	Online Marketplace	✓	✓	
	Packs	✓	✓	
Multifamily	Multifamily	✓	✓	
Renewable Rewards	Residential Renewable Rewards	✓	✓ Reported under Trade Ally Solutions	✓
Trade Ally Solutions	Heating and Cooling			
	Insulation and Air Sealing	✓	✓	✓
Residential New Construction	Residential New Construction			✓
	New Manufactured Homes Pilot			✓

In CY 2024, more than 160,000 residential customers in Wisconsin participated in Focus on Energy's offerings. Residential customers installed energy-efficient measures across a wide range of technologies and achieved verified gross annual electric savings of 59,549,664 kWh and natural gas savings of 7,114,413 therms.

Residential Participant Satisfaction

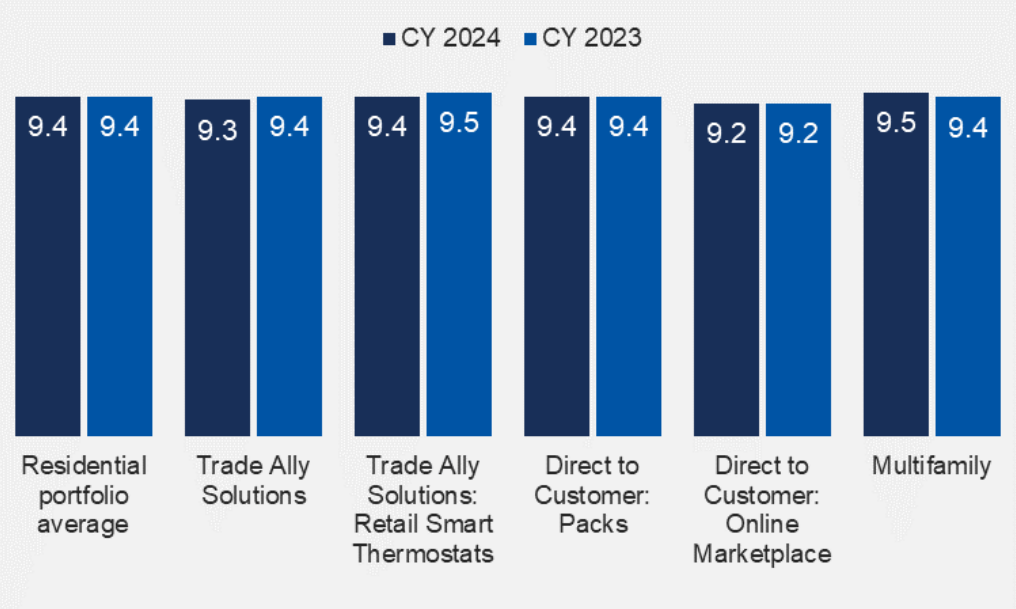
The administrator fielded online customer satisfaction surveys throughout CY 2024 for the Trade Ally Solutions Program (including the Heating and Cooling, Insulation and Air Sealing, and Renewable Rewards offerings), retail smart thermostats, the Direct to Customer Program (including the Packs and Online Marketplace offerings), and the Multifamily Program. More than 10,000 Focus on Energy residential participants completed a survey in CY 2024.[6]

Surveys asked participants to rate how satisfied they were with Focus on Energy's offerings on a scale from 0 to 10, where 10 meant *extremely satisfied* and 0 meant *extremely dissatisfied*. Most CY 2024 respondents across offerings gave overall satisfaction ratings consistent with CY 2023 respondents, and

[6] The evaluation team reports ratings only to the first decimal place; therefore, it randomly sampled surveys with substantially more than 2,500 responses so the precision level for statistical significance tests would not be narrower than 0.1 rating points, the minimum for a reported change in ratings. Without sampling, significance tests could indicate that two numbers that appear the same (to the first decimal place) are significantly different. The random sampling used a Monte Carlo technique so that reported ratings for the random sample and the ratings for the larger population are identical to the first decimal place. For the Packs offering, participants completed a total of 11,026 surveys in CY 2024; the Packs offering was the only survey with more than 2,500 responses in CY 2024. After removing duplicates and applying this sampling technique, a total of 4,192 residential participants completed the satisfaction surveys analyzed for CY 2024 reporting.

for all residential offerings in CY 2024, average satisfaction ratings were 9.2 or higher. There were no statistically significant differences in satisfaction ratings between CY 2023 and CY 2024. Figure 10 shows average satisfaction ratings of surveyed participants for residential offerings in CY 2024 compared with ratings from CY 2023.

Figure 10. CY 2024 Average Overall Satisfaction Ratings for Residential Offerings



Source: Ongoing Participant Satisfaction Online Survey Question. "Overall, how satisfied are you with your most recent experience with Focus on Energy?" Trade Ally Solutions CY 2024 (n=1,007), CY 2023 (n=1,180); Retail Smart thermostats CY 2024 (n=138), CY 2023 (n=222); Packs CY 2024 (n=1,556), CY 2023 (n=1,478); Online Marketplace CY 2024 (n=1,446), CY 2023 (n=917); Multifamily CY 2024 (n=31), CY 2023 (n=29). The residential portfolio average is the average of all offerings surveyed during the year, weighted by total participation. There were no statistically significant differences between years.

Net Promoter Score

The evaluation team calculated a net promoter score (NPS) for each offering based on the likelihood of the participant recommending it. The NPS is the percentage of promoters (respondents giving a rating of 9 or 10) minus the percentage of detractors (respondents giving a rating of 0 to 6) and is expressed as an absolute number between -100 and +100.

Generally, a positive NPS is interpreted as good, indicating a higher proportion of promoters to detractors. High NPS scores (+70 or higher) are theoretically predictive of customer behaviors, such as participating in another offering, implementing additional home energy improvements, and referring Focus on Energy offerings to others. The closer the NPS is to +100, the more favorable the respondents are toward the offering. NPS scores over +80 are considered excellent, while scores that dip below +50 warrant investigation into a possible opportunity for improvement.

Participants gave residential offerings high scores in CY 2024, with the NPS score ranging from +83 (Trade Ally Solutions) to +88 (Packs). The only residential program with a CY 2024 NPS score change of more than two points from its CY 2023 score was Multifamily, which increased from +83 to +87 in CY 2024.

Awareness by Program Participants and Opinion of Utility

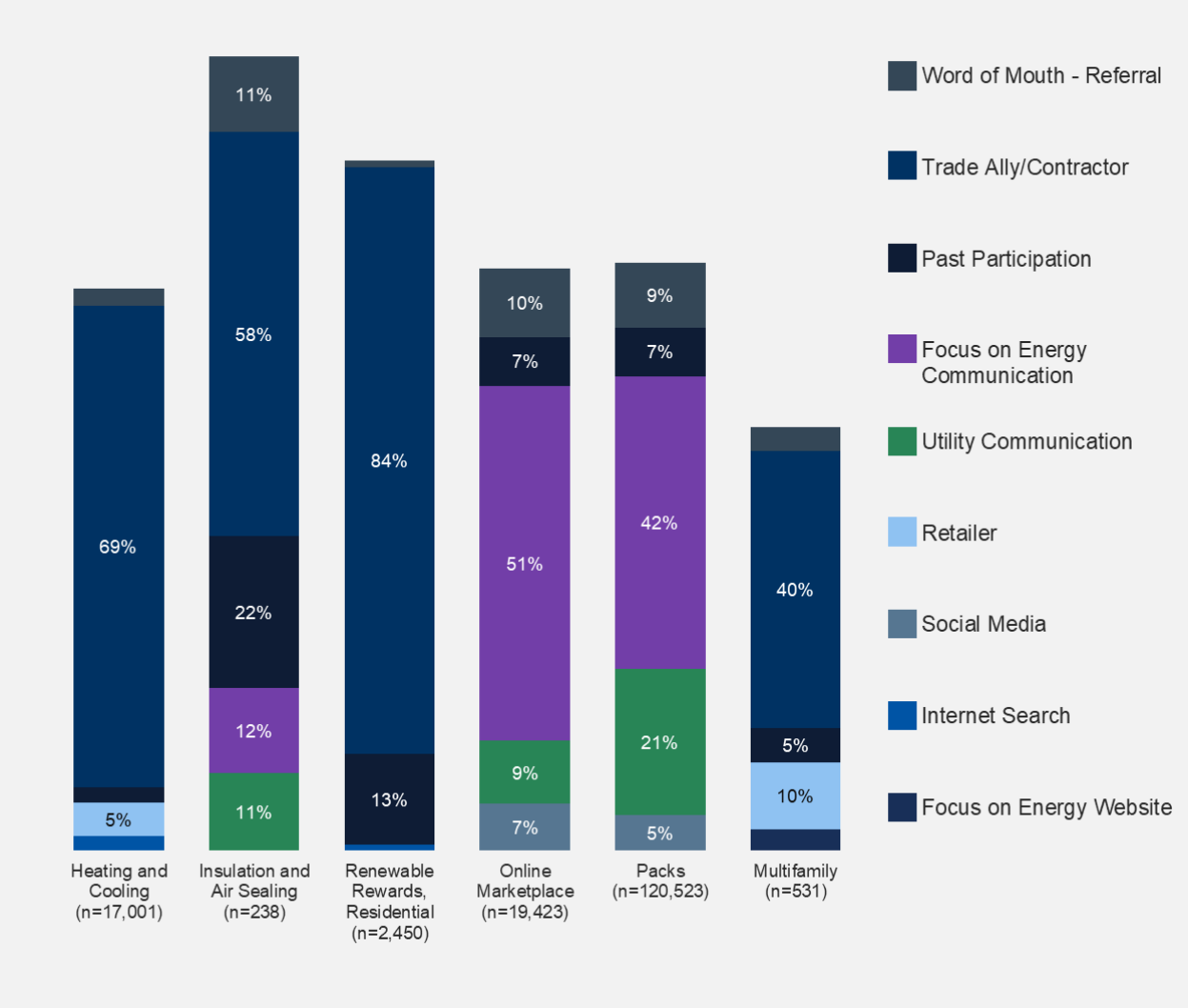
In addition to ongoing participant satisfaction surveys, the evaluation team fielded surveys for the Multifamily, Packs, Online Marketplace, Renewable Rewards, and Insulation and Air Sealing offerings to collect information on customers' sources of offering awareness, motivations to participate, specific behaviors related to certain measures, and other information. Table 19 lists the survey sample sizes and modes for each offering.

Table 19. CY 2024 Residential Number of Survey Completions and Survey Mode by Offering

Offering	n	Mode
Multifamily	13	Online/Phone
Packs	509	Online
Online Marketplace	600	Online
Renewable Rewards: Residential	202	Online
Insulation and Air Sealing	830	Online

Figure 11 on the following page shows the top reported sources of awareness for each offering except Residential New Construction, for which the team did not collect sources of awareness. Similar to previous years, the most common awareness sources for Direct to Customer offerings were a Focus on Energy communication, and trade allies or contractors continued to be the main sources for the Trade Ally Solutions and the Renewable Rewards Program's Residential offering.

Figure 11. Residential Participants' Top Sources of Awareness by Offering



Source for all offerings except Insulation and Air Sealing: SPECTRUM data for residential offerings, field name, "How did Customer Hear About Focus?"
Source for Insulation and Air Sealing: CY 2024 Insulation and Air Sealing participant survey: "Where have you heard about Focus on Energy's rebates for [LIST OF MEASURES]? Select all that apply" (n=238). Sums to more than 100% because multiple responses were allowed.

In comparison to how participants heard about the offerings, the CY 2024 participant surveys asked participants how they prefer to learn about Focus on Energy programs. Forty-two percent of Insulation and Air Sealing respondents preferred hearing about programs through the Focus on Energy or utility website. This was only slightly ahead of mailing (40%), email from Focus on Energy (36%), social media (35%), and promotion through other Focus on Energy programs (32%). Similarly, Packs respondents said they preferred outreach similar to how they initially learned about Focus on Energy, through a Focus on Energy email (60%) and direct mail (40%).

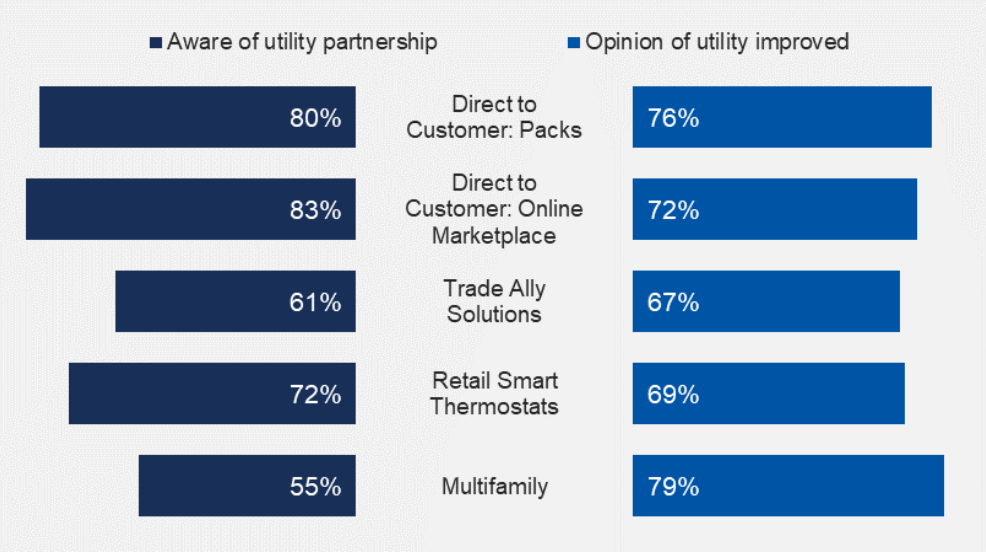
These results are similar to those of CY 2023; however, CY 2024 respondents showed decreased preference for promotion through other Focus on Energy programs. Most Online Marketplace respondents preferred an email (70%); this was followed by a website (40%), mailing (36%), social media (35%), and through participation in another Focus on Energy offering (29%). For Renewable Rewards participants, their preference was to hear about Focus on Energy through social media (44%), followed by utility bill insert (38%), promotion through another Focus on Energy program (35%), Focus on Energy or utility website (34%), and direct mailing (30%).

When asked about their awareness and participation in other Focus on Energy offerings, Packs respondents were mostly aware of the Insulation and Air Sealing (70%), Renewable Rewards Residential (65%), and Heating and Cooling (60%) offerings. However, the Online Marketplace was the most popular offering respondents reported participating in (37%). For Insulation and Air Sealing, over half of the respondents reported they were aware of other Focus on Energy programs. Of those who reported they were aware, 71% participated in the Packs offering, followed by Heating and Cooling (38%), Online Marketplace (26%), and Renewable Rewards Residential (10%).

For offerings they had not participated in, respondents were most aware of Residential New Construction (62%), followed by Renewable Rewards Residential (57%), and Online Marketplace and Heating Cooling (50% each). Almost all Online Marketplace respondents who were aware of other Focus on Energy programs reported that they had participated in the Packs offering (97%). For offerings that Online Marketplace respondents were aware of but had not participated in, they were most aware of the Heating and Cooling offering (68%), followed by Renewable Rewards Residential (62%), Residential New Construction (58%), and Insulation and Air Sealing (50%). Forty-five percent of Renewable Rewards respondents said they were aware of other residential Focus on Energy programs. Of those, the largest majority (93%) were aware of the Packs offering, and 75% participated in the Packs offering. The Heating and Cooling Program had the next highest awareness (55%) and participation (29%) levels, followed by the awareness of Insulation and Air Sealing (57%) and participation (22%), and Online Marketplace (44%) and participation (21%).

In CY 2024, most residential survey respondents were aware that Focus on Energy offerings were offered in partnership with their local energy utility. The percentage of participants who were aware ranged from 61% of Trade Ally Solutions respondents to 83% of Online Marketplace respondents (Figure 12). Most participants also reported that Focus on Energy offerings made their opinion of their utility *much more favorable* or *somewhat more favorable*, ranging from 67% for Trade Ally Solutions to 79% for Multifamily. These results were consistent with survey respondents' levels of awareness and opinion of utilities in CY 2023.

Figure 12. Residential Participants' Awareness and Opinion of Utility Partnerships with Focus on Energy



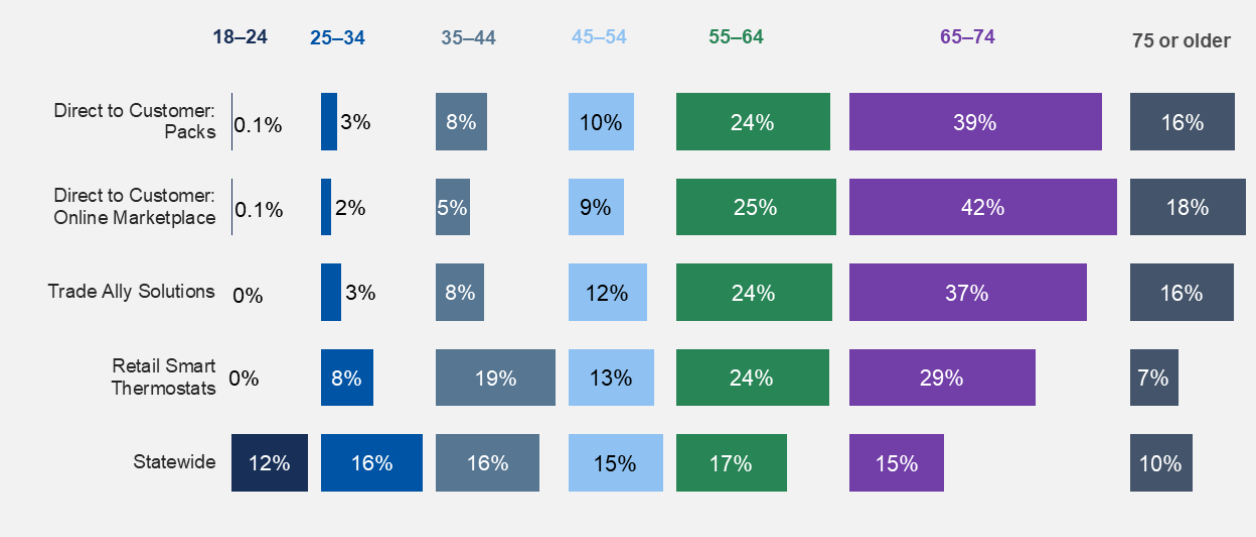
Offering source: Participant Satisfaction Survey Questions. "The Focus on Energy program you participated in is offered in partnership with your local energy utility. Before taking this survey, was this something you were aware of?" Trade Ally Solutions CY 2024 (n=1,000); Packs CY 2024 (n=1,536); Retail Smart thermostats CY 2024 (n=138); Online Marketplace CY 2024 (n=1,434); Multifamily CY 2024 (n=31).
"How have these offerings affected your opinion of your energy utility, if at all?" Trade Ally Solutions CY 2024 (n=925); Packs CY 2024 (n=1,453); Retail Smart thermostats CY 2024 (n=128); Online Marketplace CY 2024 (n=1,383); Multifamily CY 2024 (n=28)

Residential Participant Profile

The evaluation team assessed which market segments participated in residential programs and offerings and to what extent the programs reached all segments of the market in CY 2024. The team compared demographic data collected in ongoing participant satisfaction surveys and data from the U. S. Census Bureau's 2023 American Community Survey in Wisconsin.

Figure 13 shows the age distribution of survey respondents by offering, alongside the statewide age distribution of Wisconsin residents, according to the 2023 American Community Survey data.[7] The American Community Survey data indicate that the Wisconsin adult population is relatively evenly distributed across all age ranges. However, most of Focus on Energy's participants were aged 55 to 74 (53% to 67% by offering).

Figure 13. Residential Participants' Age

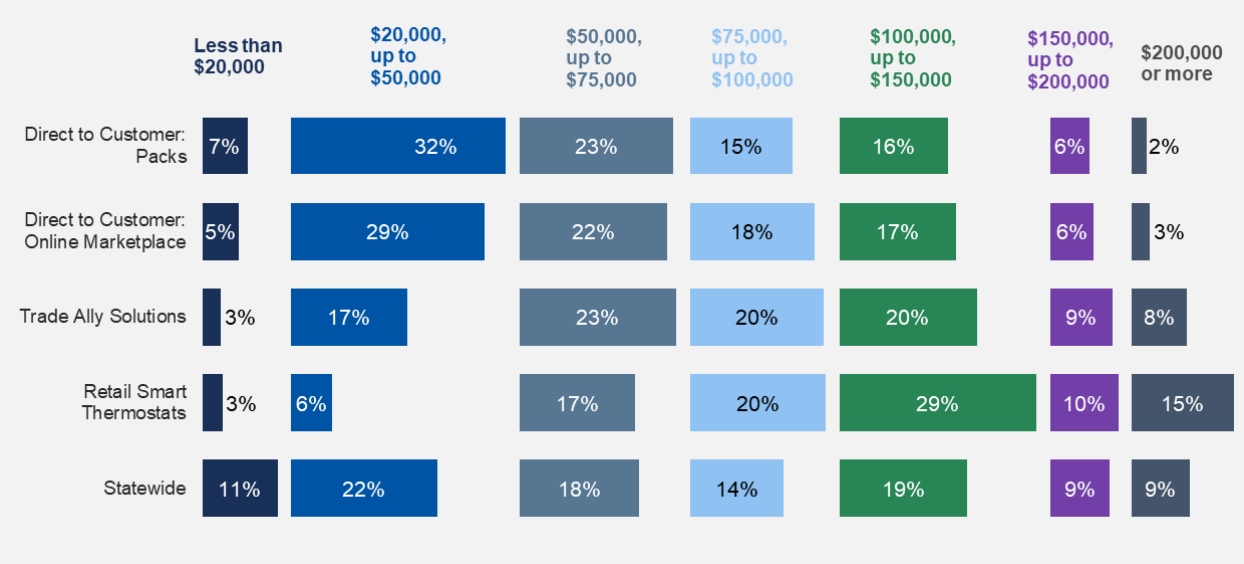


Offering source: Participant Satisfaction Survey Question. "Which of the following categories best represents your age?" Trade Ally Solutions (n=982), Packs (n=1,507), Online Marketplace (n=1,383), Retail Smart thermostats (n=135). Statewide source: Census 2023 American Community Survey, Selected Social Characteristics in the United States. Multifamily participant satisfaction surveys were conducted with landlords and did not collect demographic data; therefore, results are not presented here.

[7] U.S. Census. "Wisconsin." Accessed April 2025. https://data.census.gov/table/

Figure 14 shows the household income range of survey respondents relative to the general population. The American Community Survey data show that Wisconsin households are evenly distributed across income levels between $20,000 and $150,000, with smaller percentages of households above or below that range. Direct to Customer offerings (Packs and Online Marketplace) closely reflected this statewide distribution, while Retail Smart Thermostat respondents skewed toward higher income groups (54% over $100,000 compared to 36% statewide). Respondents in the Packs offering were the most likely to be in the lower income brackets (61% under $75,000) and the least likely to be in higher income brackets (8% over $150,000).

Figure 14. Residential Participants' Income Level

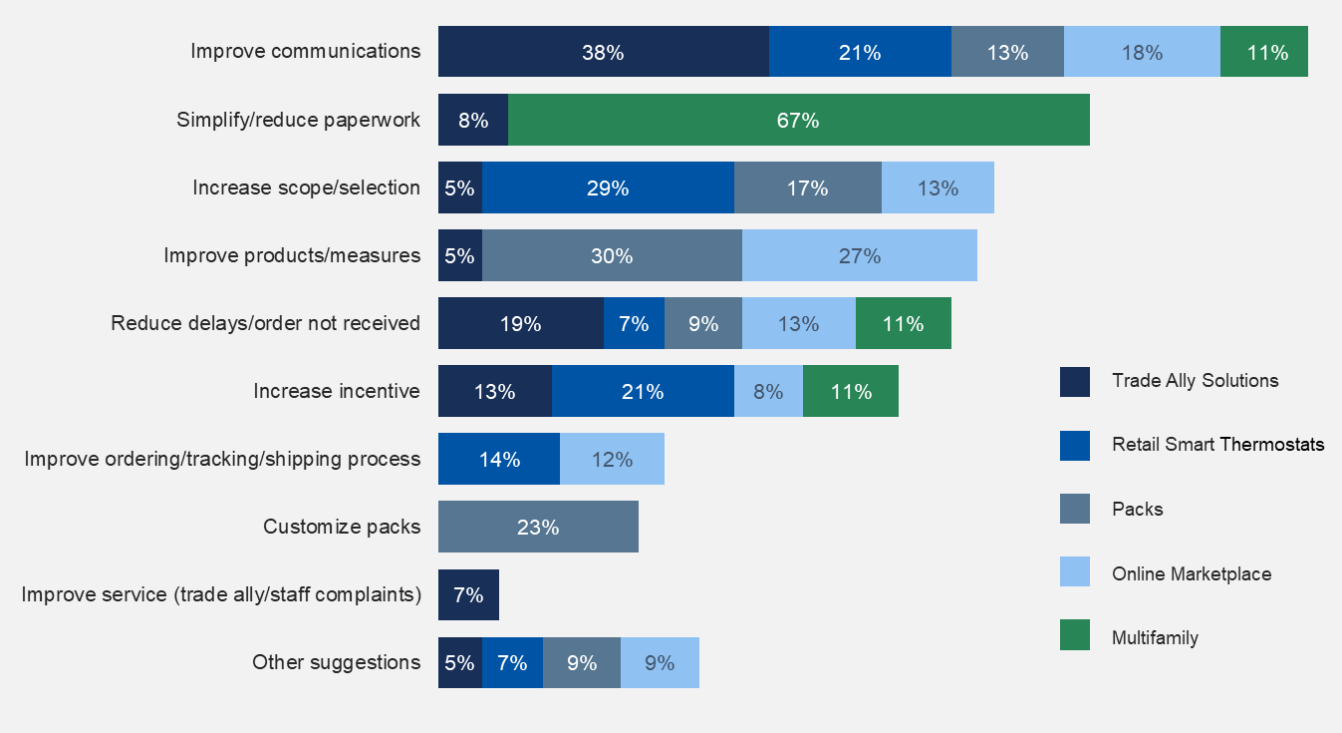


Offering source: Participant Satisfaction Survey Question. "Which category best describes your total household income before taxes?" Trade Ally Solutions (n=753), Packs (n=1,112), Online Marketplace (n=1,019), Retail Smart thermostats (n=100). Statewide source: Census 2023 American Community Survey, Selected Social Characteristics in the United States. Multifamily participant satisfaction surveys were conducted with landlords and did not collect demographic data; therefore, results are not presented here.

Participant Recommendations

The evaluation team analyzed open-ended comments and suggestions made by satisfaction survey respondents. Most comments from CY 2024 respondents in the Packs (58%) and Online Marketplace (60%) were positive or complimentary, while comments from Trade Ally Solutions (51% positive), Retail Smart thermostats (46% of 26 comments), and Multifamily offerings (36% of 14 comments) were more evenly divided between compliments and suggestions. The suggestions for improvement are summarized in Figure 15.

Figure 15. Residential Participants' Suggestions for Improving Offerings



Offering source: Participant Satisfaction Survey Question. "Please tell us more about your experience and any suggestions for improvement." Trade Ally Solutions (n=147), Retail Smart thermostats (n=14), Packs (n=219), Online Marketplace (n=224), Multifamily (n=9)

Across all residential programs, the most common suggestion in CY 2024 was to improve communications by providing more information about offerings and promoting them more effectively (11% to 38% of suggestions by offering). This was also the most common category of suggestions from respondents in CY 2023 and CY 2022. Improving communications was the most common suggestion from Trade Ally Solutions respondents, with most relating to communication with trade allies about incentive applications and communications from Focus on Energy on the status of those applications. The biggest change from CY 2023 was that most Multifamily respondents who gave suggestions in CY 2024 mentioned challenges with the application process, with six of nine suggestions for improvement; in CY 2023, Multifamily respondents did not make any suggestions for improvement. In CY 2024, Smart Thermostat respondents' most common suggestion was to expand the scope of products offered (29%). The most common suggestions from Packs respondents were about improving the products in the packs (30%) and customizing the items in the packs (23%), which were also the top suggestions in prior years. The most common suggestion from Online Marketplace respondents was also to improve the products (27%), and 13% of their suggestions related to expanding the scope of items offered.

3.5. Nonresidential Process Evaluation Findings

For the CY 2024 process evaluation of nonresidential programs, the evaluation team collected information and perspectives from Focus on Energy participants, trade allies, and nonparticipants. Table 20 shows process evaluation activities by nonresidential offering. Two of the process evaluation activities, participant surveys, and trade ally interviews were cross-cutting program evaluations, while the nonparticipant interviews focused on customers in the Large Industrial Program.

Table 20. CY 2024 Nonresidential Process Evaluation Activities by Program and Offering

Program	Participant Surveys & Interviews	Ongoing Participant Satisfaction Surveys	Trade Ally Interviews	Non-Participant Interviews
Agribusiness	✓	✓	✓	
Business and Industry	✓	✓	✓	
Large Industrial	✓	✓	✓	✓
Schools and Government	✓	✓	✓	

Nonresidential Participant Satisfaction

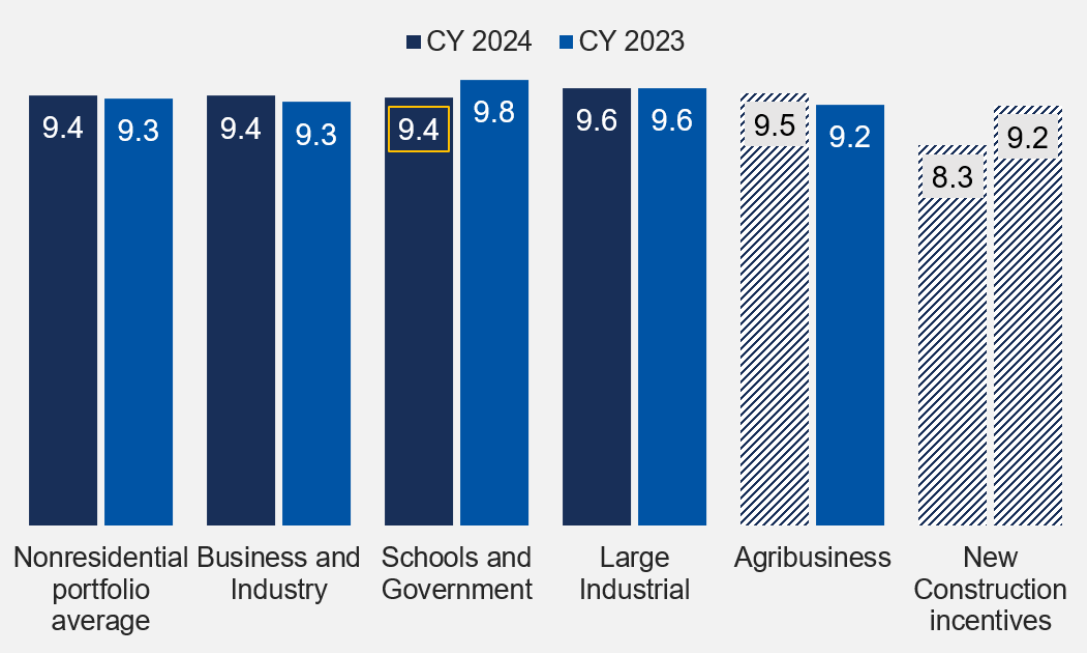
During CY 2024, the administrator fielded online surveys that asked participants in the Agribusiness, Business and Industry, Schools and Government, and Large Industrial Programs, as well as New Construction offerings, to rate how satisfied they were with Focus on Energy's offerings and provide recommendations for improving the programs. In CY 2024, 242 Focus on Energy nonresidential participants completed a survey.

The surveys used a satisfaction scale from 0 to 10, where 10 meant *extremely satisfied* and 0 meant *not at all satisfied*. In CY 2024, across all nonresidential offerings surveyed, the participation-weighted average overall satisfaction rating was 9.4, consistent with the average ratings from the previous four years (9.3 to 9.4). Average ratings in CY 2024 ranged from 8.3 for New Construction incentives (based on

three surveys) up to 9.6 for Large Industrial. Schools and Government was the only program with a statistically significant change in satisfaction ratings in CY 2024, decreasing from 9.8 in CY 2023 to 9.4 in CY 2024, which was consistent with the average rating of 9.5 in CY 2022.

Figure 16 on the following page shows a comparison of the survey respondents' average satisfaction ratings with nonresidential offerings in CY 2024 and CY 2023.

Figure 16. CY 2024 Average Overall Satisfaction Ratings for Nonresidential Offerings



Source: Ongoing Participant Satisfaction Online Survey Question. "Overall, how satisfied are you with your most recent experience with Focus on Energy?" Business Incentive CY 2024 (n=95), CY 2023 (n=85); Schools and Government CY 2024 (n=71), CY 2023 (n=45); Large Industrial CY 2024 (n=56), CY 2023 (n=45); Agribusiness CY 2024 (n=17), CY 2023 (n=33); New Construction incentives CY 2024 (n=3), CY 2023 (n=5); The nonresidential portfolio average is the average of all programs surveyed during the year weighted by total program participation.
Textured bars represent results from less than 20 surveys; interpret with caution.

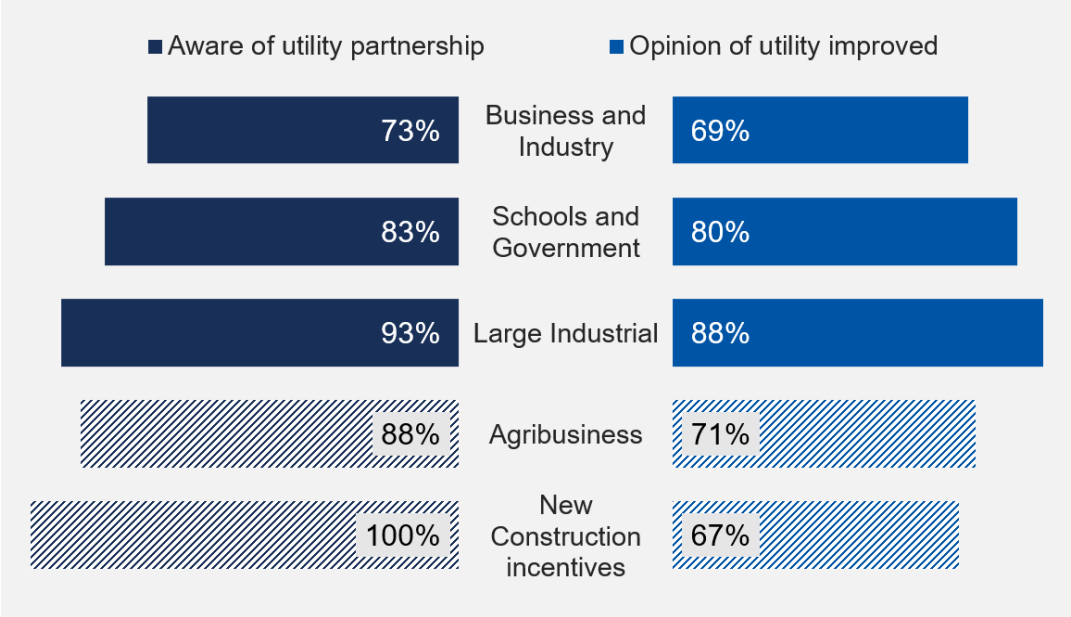
Net Promoter Score

The evaluation team calculated an NPS score for each offering based on the likelihood of the participant recommending it. Generally, a positive NPS score of +60 or better is interpreted as good, and the closer the NPS is to +100, the more favorable the respondents are toward the offering. All nonresidential offerings surveyed received a high NPS in CY 2024. The Agribusiness Program and New Construction offerings had the highest NPS at +100 (every survey respondent was a promoter), followed closely by Large Industrial (+95) and Schools and Government (+94). Business and Industry had the lowest nonresidential NPS at +88, which is still a very high score.

Awareness and Opinion of Utilities' Role

Most nonresidential survey respondents were aware that Focus on Energy programs were offered in partnership with their local energy utility, ranging from 73% of Business and Industrial respondents to 100% of New Construction respondents (Figure 17 on the following page). Most respondents also reported that Focus on Energy offerings made their opinion of their utility *much more favorable* or *somewhat more favorable*, ranging from 67% of New Construction respondents to 88% of Large Industrial respondents.

Figure 17. Nonresidential Participants' Awareness and Opinion of Utility Partnerships with Focus on Energy



Source: Participant Satisfaction Survey Questions. "The Focus on Energy program you participated in is offered in partnership with your local energy utility. Before taking this survey, was this something you were aware of?" Business Incentive (n=95); Schools and Government (n=69); Large Industrial (n=56); Agribusiness (n=17); New Construction incentives (n=3). "How have these offerings affected your opinion of your energy utility, if at all?" Business Incentive (n=77); Schools and Government (n=61); Large Industrial (n=51); Agribusiness (n=17); New Construction incentives (n=3). Textured bars represent results from less than 20 surveys; interpret with caution.

Participant Recommendations

The evaluation team analyzed open-ended comments and suggestions made by satisfaction survey respondents. Most survey respondents' comments were complimentary and expressed a positive experience with the offerings they participated in, including 91% (n=21) of comments about Large Industrial, 78% (n=23) about Business and Industry, and 74% (n=31) about Schools and Government. However, only one of the four respondents' comments about Agribusiness was positive.

Across all 242 nonresidential satisfaction surveys completed in CY 2024, respondents' open-ended comments only included 18 suggestions for improvement. Respondents offered eight suggestions for improving the Schools and Government Program, the largest number of suggestions for a nonresidential

program in CY 2024. The most frequent suggestions across all nonresidential programs were to improve communications (eight suggestions), increase incentives (three suggestions), reduce delays in approval and payment of incentives (two suggestions), and expand the scope of offerings (two suggestions).

The CY 2024 surveys included an open-ended question soliciting feedback about participants' experience with trade allies. Respondents' comments were mostly complimentary toward the trade allies, consistent with the high satisfaction ratings for trade allies. However, there were six suggestions for improvement: three from Large Industrial respondents, two from Schools and Government respondents, and one from a Business and Industry respondent (there were no suggestions for improvement from Agribusiness respondents). Two respondents suggested that their trade ally could have submitted the incentive application on their behalf, and one was disappointed that the incentive they received was significantly less than what they were expecting. The three remaining comments had to do with trade allies not meeting their customers' expectations for their projects, including "I felt that we were treated as a small project," and "They did not want to see the project through to the end."

Non-Energy Benefits for Program Participants

The evaluation team surveyed 70 participants across the four nonresidential programs and explored organizational approaches to energy efficiency, sustainability goals, and additional benefits experienced beyond energy and cost savings through Focus on Energy. Follow-up interviews with 10 participants provided deeper insights.

While cost savings remain the primary driver for energy efficiency projects, participants also recognize significant non-energy benefits. Improved equipment performance (87%), enhanced workplace environments (66%), and reductions in greenhouse gas emissions (64%) were among the most commonly cited benefits. Respondents highlighted improving tenant or staff comfort as a motivator, linking it to employee retention and workplace efficiency. Large Industrial participants reported stronger ties between their efficiency projects and sustainability goals, with some leveraging savings to justify capital investments or improve operational efficiency. Respondents also emphasized workplace improvements, such as enhanced safety, reduced maintenance, and increased automation, as key takeaways from their energy efficiency upgrades.

Interviews further illustrated how organizations realized both tangible and strategic benefits from their partnership with Focus on Energy. Participants highlighted the program's role in simplifying energy projects, providing customized support, and delivering rapid responses that streamlined decision-making.

Respondents also noted the broader value of Focus on Energy, citing access to industry best practices, expert guidance, and incentives that made projects financially viable. Participants viewed energy advisors as trusted partners who simplify the application process, offer specialized knowledge, and advocate for their projects. The seamless collaboration between energy advisors, trade allies, and participants enhances program effectiveness. Across all programs, respondents viewed Focus on Energy as more than just an incentive provider but rather a key ally in enhancing efficiency, sustainability, and long-term business growth.

Trade Ally Response to the Trade Ally Bonus

The evaluation team conducted in-depth interviews with 25 registered trade allies—representing lighting, HVAC, agriculture, and other measure categories—to assess their response to the Trade Ally Bonus offered by Focus on Energy. The bonus, initially introduced in the Agribusiness Program in CY 2019 and expanded to all nonresidential programs in CY 2023, is designed to offset the administrative burden of submitting incentive applications.

The trade ally bonus is well known among most trade allies (19 respondents), with 15 having received it. While some trade allies were unaware of the bonus before the interview (six respondents), many viewed it positively. The bonus had a limited impact on trade allies' behaviors, with only a few adjusting their approach to recommending products or completing application paperwork on behalf of their customers. Most trade allies (17 respondents) stated that the bonus did not influence their customer assistance process, as their primary focus remains on customer experience regardless of the bonus. Agriculture trade allies tended to defer application assistance and the application submittal process to energy advisors more than other trade ally types. Overall, the bonus is appreciated but not a driving factor in trade allies' decision-making or business practices.

Nonparticipant Barriers and Opportunities

The evaluation team conducted nine interviews with large commercial and industrial customers with no record of participation in Focus on Energy programs since CY 2019. Most respondents worked in manufacturing facilities, while others worked in agriculture, industrial operations, warehousing, and pharmaceuticals.

Most respondents had completed energy-impacting projects within the last three years, particularly in the manufacturing sector, where all five respondents had undertaken projects, such as installing new equipment or modifying air conditioning systems. However, energy efficiency was not a primary consideration in these projects, and although all respondents were aware of Focus on Energy (a number of respondents had even completed lighting projects with Focus on Energy prior to CY 2019), none were aware of potential Focus on Energy incentives for the projects they undertook in the last three years. Among non-manufacturing respondents, two out of four had completed major projects, including a new warehouse and an HVAC replacement. Respondents' awareness of Focus on Energy's incentive programs was low, with most unsure whether their projects would have qualified for support.

Three key barriers to participation emerged: management restrictions, completion of prior efficiency upgrades, and small or *ad hoc* projects. Some respondents also cited the need for fast project turnaround times and specific equipment requirements as limiting factors. Despite these challenges, five of the nine respondents expressed interest in working with Focus on Energy for future projects, including HVAC system upgrades and boiler replacements. Additionally, some respondents, particularly in manufacturing and agriculture, requested direct support in navigating incentive opportunities for upcoming investments.

Respondents were most familiar with Focus on Energy's incentives for energy-efficient buildings and processes, as well as its support for navigating energy efficiency opportunities. However, they were less

familiar with financial and technical support for identifying energy efficiency improvements, particularly for new construction.

Capital Investment Process

Respondents identified return on investment (ROI) as the key factor in evaluating capital investment projects, with payback thresholds ranging from six months to six years, depending on project specifics. While all respondents contributed to identifying and planning energy efficiency projects, the final approval authority rested with company boards, presidents, or capital expenditure groups. Capital investment decisions were primarily driven by broader business needs, with energy efficiency rarely being the primary deciding factor.

Energy Advisor Relationship and Support

All respondents had worked with a Focus on Energy advisor and were generally satisfied with the experience. While most knew how to contact their advisor, one noted frequent turnover as a challenge. Five respondents expressed interest in more support for advanced energy efficiency projects beyond lighting, requesting tailored resources like incentive guides and detailed walkthroughs of their facilities.

Respondents emphasized that cost-savings estimates would be the most valuable form of support, with six highlighting the need for site visits to identify energy efficiency opportunities. They noted that awareness of available incentives was essential for integrating energy efficiency into fast-moving projects. Furthermore, a better understanding of opportunities at their facilities was considered a crucial first step.

3.6. Midstream/Instant Discount Process Evaluation Findings

Focus on Energy offered midstream incentives through the Midstream Program from January through March of 2024. Focus on Energy launched the Instant Discount Program in April 2024 to replace the Midstream Program. Like the Midstream Program, the Instant Discount Program provides incentives to distributors who sell program-qualified equipment to contractors or commercial customers. With the introduction of the Instant Discount Program, Focus on Energy expanded midstream incentives to include residential-sized HVAC equipment.

Distributors who participate in the Instant Discount Program are required to transfer a portion of the incentives to their customers as an instant discount to help offset the upfront cost of energy-efficient equipment. Distributors may keep the remaining incentive to help offset the additional administrative costs required to participate in the program. While distributors must be enrolled in the Instant Discount Program to offer discounts to their customers, contractors only need to work with a participating distributor.

For the CY 2024 evaluation of Focus on Energy's Midstream Program, the evaluation team used interviews to assess participant distributors' experiences with the program, determine program attribution, and gather feedback on the program.

Distributor Experience

The evaluation team conducted in-depth interviews with eight HVAC distributors and one water heater distributor who were participating in the Instant Discount Program. The interview asked distributors about the level of comfort among their staff and customers (contractors) regarding energy-efficient equipment eligible for the Instant Discount Program. Six out of nine distributors said their staff were either *somewhat* or *extremely comfortable* selling this equipment, while an equal number reported that contractors were *somewhat* or *extremely comfortable* purchasing it. More specifically, four thought their staff were comfortable selling and supporting heat pump equipment, four reported that their staff were comfortable, and one remained neutral. Distributors were also asked about end-user (not contractor) comfort levels when switching to electric HVAC equipment, such as heat pumps. Seven out of nine distributors reported that end users were not comfortable switching to electric HVAC equipment, citing reluctance to change as the main reason.

When asked about contractor awareness of the Instant Discount Program Incentive, five out of nine distributors reported that contractors were not very aware of it. Given that these interviews took place within three months of the program's launch, relatively low levels of awareness were not unexpected, due to the program's limited time in the market. Distributors shared recommendations to increase contractor awareness, including having more in-person contact, trainings, and meetings with contractors throughout the year.

Program Expectations

The evaluation team asked distributors to identify the main benefits they expected from participating in the Instant Discount Program and gave them the opportunity to choose more than one answer. Four distributors chose the ability to provide discounts, and four chose to increase their sales of high-efficiency equipment. Three distributors also selected staying competitive in the market, increasing awareness, and having access to training opportunities (one each), while two said increasing customer satisfaction and loyalty.

Program Satisfaction

The evaluation team asked distributors about their satisfaction with different aspects of the program. Regarding communication with Focus on Energy staff, five respondents reported being *extremely satisfied*, while two were *somewhat satisfied*. When evaluating program materials and resources, six respondents found the distributor guides *easy to understand*, five found the IRIS online application submission portal *easy to understand*, and five indicated that the distributor training was *easy to understand*. Distributors provided extensive feedback and recommendations to enhance the usability of the portal.

Distributors expressed several concerns about participating in the Instant Discount Program. Key challenges included setting up and managing a point-of-sale system to collect required data (five distributors), timely reimbursement for incentive payments (three distributors), and calculating sales commissions (one distributor). Some worried about the uncertainty of reimbursement, noting that the lack of a guarantee undermines the program's "instant discount" premise. One distributor reported delays in receiving checks for summer 2024 claims, creating financial liability. Six distributors found the

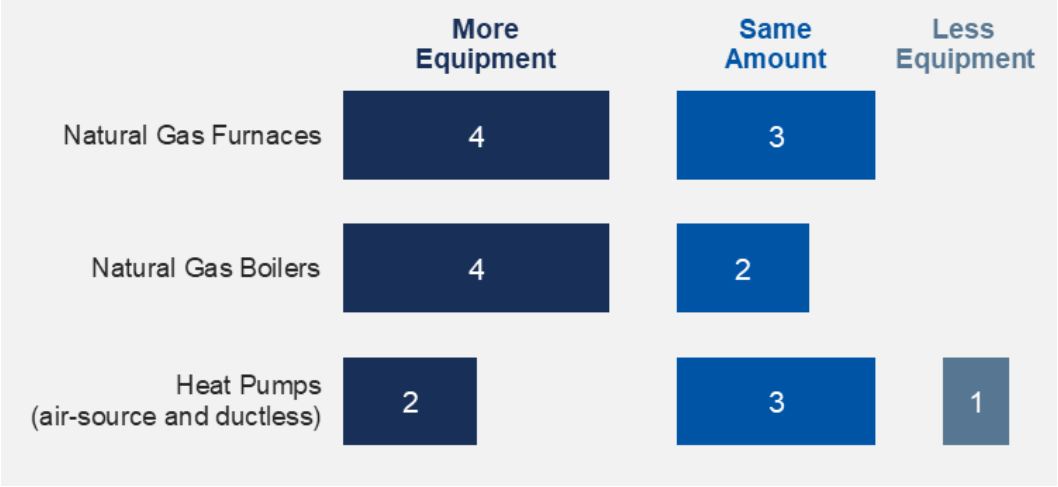
program's paperwork burdensome, making data collection and check tracking difficult for staff. Four respondents said customers should have direct access to rebates rather than relying on distributors, and six were dissatisfied with rebate reductions. Additionally, distributors noted that the program strained relationships with contractors, particularly those who purchase in bulk, as they often blamed distributors for rebate issues or qualification discrepancies. Six out of nine distributors agreed that the financial incentive was not a strong enough motivation to participate in the program.

Stocking Practices

When asked how they made their decisions about stocking natural gas furnaces and boilers, all of the distributors reported that they forecast sales based on previous years' sales and made growth projections. Five mentioned having a purchasing department. All distributors agreed that furnace stocking fluctuates seasonally; however, stocking is constant for natural gas boilers. In addition, one distributor said that industry changes or new products influence their stocking decisions for natural gas boilers.

Four distributors said they would stock more high-efficiency natural gas furnaces and natural gas boilers by the end of 2024, compared to before enrolling in the Instant Discount Program. Two anticipated that they would stock more heat pumps, as illustrated in Figure 18. In terms of their stocking practices for heat pumps, one distributor said that they did not "promote novelties" and preferred to be "late in the game for new technologies." Another distributor said that this decision was a challenge because they have goals to increase heat pump sales, but the historical numbers do not support their goals.

Figure 18. Estimated Stocking of High-Efficiency Equipment Before Enrolling in the Instant Discount Program



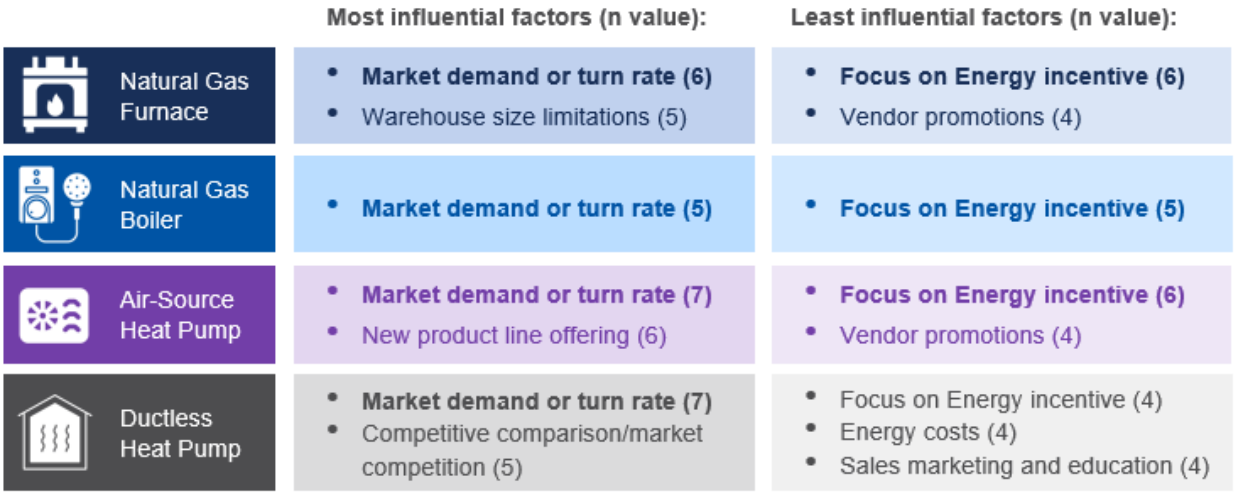
Source: Focus on Energy HVAC Distributor Survey: "How many high-efficiency natural gas furnaces, natural gas boilers, air-source heat pumps, and ductless heat pump units do you anticipate you will stock through the end of 2024? More, the same, or less than before the IDP?" (n=7)

When asked why they would stock more high-efficiency equipment, distributors provided several responses:

- They were responding to demand, industry trends, and changing laws
- Homeowners were more conscious of savings and rebates
- Contractors were pushing more high-efficiency equipment

When asked what factors distributors considered the most influential and least influential for stocking high-efficiency options for each equipment type, most selected market demand or turn rate as the most influential stocking factor for all equipment types. As shown in Figure 19, other influential reasons included warehouse size limitations, new product lines, and market competition. Distributors said the least influential factors for stocking high-efficiency equipment were incentives, promotions, energy costs, and marketing/education.

Figure 19. Most and Least Influential Factors in Stocking High-Efficiency Equipment



Source: Focus on Energy HVAC Distributor Survey: "I'm going to read you a list of potential factors. I will ask you how influential these factors were on your company's decisions to stock natural gas furnaces, natural gas boilers, air-source heat pumps, and ductless heat pumps. For each influence, please rate how influential they are using a 1 to 5 scale, where 5 means *very influential*, and 1 means *not at all Influential*."

4. Cost-Effectiveness Findings

Prior to implementing Focus on Energy offerings, APTIM assessed the cost-effectiveness of offering designs using a cost-effectiveness tool that it developed in collaboration with the PSC and the evaluation team. Because maintaining consistency between planning and evaluation approaches is critical to understanding offering performance compared with expectations, the evaluation team used Cadmus' in-house cost-effectiveness tool (EUROPA) to develop results and confirmed results using the same PSC and implementor calculator to evaluate cost-effectiveness in CY 2024.

As directed by the PSC, the modified TRC test is considered the primary test in assessing the cost-effectiveness of individual programs and offerings and of the entire Focus on Energy portfolio.[8] The PSC also directed that three additional tests be conducted for advisory purposes: an expanded TRC that includes net economic benefits, the utility administrator cost test (UAT), and the societal test.

NTG ratios can have a significant effect on TRC, UAT, and societal test results. The evaluation team applied NTG ratios to impacts to measure the gains resulting from Focus on Energy activities. NTG ratios account for the energy savings that would have been achieved without the efficiency programs (when the NTG ratio is less than 1.0, savings are reduced, and when the NTG ratio is greater than 1.0, savings are increased).

On the cost side, the team removed expenditures that would have occurred without the efficiency effort. These expenditures include incremental measure costs and lost revenues, both of which are multiplied by the NTG ratio. The evaluation team did not apply the NTG ratio to costs that would not have occurred in the absence of the program (such as program and administrative costs).

4.1. Test Description

To develop their cost-effectiveness calculators, the evaluation team and the administrator used methods adapted from and consistent with the California Standard Practice Manual, the original standard of cost-effectiveness analysis for energy efficiency programs in the United States,[9] and the National Standard Practice Manual for Benefit Cost Analysis of Distributed Energy Resources.[10] The modified TRC is described below, and the detailed descriptions and results for the expanded TRC, the UAT, and the societal test are in Appendix J. Cost-Effectiveness and Emissions Methodology and Analysis in Volume III.

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8 Public Service Commission of Wisconsin. June 6, 2018. *Quadrennial Planning Process III – Final Decision*. PSC Docket 5-FE-101, PSC REF#: 343909. http://apps.psc.wi.gov/vs2015/ERF_view/viewdoc.aspx?docid=343909

9 California Public Utilities Commission. July 2002. *California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects*. http://www.calmac.org/events/SPM_9_20_02.pdf

10 National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources. August 2020. https://www.nationalenergyscreeningproject.org/national-standard-practice-manual/

The TRC test is the most commonly applied test for evaluating the cost-effectiveness of energy efficiency and renewable resource programs around the country. Applications range across states and utility jurisdictions, from the standard TRC test to the societal test, which expands the test inputs to provide a more holistic societal perspective. The TRC test includes total participant and administrator costs and estimates benefits in the form of avoided utility costs. Common modifications to the standard TRC test often involve reducing the discount rate or including various environmental and other non-energy benefits (such as emissions reduction benefits). Wisconsin's version of the modified TRC test accounts for the standard TRC test costs and benefits and is modified to also include monetized benefits of reduced emissions (carbon dioxide, sulfur oxide, and nitrogen oxide) due to saving energy.

In CY 2024, the evaluation team used the modified TRC test to determine if the offerings were cost-effective from a regulatory perspective (as directed by the PSC) and, where feasible, measured the overall impacts of the benefits and costs of these offerings on the State of Wisconsin. In general, the test compares all benefits and costs that can be measured with a high degree of confidence, including any net avoided emissions that have commission-established values. The test's purpose is to determine if the total costs residents, businesses, and Focus on Energy incur for operating the offerings are outweighed by the total benefits they receive.

In simple terms, the benefit/cost value of the modified TRC test is the ratio of avoided utility and environmental costs from avoided energy consumption to the combination of administrative costs, delivery costs, and net participant incremental measure costs.

The benefit/cost equation used for the modified TRC test is:

$$TRC\,\frac{B}{C} = \frac{[Value\ of\ Gross\ Saved\ Energy + Value\ of\ Gross\ Avoided\ Emissions] * NTG}{[Adminstrative\ Costs\ +\ Delivery\ Costs + (Incremental\ Measure\ Cost\ * NTG)]}$$

Where:

$$Value\ of\ Gross\ Saved\ Energy = Net\ Gross\ Savings\ x\ Utility\ Avoided\ Costs$$

4.2. Interpreting Test Results

No single benefit/cost test can provide a comprehensive understanding of program performance or impacts in isolation. The results of tests that measure overall program cost-effectiveness, such as the modified TRC test, should be reviewed along with the results of other tests, such as the UAT. Such a multi-perspective approach warrants a clear understanding of the tradeoffs among the tests.

Because of changes in avoided electric energy and natural gas costs and in emissions allowance prices for Quadrennium IV, the cost-effectiveness results reported for Focus on Energy here are not directly comparable with results from the CY 2019-CY 2022 quadrennium. The changes to avoided costs decreased the benefit/cost test results across all offerings when compared with the avoided costs used in the previous quadrennium. This was particularly substantial for electricity generation and capacity benefits.

Additionally, for the CY 2023 evaluation, market effects savings were included in verified net savings for the Residential New Construction Program.[11] The inclusion of these market effects significantly increased CY 2023 Residential New Construction net savings without increasing program costs. This resulted in significantly higher modified TRC results for Residential New Construction in CY 2023 compared to CY 2022.

4.3. Value of Net Saved Energy

The value of energy saved, or displaced, equals the net energy saved multiplied by the utility-avoided cost of not having to generate or purchase that energy. In the case of energy efficiency and renewable resource programs, the avoided cost is the incremental (or marginal) cost for the additional energy and capacity the utility must generate or purchase rather than pay for the efficient measure that offsets the demand.

The PSC first established the methodology to estimate electric energy avoided costs in its June 18, 2012, Order under Docket 5-GF-191 (PSC REF#: 166932).[12] The PSC first established the methodology to estimate natural gas avoided costs in its Order of February 25, 2015, under Docket 5-FE-100 (PSC REF#: 232431).[13] The methodologies established under the aforementioned PSC Orders were maintained by the PSC in its Final Decision for the Quadrennial Planning Process IV.[14]

The source for electric energy avoided costs in the CY 2024 evaluation comes from the annualized forecast avoided cost model developed by the evaluation team. This model relied on the Midcontinent Independent Transmission System Operator's locational marginal pricing for nodes in Wisconsin and on forecasts for 2019, 2024, and 2029.[15]

Avoided natural gas costs are calculated based on Energy Information Administration 2023 Annual Energy Outlook forecasts of Henry Hub prices, adjusted using Wisconsin City Gate prices and retail prices.

The PSC established the methodology to estimate avoided electric transmission and distribution (T&D) costs for the CY 2019-CY 2022 quadrennium, under PSC docket 5-FE-101 (PSC REF#: 406591). Avoided

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11 Additional details can be found in the *Market Effects for Non-Program Homes* section of the Residential New Construction chapter in Volume II.

12 Public Service Commission of Wisconsin. June 18, 2012. *Quadrennium Planning Process II – Scope. PSC Docket 5-GF-191, PSC REF#: 166932.* http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=166932

13 Public Service Commission of Wisconsin. February 25, 2015. *Quadrennium Planning Process II – Scope. PSC Docket 5-FE-100, PSC REF#: 232431.* http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=232431

14 Public Service Commission of Wisconsin. November 14, 2022. Quadrennial Planning Process IV. Order PSC Docket 5-FE-104, REF#: 453081. https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=453081

15 Midcontinent Independent Transmission System Operator, Inc. Last updated 2019. "Day-Ahead Locational Marginal Pricing." https://www.misoenergy.org/markets-and-operations/real-time--market-data/market-reports/#t=10&p=0&s=MarketReportPublished&sd=desc

The evaluation team calculated T&D costs based on a running average of costs associated with T&D infrastructure as reported to the PSC and then escalated this value to align with projected increases in construction costs.[16]

To derive net savings, the evaluation team decreased the verified gross energy savings by the conventional attribution factor of the NTG ratio. The team then increased the net savings by a line loss factor of 8% to account for distribution losses. Table 21 lists the assumptions for the CY 2023 and CY 2024 evaluation avoided costs used for the cost-effectiveness tests.

Table 21. CY 2023 and CY 2024 Avoided Cost Comparison

Avoided Cost	CY 2023	CY 2024
Electric Energy ($/kWh)[a]	$0.0299–$0.0210	$0.0292–$0.0212
Electric Capacity ($/kW year)	$177.33–$194.34	$176.06–$196.46
Gas ($/therms)	$0.463–$0.621	$0.451–$0.628
Transmission and Distribution ($/kW year)	$49.25–$54.29	$48.98–$54.88
Avoided Cost Inflation	0%	0%
Real Discount Rate	2%	2%
Line Loss	8%	8%

4.4. Emissions Benefits

The modified TRC benefit/cost calculations include the benefit of avoiding three air pollutants that are regulated under the Clean Air Act. These are carbon dioxide, sulfur dioxide, and nitrogen oxide. Determining the emissions benefits requires three key parameters: lifecycle net energy savings, emissions factors or a tool that uses emissions factors, and the dollar value of the displaced emissions.

Emissions factors are the rate at which the criteria pollutants are emitted per unit of energy generated and are most often expressed in tons of pollutant per energy unit. Electric is in tons/megawatt-hour (MWh), and gas is in tons/thousand therms (MThm). The product of the emissions factor and the net energy savings is the total weight of air pollutants offset or avoided by the program.

The product of the total tonnage of pollutant saved and the discounted annual dollar value of the reduced emissions per ton is, therefore, the avoided emissions benefit, as shown in this equation:

$$Value\ of\ Avoided\ Emissions = \sum_{Years=MeasureEUL}^{n} PV\ (Annual\ Emissions\ Factor * Annual\ Emissions * Annual\ Market\ Value\ of\ Emissions)$$

Where PV indicates a present value function that takes annual emissions results and the number of periods as inputs, and n indicates the count of unique measures installed within a particular offering.

[16] Public Service Commission of Wisconsin. March 10, 2021. *Quadrennial Planning Process III.* Order PSC Docket 5-FE-101, REF#: 406591. https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=406591.

For CY 2024, the evaluation team assessed the benefits of electric emissions for Focus on Energy using AVoided Emissions and geneRation Tool (AVERT), a tool developed by the Environmental Protection Agency (EPA) to calculate avoided emissions from renewable energy and energy efficiency programs. AVERT is a spreadsheet-based model that uses historical hourly generation and emissions data to determine the individual power plants that are likely to be displaced by energy efficiency or renewable energy during each hour of the year.

To calculate electric emissions benefits using AVERT, the lifecycle net electric savings for Focus on Energy needed to be attributed to an AVERT region. Previously, Wisconsin was allocated to two regions; however, in 2020, the EPA revised its regions, and now Wisconsin falls into a single region.

Savings for Focus on Energy offerings are run through a region-specific version of AVERT to calculate the electric emissions benefits per offering. AVERT uses a model from the previous year to compare the electricity generation avoided by the Focus on Energy offerings during each hour of the year with the hourly generation information to determine the amount of emissions displaced.

Table 22 lists the gas emissions factor and allowance prices. For CY 2024, the electric emissions scalar was 792 tons of carbon dioxide per GWh. Note that this can be used to estimate avoided tons of carbon from electric savings; however, it is not exact, will not apply for any other years or regions, and will vary in results based on input GWh.

Table 22. Emissions Factors and Allowance Price

Service Fuel Type	Carbon Dioxide	Nitrogen Oxide	Sulfur Dioxide
Electric Emissions Factor (Tons/MWh)	0.792	0.0005	0.0004
Gas Emissions Factor (Tons/MThm)	5.85	N/A	N/A
Allowance Price ($/Ton)	$26.50	$7.50	$2

For CY 2024, as in previous years, the evaluation team continued to obtain allowance prices for nitrogen oxide and sulfur dioxide emissions from the EPA's Cross-State Air Pollution Rule, most recently updated in 2023.[17] The team used the carbon dioxide emissions price in the PSC's Order, docket 5-FE-104, PSC REF#: 487366, which states, "For the purposes of evaluating Focus in Quad IV, a starting point market-based value of $24.77 per ton of avoided carbon emissions is reasonable and in the public interest."[18] Further, this value will increase by 7% in each year of Quadrennium IV, which has a first-year value of $26.50 per ton in CY 2024.

[17] U.S. EPA. Accessed May 2, 2025."Progress Report -Program Compliance and Market Activity." https://www.epa.gov/power-sector/progress-report-program-compliance-and-market-activity.

[18] Public Service Commission of Wisconsin. June 6, 2018. Quadrennial Planning Process IV. Order PSC Docket 5-FE-104, REF#: 487366. https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=487366

The natural gas emissions factor has remained constant since the CY 2011 evaluation report and is derived from a best practice greenhouse gas inventory method developed by the California Energy Commission.[19]

Table 23 lists the total avoided emissions by gas type in tons for CY 2023 and CY 2024.

Table 23. Total Emissions Benefits by Gas Type by Calendar Year

Year	Carbon Dioxide	Nitrogen Oxide	Sulfur Oxide
CY 2023 Tons of Emissions Avoided	6,844,843	2,437	3,006
CY 2024 Tons of Emissions Avoided	6,539,245	2,612	3,200

Table 24 lists the emissions benefits for all programs by segment for CY 2023 and CY 2024.

Table 24. Total Emissions Benefits by Segment by Calendar Year

Year	Residential	Nonresidential	Midstream [a]	Total [b]
CY 2023 Emissions Benefits	$48,554,654	$187,153,229	$9,005,016	**$244,712,899**
CY 2024 Emissions Benefits	$45,759,843	$202,928,978	$1,750,800	**$250,439,621**

4.5. Program Costs

The program costs represent all costs associated with running the efficiency and renewable programs (including administration and delivery costs). The evaluation team did not include incentive costs because they are deemed to be transfer payments to the customer.[20] Focus on Energy's fiscal agent, Wipfli, provided the CY 2024 program costs used for this evaluation.

Table 25 shows the CY 2023 and CY 2024 sector cost values used for the cost-effectiveness tests.

Table 25. Sector Costs Comparison by Calendar Year

Costs	CY 2023	CY 2024
Residential		
Incentive Costs	$22,650,877	$21,993,126
Administrative Costs	$1,089,405	$1,084,688
Delivery Costs	$10,527,443	$11,744,165
Total Residential Program Costs	**$34,267,726**	**$34,821,978**
Nonresidential		
Incentive Costs	$28,712,721	$30,006,526
Administrative Costs	$1,632,259	$1,473,074
Delivery Costs	$20,066,587	$20,326,342
Total Nonresidential Program Costs	**$50,411,566**	**$51,805,943**

[19] California Air Resources Board. 2019. *California Greenhouse Gas Emissions for 2000 to 2017.* https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf

[20] The evaluation team included incentives as an incremental cost but not as a program cost.

Costs	CY 2023	CY 2024
Midstream		
Incentive Costs	$3,744,005	$1,779,643
Administrative Costs	$180,821	$87,696
Delivery Costs	$1,760,187	$997,270
Total Midstream Program Costs	**$5,685,013**	**$2,864,609**
Total		
Incentive Costs	$55,107,604	$53,779,295
Administrative Costs	$2,902,485	$2,645,458
Delivery Costs	$32,354,216	$33,067,777
Total Program Costs	**$90,364,305**	**$89,492,530**

4.6. Incremental Costs

The gross incremental costs are the additional costs incurred as a result of purchasing efficient equipment over and above a baseline non-qualified product. The evaluation team derived the gross incremental cost values used in the CY 2024 evaluation from the incremental cost study it conducted with the administrator and implementers. The incremental cost study allowed the evaluation team to establish up-to-date incremental costs for all measures using the best available data, including historical Focus on Energy program data and independent research from other state programs. The gross incremental costs, similar to the energy savings used in the cost-effectiveness tests, required the application of attribution factors to account for freeridership.

As in the CY 2023 evaluation, the team assigned actual CY 2024 project costs from the program tracking databases to the renewable energy projects. Table 26 shows the total net incremental measure costs used for the CY 2023 and CY 2024 cost-effectiveness tests.

Table 26. Net Incremental Measure Cost Comparison by Calendar Year

Costs	Residential	Nonresidential	Midstream
CY 2023 Incremental Costs	$93,683,658	$146,546,603	$6,383,948
CY 2024 Incremental Costs	$89,580,732	$144,716,580	$7,136,361

Table 27 lists CY 2024 incentive costs by sector, with renewables incorporated.

Table 27. CY 2024 Incentive Costs by Sector (with Renewables Incorporated)

Costs	Residential	Nonresidential	Midstream	Total
Incentive Costs	$21,993,126	$30,006,526	$1,779,643	$53,779,295

Table 28 lists the findings of the benefit/cost analysis for Focus on Energy's CY 2024 programs by sector.

Table 28. CY 2024 Benefit and Costs Portfolio Breakout

Focus on Energy Benefits and Costs	Full Portfolio	Core Programs Alone	Renewables Alone
Incentives	$53,779,295	$49,782,302	$3,996,993
Modified TRC Benefits ($ millions)	$679,984,953	$576,513,742	$103,471,211
Modified TRC Costs ($ millions)	$277,146,909	$193,015,117	$84,131,792
Portfolio Modified TRC Ratio	**2.45**	**2.99**	**1.23**

Table 29 lists the findings of the benefit/cost analysis for Focus on Energy's CY 2024 programs by sector.

Table 29. CY 2024 Costs, Benefits, and Modified Total Resource Cost Test Results by Sector

	Residential	Nonresidential	Midstream	Renewables	Total
Administrative Costs	$995,698	$1,365,433	$87,696	$196,630	$2,645,458
Delivery Costs	$10,780,657	$18,841,049	$997,270	$2,448,800	$33,067,777
Incremental Measure Costs	$40,449,771	$112,361,180	$7,136,361	$81,486,362	$241,433,674
Total Non-Incentive Costs	**$52,226,127**	**$132,567,663**	**$8,221,327**	**$84,131,792**	**$277,146,909**
Electricity Benefits (kWh)	$7,101,923	$104,532,136	-$257,282	$18,029,360	$129,406,137
Capacity Benefits (kW)	$9,959,834	$103,185,961	$983,235	$32,791,426	$146,920,457
Gas Benefits	$42,104,933	$60,498,804	$5,027,908	$0	$107,631,645
Emissions Benefits	$29,576,702	$179,357,959	$1,750,793	$43,282,939	$253,968,393
T&D Benefits (kW)	$2,850,687	$29,558,512	$281,637	$9,367,486	$42,058,320
Total TRC Benefits	**$91,594,079**	**$477,133,372**	**$7,786,291**	**$103,471,211**	**$679,984,953**
TRC Benefits Minus Costs	**$39,367,952**	**$344,565,710**	**-$435,037**	**$19,339,419**	**$402,838,044**
TRC Benefit/Cost Ratio	**1.75**	**3.60**	**0.95**	**1.23**	**2.45**

[a] The TRC ratio equals the total TRC benefits divided by non-incentive costs.

Table 30 lists CY 2023 and CY 2024 portfolio cost-effectiveness results for the modified TRC. Two sets of results are included for each year: one with renewables included in the core channels (residential, nonresidential, and midstream) and one with renewables as a stand-alone channel.

Table 30. Cost-Effectiveness Results for Focus on Energy Portfolio by Calendar Year

Calendar Year	Test	Residential	Nonresidential	Midstream	Renewables	Total
CY 2023	Modified TRC, renewables in core channels	1.37	3.28	3.59	N/A	**2.58**
CY 2023	Modified TRC, renewables as stand-alone channel	1.74	3.63	3.59	1.57	**2.58**
CY 2024	Modified TRC, renewables in core channels	1.34	3.21	0.95	N/A	**2.45**
CY 2024	Modified TRC, renewables as stand-alone channel	1.75	3.60	0.95	1.23	**2.45**

The PSC directed Focus on Energy to perform additional benefit/cost tests for informational purposes:

- The expanded TRC has the same inputs as the modified TRC, presented above, plus net economic benefits.
- The UAT measures the net benefits and costs of the programs as a resource option from the perspective of the Focus on Energy administrator.
- The societal test has the same inputs as the expanded TRC, plus non-energy benefits.

Table 31 lists the CY 2024 portfolio-level cost-effectiveness results for these additional test perspectives.

Table 31. CY 2024 Portfolio-Level Cost-Effectiveness Results for Additional Benefit/Cost Tests

Test	Residential	Nonresidential	Midstream	Renewables	Total
Expanded TRC					**4.17**
UAT	1.94	6.20	2.11	9.06	**4.76**
Societal Test	2.10	4.37	1.07	1.36	**4.65**

The inclusion of economic benefits in the expanded TRC produces higher benefit/cost ratios compared with the portfolio-level modified TRC results. For the UAT, the results show that benefits from the residential programs are just more than twice the costs, while the benefits from the nonresidential programs outweighed the costs by a factor of nearly six. The societal test delivered benefits just above four times the costs.

For additional details on the different benefit/cost test results and processes used for calculating the cost-effectiveness of the Focus on Energy portfolio, please refer to Appendix J. Cost-Effectiveness and Emissions Methodology and Analysis in Volume III as well as the Benefit/Cost Analysis CY 2009 Evaluation Report.[21]

[21] Focus on Energy. November 24, 2009. *Benefit/Cost Analysis CY 2009 Evaluation Report.* Submitted to Public Service Commission of Wisconsin. Submitted by PA Consulting Group and KEMA, Inc. https://focusonenergy.com/sites/default/files/bcanalysiscy09_evaluationreport.pdf

5. Key Performance Indicators Achievement

The program administrator's contract requires the evaluation team to assess and report findings from five KPIs at various points throughout Quadrennium IV. Those KPIs are related to achieving MMBtu goals, maintaining high customer satisfaction, ensuring equity of incentive spending across investor-owned utilities, increasing the number of applications from income-qualified customers, ensuring rural customers receive a proportional share of incentives, and increasing energy savings in underserved census tracts. For most KPIs, the administrator is eligible to receive a higher bonus amount for meeting higher KPI thresholds. For certain KPIs, the program administrator is subject to financial penalties for failure to achieve minimum performance thresholds.

In CY 2024, the evaluation team verified KPIs related to customer satisfaction, MMBtu savings achievement, income qualified applications, and rural incentive spending. For each of these KPIs, the program administrator is eligible for a performance bonus if they achieve the target threshold based on CY 2024 verified results. The evaluation team's verification results indicate that the program reached the target thresholds for three of the four KPIs in CY 2024. The KPI to increase the number of income qualified applications received by the program fell short of its CY 2024 target. According to the program administrator, the decrease in income qualified applications received relative to the baseline was due to customers and trade allies delaying income qualified projects in CY 2024 in anticipation of also receiving Inflation Reduction Act (IRA) incentives that did not become available until late CY 2024 and CY 2025.

Table 32 presents a brief description of each KPI that the evaluation team verified for CY 2024, the KPI target thresholds, and the evaluation team's verification findings.

Table 32. Quadrennium IV Key Performance Indicators and Verified Results for CY 2024

KPI	Description	KPI Target Thresholds	Verified Results
Customer Satisfaction	Maintain high customer satisfaction at the portfolio level	50% of bonus ≥9.0 75% of bonus ≥9.1 100% of bonus ≥9.2	Participation-weighted average satisfaction across the portfolio was 9.4 in CY 2024.
MMBtu Achievement	Achieve a minimum of 40% of the Quadrennium IV gross lifecycle MMBtu goal by the end of 2024	40% of Quadrennium IV lifecycle MMBtu goal	Total gross lifecycle MMBtu savings across the portfolio was 55,978,211 in CY 2024, which was 83% of the Quadrennium IV goal.
Income Qualified Applications	Increase the number of applications received by the income qualified program by 6% by 2024 over an average baseline from Quadrennium III	50% of bonus at ≥6% 75% of bonus at ≥7% 100% of bonus at ≥8%	952 income qualified applications were received by the program in CY 2024, which was a decrease of 41% over the Quadrennium III average.
Rural Incentive Spend	Ensure that incentives paid to rural customers are proportional to the percentage of rural customers in the state	50% of bonus ≥31% 75% of bonus ≥32% 100% of bonus ≥33%	Rural incentives accounted for 33% of all incentives disbursed in 2024.

6. Outcomes and Recommendations

Based on the evaluation team's findings, this section presents high-level outcomes and recommendations. The team synthesized information from all CY 2024 evaluation activities to inform the following portfolio-level outcomes and recommendations. More information on supporting findings can be found in this report and in the program chapters in Volume II.

Outcome 1. Participants continued to report high levels of satisfaction with Focus on Energy offerings. Overall, CY 2024 respondents gave the offerings they participated in an average satisfaction rating of 9.4, consistent with average ratings of 9.5 or 9.4 for the portfolio every year since CY 2020. Every program surveyed in CY 2024 had an average customer satisfaction rating of at least 9.2, except Nonresidential New Construction, which only had three respondents.

6.1. Residential

Outcome 1. For Residential New Construction, an increasing share of higher-efficiency program homes resulted in a positive electric NTG ratio for program homes in CY 2024. Further, continued market effects savings for natural gas resulted in a high natural gas NTG ratio for the program. Evaluation research conducted in Quadrennium III found higher NTG ratios for program homes built to higher certification levels. In CY 2024, as in CY 2023, program homes continued to be more efficient than homes built in previous years, which resulted in a program home natural gas NTG ratio of 22% for CY 2024, compared to 5% used during the last quadrennium and 18% in CY 2023. Additionally, electric net savings turned positive in CY 2024 compared with negative net savings in CY 2023 and Quadrennium III. The net electric savings observed in CY 2024 resulted in an electric NTG ratio of 10%.

In Quadrennium III, the evaluation team also quantified market effects savings, which reflect how the program's long-standing presence in the new construction market induced savings in nonprogram homes. Although electric market effects are no longer applicable due to updated federal lighting and furnace fan efficiency standards, natural gas market effects continue to be applicable in CY 2024. Like previous years, market effects realized in CY 2024 were new, program-induced savings that had not been attributed to the program. Combining market effects savings with the updated program home natural gas NTG ratio resulted in an overall NTG ratio of 119% for the CY 2024 program, weighted by annual MMBtu savings.

Outcome 2. Trade allies in the Renewable Rewards and Residential New Construction Programs cited program participation as beneficial but identified challenges in staying adequately informed about program changes, which has contributed to uncertainty, inconsistencies in implementation, and dissatisfaction among their customers. Some Renewable Rewards trade allies specifically expressed frustration about the mid-year incentive adjustments and the confusion it caused their customers. Residential New Construction building performance consultants also suggested that the lack of timely and clear communication affects their ability to effectively support builders and ensure homes meet current program standards.

Recommendation 1-2. Strengthen communication pathways by proactively sharing updates on program changes to prevent confusion and dissatisfaction among trade allies and customers, and to promote consistent program delivery. When program changes that affect expected incentives are necessary, ensure proactive communication about how these changes impact trade allies and their customers. Specifically, follow up with resources to help communicate these changes to customers of trade allies and offer support if trade allies continue to encounter customer dissatisfaction.

Outcome 3. For all programs in CY 2024 except Residential New Construction, *ex ante* savings applied 2023 TRM deemed values to some measures. Realization rates for these measures varied from 100% because the evaluation team applied 2024 TRM deemed savings and methodologies for all measures.

Recommendation 3. To improve the accuracy of *ex ante* savings, ensure timely alignment with the current program year's TRM. Any projects that transition between calendar years should be reviewed and updated promptly to reflect the most current deemed savings values or approved approaches for the current program year.

Outcome 4. High participant satisfaction continued through CY 2024; however, participants also identified areas where residential offerings could improve. Satisfaction survey results across all residential offerings showed high overall satisfaction scores of 9.2 or higher. However, participants also identified areas for improvement, with the most common suggestion in CY 2024 being to improve communications by providing more information about offerings and promoting them more effectively. This was also the most common category of suggestions from respondents in CY 2023 and CY 2022.

Recommendation 4. To maintain awareness among current and potential participants, the program should prioritize enhancing communication efforts. Focusing on improving follow-up on rebate applications, including status updates, rebate amounts, and eligibility requirements, would directly respond to participant feedback. Additionally, providing more detailed and accessible information about energy savings and program qualifications, along with increasing promotional efforts across channels, could help raise awareness of available offerings and ensure participants are fully informed and engaged throughout their experience with Focus on Energy.

6.2. Nonresidential

Outcome 1. The evaluation team identified instances of project data discrepancies in EDA/EDR measures. Verification report specifications often differed from model input parameters for several EDA/EDR projects. This created uncertainty for the evaluation team concerning whether the documentation or the model had not been properly updated and which should be considered the most current.

Recommendation 1. Consider enacting or formalizing a quality control process for aligning verification reports with the energy model inputs and outputs across programs.

Outcome 2. The top realized non-energy benefit across nonresidential programs was operational improvements. While participants cited cost savings as the top reason they pursued energy efficiency projects, the cascading impacts on operational improvements, improved experience for tenants and staff, and improvements that contributed to conservation or environmental targets were realized and appreciated by many. Participants attributed these successes across their businesses to the energy efficiency projects they have implemented with Focus on Energy.

Outcome 3. The support participants received from energy advisors and other Focus on Energy support was invaluable. Participants reported that energy advisors offer trusted guidance on incentives, technical items, industry knowledge, and program and process education and highly valued their commitment to bringing new and creative ideas to their organizations.

Outcome 4. The trade ally bonus is appreciated by trade allies, but it does not necessarily stimulate additional program activity. The trade ally bonus induced positive impacts and sentiment toward the Focus on Energy programs that helped foster goodwill among trade allies. Many trade allies reported that the trade ally bonus motivated them to take positive actions, such as the following:

- Become a registered trade ally
- Complete more of the incentive applications
- Recommend more qualifying measures
- Improve record keeping for installed measures

However, the trade ally bonus did not significantly influence trade allies' approach or recommendations in assisting customers with the required paperwork. Over two-thirds of trade allies interviewed said the bonus did not motivate them to change their approach to assisting customers. While some expressed that getting a bonus for something they were already doing is a positive reinforcement, one trade ally captured the overall sentiment particularly well, stating, "[the bonus is] not a decision-maker…if [the] bonus went away, we'd still work with Focus." Ultimately, many of the trade allies said they focused on their customers' needs and providing the right products for the job, regardless of the bonus. If those products qualify for incentives, trade allies said they proceed through their existing workflow to go from there, whether it be completing applications for their customers, passing them off to energy advisors, or supporting the application process when asked by customers or energy advisors.

Outcome 5. Trade allies exhibited a lack of awareness and varying understanding of the program expectations, particularly the trade ally bonus. Over one-third of trade allies interviewed were unaware of the trade ally bonus prior to the interview. Additionally, trade allies reported a different understanding of their responsibilities regarding the application, as evidenced by the agriculture trade allies and others who are taking advantage of the bonus but take a hands-off approach to the application process. Overall, across programs, four trade allies requested more proactive updates on qualifying measures and program changes.

Recommendation 2-5. Review the communications concerning the trade ally bonus and program information, such as changes to offerings and qualifying products. This communication review should address or include the following:

- *Awareness:* Ensure relevant details reach the right audience.
- *Desired application expectations:* If there is a desire to encourage trade allies to complete more of the application to take advantage of the trade ally bonus, develop communications to reset expectations around the application paperwork.
- *Tracking impact:* Track any communication efforts using related metrics, such as the number of bonuses requested and issued, changes to registration status, and number of applications.

Outcome 6. Among nonparticipating large energy users, there was a lack of awareness and understanding of eligibility for Focus on Energy incentives. Seven of the nine nonparticipant interview respondents had recently completed a project that significantly impacted their energy usage. None of these respondents knew whether Focus on Energy incentives could have been used for these projects. Additionally, overall, respondents were the least familiar with Focus on Energy's ability to help them identify new opportunities for energy efficiency.

Recommendation 6. Invest in higher-touch outreach for nonparticipating large energy users. As a first step, consider emphasizing the non-lighting incentives that Focus on Energy offers. Six of the nine nonparticipants had done a lighting project with Focus on Energy in the past. Additionally, conducting on-site audits, providing site-specific incentive guides, or providing other personalized support may be necessary to educate customers on the support Focus on Energy offers.

Outcome 7. Financial barriers and limited environmental motivators prevent nonparticipating large energy users from pursuing energy efficiency projects. Nonparticipating large energy users face considerable financial barriers to implementing energy efficiency projects. Four of the nine nonparticipants interviewed reported limited capital funds or restricted ability (without management approval) to make energy efficiency investments.

Additionally, sustainability goals alone were not a strong enough motivator for nonparticipants to complete energy efficiency projects**.** Five of the nine nonparticipant respondents reported that their company has sustainability goals. However, only one respondent reported that sustainability goals significantly impact their company's operations. For the other four, sustainability by itself was not sufficient to motivate energy efficiency projects.

Recommendation 7. Gathering information on the customer's capital investment process early on may help to identify potential roadblocks to project approval and determine where emphasizing financial benefits and ROI estimates could make a difference. This could help Focus on Energy avoid investing in high-touch customer support in cases where company policies might make any energy efficiency project unviable.

Provide materials to help organizations boost the visibility of their Focus on Energy program participation and its sustainability impacts. While sustainability may not be a primary motivation for

most nonparticipants, it appears to be a value for many. Helping organizations to increase the visibility of their participation and sustainability efforts could increase the value of participation, alongside other benefits, and increase the likelihood of program participation for some nonparticipants.

6.3. Midstream/Instant Discount

Outcome 1. The majority of distributors thought their staff was generally comfortable with selling high-efficiency equipment, including heat pumps, but noted discomfort around contractors' technical understanding of newer technologies and product eligibility. Additionally, contractors' awareness of the Instant Discount Program was low, with most distributors reporting that contractors were only *somewhat aware* or *unaware* of the incentive. Given the program's short time in the market, this outcome is not unexpected.

Recommendation 1. Increase in-person contractor visits and training, especially on the technical aspects of high-efficiency equipment that is eligible for the Instant Discount Program. Additionally, increase amount and periodical distribution of print and virtual materials to raise awareness and enthusiasm for the Instant Discount Program. Presentations that incorporate case studies are more engaging and can capture the attention of contractors and distributors more than descriptions of the program.

Outcome 2. Although distributors were generally satisfied with communication from Focus on Energy, the IRIS online application portal may pose a threat to satisfaction levels. Distributors noted significant concerns regarding the IRIS portal's impact on their relationship with contractors, specifically noting issues with the portal's usability and inefficiencies in data collection.

Recommendation 2. Address the difficulties with the IRIS portal by providing better training, improving its functionality (e.g., enabling manual contractor additions and more accessible data, enhancing invoice reconciliation), and streamlining the data submission process between distributor and contractor. This may help to reduce inefficiencies and ensure that updates are timelier and more reliable to reduce distributor and contractor frustrations. In CY 2025, the evaluation team will continue investigating to determine whether distributors' frustrations stem from their inexperience with using the portal and program, from the portal's technical issues, or both.

Outcome 3. Administrative burden and an insufficient incentive may keep contractors from participating. Distributors reported that contractors have been disengaged from the program in the new midstream program design, citing administrative work and lack of motivation. They stated that the Focus on Energy incentive has not been a sufficient driver of participation, particularly when contractors are required to provide extensive information.

Recommendation 3. Increase the rebate amount to make it more salient and competitive with other program's rebates. Simplifying the administrative processes and reducing the data collection burden on contractors may not only motivate participation in the program and improve their interest in high efficiency but may also increase the perceived value of incentives.

Outcome 4. There were multiple instances of project data discrepancies across various measures and applications, which led to realization rates that varied from 100%. For example, some *ex ante* savings values differed from the TRM, which either increased or decreased savings, some *ex ante* savings values did not correctly account for equipment parameters, and some *ex ante* savings values were manually adjusted to zero due to application duplicates created to prevent incentive payment delays.

Recommendation 4. Consider adding a field that verifies that tracked savings align with expected TRM savings. Additionally, consider adding a field that identifies whether manual savings adjustments have been made for each measure within each application.

Outcome 5. There were instances of certain measures using *ex ante* savings that were not vetted via a typical work paper review or verification process and used a baseline assumption that did not align with the federal standard baseline. Such instances caused discrepancies in the realization rate for those measures and inflated electric savings.

Recommendation 5. Use TRM values that best align with the proposed measure and ensure baseline compliance if the work paper review cannot be completed in a timely manner prior to having to complete incentive payments.

6.4. Cost-Effectiveness

Outcome 1. The Focus on Energy remained highly cost-effective in CY 2024, consistent with its performance in CY 2023. The Focus on Energy portfolio remained stable and highly cost-effective in CY 2024, delivering $2.45 in benefits for each dollar invested, compared to $2.58 in CY 2023. When accounting for downstream economic benefits, the CY 2024 portfolio was even more cost-effective, delivering $4.17 per dollar invested. When including non-energy benefits through the societal test, the program delivered $4.65 per dollar invested.

Outcome 2. The midstream channel alone narrowly missed being cost-effective in CY 2024, delivering slightly less than $1.00 in benefits for every dollar invested in the programs. The midstream portfolio, which transitioned from the Midstream Program to Instant Discount Program in CY 2024, achieved an mTRC of 0.95 in CY 2024. The primary driver of lower cost-effectiveness in the midstream portfolio was the addition of heat pumps in CY 2024, which have high incremental measure costs and produce negative electric impacts when customers switch from gas to electric heat. These measures also produce high natural gas savings that, along with emissions benefits, offset the negative electric impacts to an extent; however, not enough to overcome the cost-effective threshold of 1.00 in the mTRC test.

Recommendation 2a. Continue to monitor which HVAC measures or which heat pump delivery methods achieve the highest cost-effectiveness and consider shifting resources into those channels.

Recommendation 2b. Explore alternative cost-effectiveness testing frameworks for beneficial electrification measures, such as heat pumps, which align with PSC goals for electrification benefits beyond those found in the mTRC.