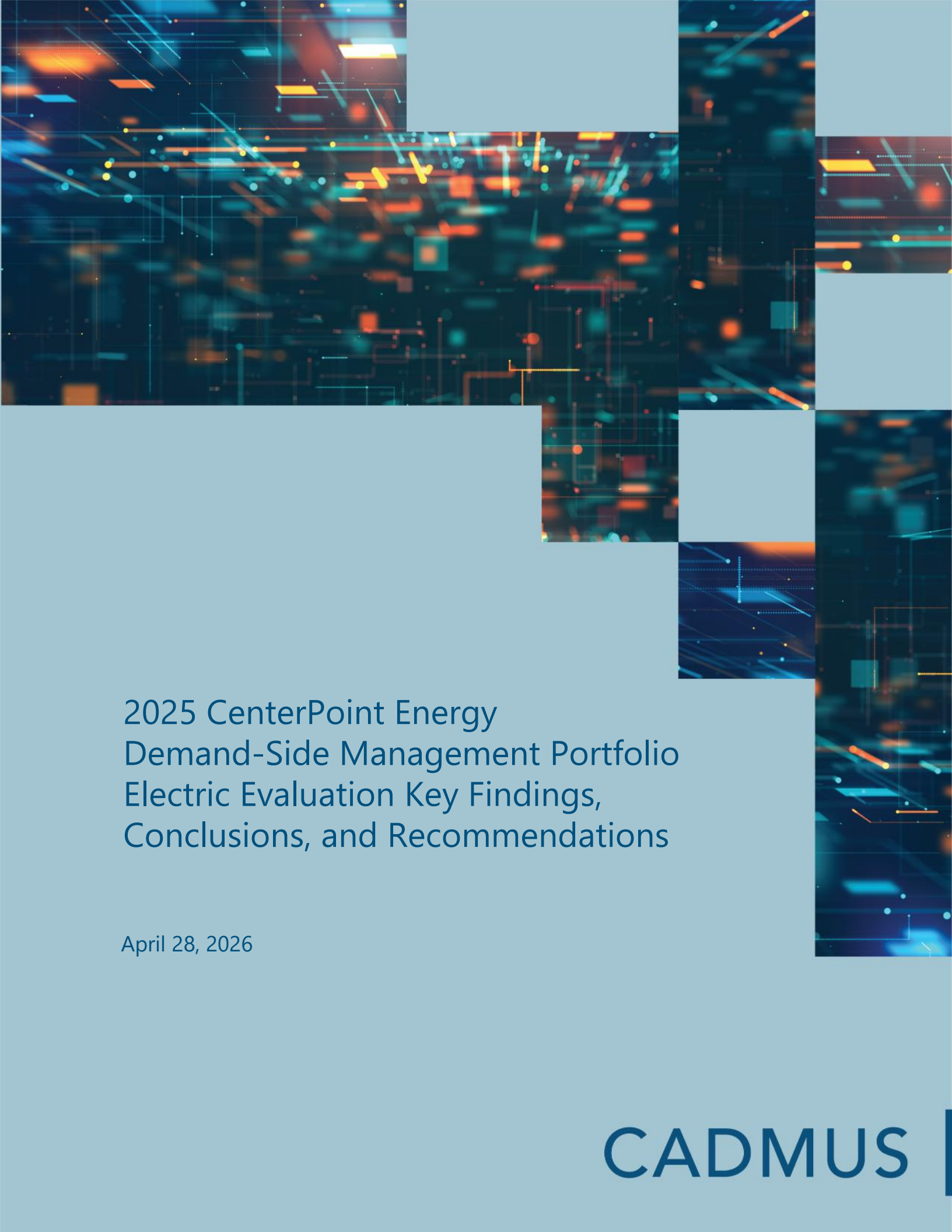




2025 CenterPoint Energy Demand-Side Management Portfolio Electric Evaluation Key Findings, Conclusions, and Recommendations

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CADMUS

Prepared for:
CenterPoint Energy
Delivery of Indiana

CNP Plaza
211 NW Riverside Dr.
Evansville, Indiana

Prepared by:
Cadmus

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1. Executive Summary

CenterPoint Energy in Indiana has a demand-side management (DSM) portfolio containing 18 programs, 15 of which contribute electric energy savings and demand reduction to the portfolio. CenterPoint Energy administers the portfolio in conjunction with several third-party implementers. The programs serve the residential, income-qualified, multifamily, commercial, and industrial sectors.

CenterPoint Energy tasked Cadmus with evaluating its 2025 DSM programs, which involved conducting process and impact evaluations and a market performance indicator assessment for the programs:

- Through the **process evaluation**, Cadmus examined the program from the perspective of customers, trade allies, and program staff and sought to determine the aspects of the program that worked well, areas that may need improvement, and recommendations to refine the program.
- Through the **impact evaluation**, Cadmus verified measure installation, determined freeridership and spillover (net-to-gross [NTG] ratio), and reviewed deemed savings and assumptions. Cadmus calculated electric impacts for all programs and measures.
- To assess **market performance indicators**, Cadmus reviewed and updated logic models to map each program's activities and established key performance indicators (KPIs).

This memo provides the key findings, conclusions, and recommendations of Cadmus' evaluation of CenterPoint Energy's 2025 DSM electric portfolio.¹ Full impact evaluation results are contained in the [online CenterPoint Energy evaluation dashboard](#).

Table 1 shows the evaluation tasks completed for each of CenterPoint Energy's programs.

¹ Natural gas impacts are reported separately in the 2025 CenterPoint Energy Demand-Side Management Portfolio Natural Gas Evaluation Key Findings, Conclusions, and Recommendations Memo.

Table 1. 2025 Evaluation Tasks by Program

Program	Impact Evaluation	Process Evaluation	Market Performance Indicators
Residential Programs			
Home Energy Solutions (HES) – Residential Prescriptive	✓	✓	✓
Home Energy Solutions (HES) – Residential Midstream	✓	✓	✓
Home Energy Solutions (HES) – Home Energy Assessments	✓	✓	✓
Home Energy Solutions (HES) – In Store Discounts	✓	✓	✓
Energy Efficiency Store	✓	✓	✓
Residential New Construction	✓	✓	✓
Income Qualified Weatherization	✓	✓	✓
Multi-Family Energy Solutions	✓	✓	✓
Community Connections	✓	✓	✓
Residential Behavioral Savings	✓	✓	✓
Smart Cycle ^a	✓	✓	
Commercial and Industrial Programs			
C&I Prescriptive	✓	✓	✓
C&I Midstream	✓	✓	✓
C&I Custom ^b	✓	✓	✓
Small Business Energy Solutions	✓	✓	✓
Building Optimization	✓	✓	

^a For this evaluation, Cadmus estimated savings for year-round use of Smart Cycle direct install thermostats; Cadmus estimated savings from summer peak load control events in a separate evaluation.

^b CenterPoint Energy's C&I Custom program includes Commercial New Construction, Building Tune-Up, and Strategic Energy Management as program subcomponents.

1.1. Portfolio-Level Impacts

Table 2 and Table 3 present the electric savings and demand reduction achieved by the 2025 CenterPoint Energy DSM Portfolio.² Overall, the portfolio achieved 34,109,463 kWh of evaluated, net electric savings and 5,938 kW evaluated, net demand reduction.

² Reported *ex ante* electric savings and demand reduction are derived from CenterPoint Energy's 2025 Electric DSM scorecard.

Table 2. 2025 CenterPoint Energy DSM Program Portfolio Electric Savings

Program	Ex Ante Savings (kWh)			Evaluated Ex Post Savings (kWh)	Realization Rate (kWh)	NTG Ratio	Evaluated Net Savings (kWh)	Net Savings Goal (kWh)	Percentage Net Savings Goal Achieved
	Reported	Audited	Verified						
Residential Programs									
HES – Residential Prescriptive	302,671	302,671	286,973	349,252	115%	66%	230,261	350,980	66%
HES – Residential Midstream ^a	2,773,133	2,773,133	2,679,155	3,455,245	125%	41%	1,416,651	886,996	160%
HES – Home Energy Assessments	255,102	253,743	252,754	247,663	97%	89%	221,230	377,520	59%
HES – In Store Discount	405,480	405,480	383,142	564,268	139%	78%	439,640	457,893	96%
Energy Efficiency Store	544,034	544,034	539,132	484,534	89%	87%	420,459	1,618,571	26%
Multi-Family Energy Solutions	174,391	174,443	173,153	191,775	110%	100%	191,775	369,015	52%
Residential New Construction	61,328	56,759	56,759	116,595	190%	62%	72,081	50,609	142%
Income Qualified Weatherization	464,036	464,161	448,792	469,362	101%	100%	469,362	779,346	60%
Residential Behavioral Savings	6,248,595	6,248,595	6,248,595	7,986,005	128%	100%	7,986,005	6,125,117	130%
Smart Cycle	40,373	40,373	43,730	42,679	106%	100%	42,679	1,477,053	3%
Community Connections	833,340	833,340	732,701	439,431	53%	100%	439,431	778,895	56%
Commercial and Industrial Programs ^a									
C&I Prescriptive	13,211,104	12,691,255	12,691,255	11,748,058	89%	79%	9,280,966	9,031,459	103%
C&I Midstream	678,529	729,793	729,793	973,672	143%	79%	769,201	376,541	204%
C&I Custom	5,340,054	5,340,054	5,340,054	5,208,420	98%	82%	4,270,905	4,704,000	91%
Building Optimization	1,697,593	1,697,593	1,697,593	1,697,593	100%	90%	1,527,834	1,500,000	102%
Small Business Energy Solutions	6,872,420	6,512,590	6,512,590	6,594,776	96%	96%	6,330,985	3,612,000	175%
Total	39,902,182	39,068,015	38,816,170	40,569,328	102%	84%	34,109,463	32,495,995	105%
Nonparticipant Spillover ^b	N/A	N/A	N/A	N/A	N/A	5%	717,340	N/A	N/A
Total Adjusted Portfolio	39,902,182	39,068,015	38,816,170	40,569,328	102%	86%	34,826,804	32,495,995	107%

^a Overdrive driven savings are included in Residential Midstream and Commercial and Industrial Prescriptive savings totals

^b Nonparticipant spillover is included as information only and is not included in CenterPoint Energy Lost Revenues and Performance Incentive calculations.

Table 3. 2025 CenterPoint Energy DSM Program Portfolio Demand Reduction

Program	Ex Ante Savings (Coincident Peak kW)			Evaluated Ex Post Savings (Coincident Peak kW)	Realization Rate (Coincident Peak kW)	NTG Ratio	Evaluated Net Savings (Coincident Peak kW)	Net Savings Goal (Coincident Peak kW)	Percentage Net Savings Goal Achieved
	Reported	Audited	Verified						
Residential Programs									
HES – Residential Prescriptive	92	92	304	29	32%	67%	20	195	10%
HES – Residential Midstream ^a	790	790	2,348	202	25%	41%	83	581	14%
HES – Home Energy Assessments	31	11	11	33	105%	87%	29	27	108%
HES – In Store Discount	44	44	83	41	94%	73%	30	36	84%
Energy Efficiency Store	166	12	166	82	50%	87%	71	603	12%
Multi-Family Energy Solutions	295	0	0	51	17%	100%	51	25	202%
Residential New Construction	26	28	28	97	371%	62%	60	30	199%
Income Qualified Weatherization	85	40	39	94	110%	100%	94	83	113%
Residential Behavioral Savings	1,850	1,850	1,850	1,665	90%	100%	1,665	1,850	90%
Smart Cycle	90	90	0	0	0%	100%	0	3,300	0%
Community Connections	26	0	0	56	214%	100%	56	24	228%
Commercial and Industrial Programs ^b									
C&I Prescriptive	4,638	2,263	2,263	2,690	58%	79%	2,125	1,709	124%
C&I Midstream	126	98	98	72	57%	79%	57	53	107%
C&I Custom	152	268	268	233	153%	82%	191	754	25%
Building Optimization	8	0	0	0	0%	0%	0	20	0%
Small Business Energy Solutions	9	1,404	1,404	1,466	16,648%	96%	1,407	470	300%
Total	8,429	6,989	8,860	6,811	81%	87%	5,938	9,759	61%
Nonparticipant Spillover	N/A	N/A	N/A	N/A	N/A	5%	118	N/A	N/A
Total Adjusted Portfolio	8,429	6,989	8,860	6,811	81%	89%	6,056	9,759	62%

^a CenterPoint Energy forecasts demand reductions using a program average for the residential portfolio. Because forecasting is at the program level rather than the measure level, kW realization rates are expected to fluctuate more than energy realization rates (kWh). CenterPoint Energy uses evaluated kW for planning purposes only.

^b Overdrive driven savings are included in Residential Midstream and C&I Commercial savings totals.

1.2. Summary of Recommendations

Based on the findings from the 2025 evaluation, Cadmus proposed several recommendations to enhance CenterPoint Energy's DSM portfolio (Table 4).

Table 4. 2025 Program Recommendations

Program	Recommendations
Residential Programs	
Home Energy Solutions	<ul style="list-style-type: none"> • In future evaluations, incorporate <i>Home Energy Assessment</i> participants into quarterly Home Energy Solutions surveys to assess channel satisfaction and identify strategies to encourage cross-participation in other Home Energy Solutions offerings among market rate customers. • Review pricing label and <i>instant discount</i> guidelines to ensure that requirements are clear and easy to follow. Maintain consistent communication with participating national retailers to make sure that they understand and follow reporting requirements.
Energy Efficiency Store	<ul style="list-style-type: none"> • Reevaluate electric participation and savings goals to ensure that these goals are achievable. Goals should consider the size of the electric customer base, historical participation rates, and historical savings. • Consider conducting a survey of nonparticipants and partial participants (customers who added items to their cart but never made purchases) to evaluate reasons for nonparticipation and potential areas for improvement. • For customers that purchase smart thermostats through the Energy Efficiency Store, send a follow-up email after purchases providing information on how to answer questions about smart thermostat installation and use. • Add information to smart thermostat product descriptions informing customers of the potential need for wire connection adapters and promote the availability of adapters through the Energy Efficiency Store.
Residential New Construction	<ul style="list-style-type: none"> • Encourage greater use of the BOP path by highlighting its rebates and alignment with commonly installed equipment. Developing and sharing case studies of builders successfully maintaining consistency with subcontractors could motivate other builders to adopt this path more frequently. • Leverage relationships with HERS raters, who have strong networks within the builder community, to help extend program reach. Consider providing incentives to HERS raters for each new builder they refer who becomes a program participant. • To increase program energy savings, explore ways to encourage adoption of higher-impact measures. For example, provide builders with tools, guidance, or incentives for installing measures with high savings per installation. • Provide targeted communications and onboarding and technical support to builders to increase awareness of program resources and events and reduce submission delays during staff transitions. For example, consider creating a comprehensive onboarding kit for new builders that includes program materials, answers to frequently asked questions, and a recorded webinar demonstrating how to submit paperwork. • Consider updating heat pump cooling efficiency participation requirement to exceed the Federal minimum efficiency update in 2023 for northern climate (14.3 SEER2 for heat pumps) in <i>a la carte</i> and BOP measures.

Program	Recommendations
	<ul style="list-style-type: none"> Consider including air sealing measure $ACH50 \leq 4.5$ as an <i>a la carte</i> measure. Consider tracking home area, ACH50 and CFM50 values, and heating/cooling equipment efficiencies from HERS certifications to calculate savings per TRM. Alternatively, be able to provide a random sample of HERS certs for evaluation to satisfy precision/accuracy requirements. Consider increasing the heat pump water heater incentive to increase measure quantity (none installed in 2025). Update deemed savings values for 2026 by using values from the 2025 evaluation. Verify that HERS Bonus Gas/Electric measures do not receive kilowatt-hour savings in program data.
Income Qualified Weatherization	<ul style="list-style-type: none"> Whenever possible, promote installation of smart strips in homes. Work with the program implementer, auditors, and trade allies to ensure that they conduct adequate follow-up with participants to increase both participant satisfaction and measure installations. Along with the educational materials left behind after an audit, include materials explaining next steps and timing for subsequent follow-up contact and appointments.
Multi-Family Energy Solutions	<ul style="list-style-type: none"> Focus outreach on engaging directly with property owners, such as large real estate enterprises that own multiple multifamily properties, to streamline approvals and improve recruitment across buildings. While maintaining close coordination with building managers, it remains important to support tenant communication and installation scheduling, and developing relationships with decision-makers may reduce project delays and increase participation.
Community Connections	<ul style="list-style-type: none"> Consider removing outlet gaskets from kits due to consistently low installation rates. Within measure kits, include materials that describe the benefits of measures as well as instructions and tips for installing certain measures such as door sweeps and weatherstripping to bolster installation and effectiveness, as well as measure satisfaction levels. This will be particularly important for the pipe wrap and spray foam measures planned to be included next year. Consider diversifying the programs that are cross-promoted in the kits. For example, in addition to the Neighborhood Weatherization Program, consider including materials on other income-qualified or free energy efficiency program offerings such as the Targeted Income Program or the Home Energy Assessments offering. While establishing partnerships with new food banks and trustee offices, share educational materials to help spread awareness of CenterPoint Energy's sponsorship of the program and other offerings to customers served by program partners.
Residential Behavioral Savings	<ul style="list-style-type: none"> Introduce a customer survey to monitor satisfaction and involvement with the weekly AMI reports to evaluate what is working well and what can be modified. In annual reports, consider providing information on seasonal energy usage trends and positive feedback on customers' habits or behaviors that have reduced energy costs or increased the energy efficiency of their homes. Work with the implementer to identify different messaging or targeted recommendations for Wave 1 in 2026. Compare performance of new Wave 5 enrollees to Wave 5 enrollees previously enrolled in a prior wave to identify effects of extended versus new education on energy efficiency.

Program	Recommendations
	<ul style="list-style-type: none"> Consider marketing the My Energy Analyzer tool to customers outside the Residential Behavioral Savings Program and monitoring customer satisfaction with the tool to identify areas for improvement. For example, the tool could be marketed through other residential programs such as Energy Efficient Schools or Multi-Family Energy Solutions. Continue collecting monthly billing data for all MEA survey completes and continue to monitor the potential for this tool to produce savings in future evaluation years.
Smart Cycle	<ul style="list-style-type: none"> Establish historically achievable participation and savings goals based on the number of customers eligible for the Smart Cycle program. Increase visibility of incentives and participation benefits in marketing materials and on CenterPoint Energy's website. Promotional efforts should emphasize the quick installation process, ease of use, and additional benefits smart thermostats offer beyond traditional thermostats. Consider conducting research with nonparticipants through a survey or virtual focus groups to investigate the reasons why customers might be reluctant to participate and assess factors that may increase motivation to participate in the program. Conduct a literature review or benchmarking study that compares the Smart Cycle program to similar programs to assess incentive levels, program implementation steps, marketing materials, or other strategies that these programs have used to encourage participation and engagement. For planning purposes, assume no coincident peak demand reduction for normal use of smart thermostats until updated guidance is adopted.
Commercial and Industrial Programs	
C&I Prescriptive	<ul style="list-style-type: none"> Enhance website tools and product descriptions to help customers identify eligible equipment. For example, enable users to search for eligible products by model number and ensure that product descriptions are clear and comprehensive.
C&I Midstream	<ul style="list-style-type: none"> Conduct a review of the Midstream program portal to identify opportunities to streamline required processes. In future evaluations, Cadmus can add survey questions specifically about the program portal to pinpoint challenges experienced by distributors and identify areas for improvement.
C&I Custom	<ul style="list-style-type: none"> Continue to leverage targeted outreach to large customers through energy managers. During outreach, energy managers should set expectations regarding potential delays due to market conditions to build trust with participants early in the project life cycle and increase project completion rates amid external cost pressures and financing concerns. Assume IECC 2018 as the baseline moving forward for baseline lighting power density factors, since ASHRAE 90.1-2007 is now very out of date regarding both standard practice and technology availability. Consider updating modeling practices to use TMY datasets from the National Solar Radiation Database (NSRDB) instead of TMY3 datasets to obtain more accurate results. Additionally, consider moving toward an hourly energy modeling analysis instead of the temperature bin analysis for increased precision of modeled energy and demand savings. Adjustments on the basis of modeling practices were not made in the 2025 evaluation.

Program	Recommendations
Building Optimization	<ul style="list-style-type: none"> • Formalize a proactive referral and screening process for high-potential facilities by developing a structured framework for Key Account Managers and internal staff to systematically identify strong candidates for the program based on energy usage levels, BAS readiness, and customer inquiries (e.g., billing or rate-related concerns). A standardized screening checklist could improve efficiency in qualifying customers and reduce time spent pursuing ineligible facilities. • Develop case studies using projects that have participated in the MBCx pathway to demonstrate value and build awareness among prospective customers. Share these case studies directly with facilities that have advanced BAS capabilities to increase adoption among technically qualified customers. • Similar to projects in the Custom program, building optimization projects rely on weather-dependent energy modeling that uses TMY3 weather data to estimate energy savings. Given the TMY3 dataset was published almost 20 years ago, the evaluation team notes that the National Solar Radiation Database (NSRDB) TMY datasets, which are updated annually, could support more accurate energy modeling.
Small Business Energy Solutions	<ul style="list-style-type: none"> • Enhance the Energy Assessment Reports delivered to small business customers by adding information about the SBES program and highlighting equipment offered through the program. • Consider conducting a survey of participating contractors to gather feedback on the mobile assessment tool and identify opportunities for improvement. • Provide training, technical assistance and ongoing support to contractors to resolve challenges and increase adoption of the tool. • If cost-effective, consider offering additional types of HVAC equipment through the program.

2. Key Findings, Conclusions, and Recommendations

2.1. Residential Programs

2.1.1. Home Energy Solutions Program

Through the **Home Energy Solutions** suite of programs, CenterPoint Energy seeks to achieve energy savings by influencing residential customers to purchase energy-efficient residential equipment and products. In 2025, CenterPoint changed the overarching program name to Home Energy Solutions to better fit the new and updated delivery channels. The program includes four channels: **Residential Prescriptive**, **Residential Midstream**, **Home Energy Assessments** and **In Store Discounts**.

Contractors/vendors working within the program may present rebates as instant discounts to CenterPoint Indiana residential customers on their invoices. CLEAResult is the program implementer for all the delivery channels in partnership with CenterPoint Indiana –South.

Following are descriptions of the four channels:

- Through the **Residential Prescriptive** channel, CenterPoint Energy offers downstream prescriptive rebates for a variety of measures, such as smart thermostats, HVAC equipment, appliances, and attic insulation/duct sealing. Projects are eligible for a rebate after a customer installs qualifying equipment. CenterPoint Energy provides the rebate either directly to the customer or, if authorized by the customer, to the project contractor, who passes the rebate on to the customer on the utility's behalf. To receive the rebate directly, customers complete and submit a rebate application through an online portal, by email, or by mail. Some contractors give customers the option of deducting the rebate from their project cost. In these cases, the customer authorizes the contractor to submit the rebate application and receive the rebate payment.
- The **Residential Midstream** channel provides incentives directly to distributors for qualifying HVAC equipment sales. Participating distributors and contractors collect the required information directly from their customers, which allows them to confirm eligibility and provide an instant discount on eligible equipment. CenterPoint Energy then reimburses distributors for the incentive amount. Distributors are required to pass at least some of the incentive onto their customers (who are typically contractors and occasionally end users) and inform them of their rebate from CenterPoint Energy. The channel focuses primarily on higher-efficiency HVAC equipment models than those available in the prescriptive channel. In 2023, the program implementer introduced a hybrid approach that allowed eligible, high-sales contractors to stock their own equipment and receive program incentives/rebates directly, rather than partnering with a participating distributor.
- CenterPoint Energy launched the **Home Energy Assessments** channel in 2025. Through this channel, market rate customers receive in-home energy assessments, direct installation of energy-saving measures such as air filters, aerators, and smart thermostats, and education on ways to save energy through additional weatherization measures.
- The **In Store Discounts** channel is a market-based channel intended to reach customers through retail stores. The program operated using a buy-down strategy that provides incentives to

customers to encourage/facilitate the purchase of energy efficient products. The channel initially offered the following measures:³

- Advanced power strips
- Air filters
- Air purifiers
- Bathroom vent fans
- Dehumidifiers
- Door and window weatherstripping
- Door sweeps
- Room AC units
- Spray foam

Customer Satisfaction

The program continued to achieve high satisfaction ratings from participants in the *Residential Prescriptive* channel. In customer surveys, 97% of respondents (n=161) said they were satisfied with the program overall, which is consistent with 2025. Additionally, 98% of respondents were likely to recommend the program (n=154) and 94% were satisfied with CenterPoint Energy's effort to help manage monthly usage (n=135).

Midstream Trade Allies

Despite market uncertainty and economic challenges, satisfaction remained high among participating trade allies. The evaluation team conducted surveys of participating contractors (15 total responses) and distributors (five total responses). Seven of 14 responding contractors and three of five distributors reported experiencing challenges related to market conditions in 2025, including price increases due to tariffs and supply chain issues that affected product availability and shipping times. Interviews of program staff supported these findings, with the implementer noting that general market uncertainty created challenges with program participation.

Despite these challenges, satisfaction remained high among trade ally participants. All five distributor survey respondents and 13 of 15 contractor survey respondents reported satisfaction with the Midstream program overall. One dissatisfied contractor said that incentives used to be higher, and the other dissatisfied contractor expressed that the program was easier to participate in when equipment dealers were more involved.

Home Energy Assessments

The Home Energy Assessments channel performed well in its first year of implementation. The channel achieved 118% of its electric participation goal in 2025. CenterPoint Energy and implementer staff noted that customers are happy with the assessments and discounted energy-saving measures provided

³ CenterPoint Energy may add other measures after confirming their cost-effectiveness.

through this channel. The channel provides services similar to those of the IQW program for market rate rather than low-income customers.

Recommendation: In future evaluations, incorporate Home Energy Assessment participants into quarterly Home Energy Solutions surveys to assess channel satisfaction and identify strategies to encourage cross-participation in other Home Energy Solutions offerings among market-rate customers.

In Store Discounts

The In Store Discounts channel fell short of its goals due to administrative delays and challenges with national retailers. Program staff reported that the channel launched later than anticipated in 2025 due to administrative delays related to program contracts, tariffs, and product shipments. After launching the channel, the implementation team saw a strong upward participation trend. Despite this, the program fell short of both its participation (67%) and savings (89%) goals. The program implementer mentioned challenges with ensuring that national participating retailers were following the program's pricing label and discount guidelines and delays in data reporting for data that originated from national retailer(s). Despite the challenges with ramping up the program in 2025, the impact evaluation shows the program is popular with shoppers with Pipe Insulation being the most popular measure.

Recommendation: Review pricing label and discount guidelines to ensure that requirements are clear and easy to follow. Maintain consistent communication with participating national retailers to make sure that they understand and follow reporting requirements.

Impact Evaluation Overview

Table 5 lists the evaluated savings summary for the Home Energy Solutions Program. Cadmus evaluated savings for each measure in the tracking database using savings analyses derived primarily from the Illinois TRM v13.0, the Indiana TRM v2.2, and participant survey data. *Appendix A* provides additional details for the calculations and assumptions used to estimate gross savings.

Table 5. 2025 Home Energy Solutions Program Electric Savings

Component	Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
		Reported	Audited	Verified				
Residential Prescriptive	Total kWh	302,671	302,671	286,973	349,252	115%	66%	230,261
	Total kW	92	92	304	29	32%	67%	20
Midstream	Total kWh	2,773,133	2,773,133	2,679,155	3,455,245	125%	41%	1,416,651
	Total kW	790	790	2,348	202	25%	41%	83
Home Energy Assessments	Total kWh	255,102	253,743	252,754	247,663	97%	89%	221,230
	Total kW	31	11	11	33	105%	87%	29
In Store Discounts	Total kWh	405,480	405,480	383,142	564,268	139%	78%	439,640
	Total kW	44	44	83	41	94%	73%	30
Total^a	Total kWh	3,736,386	3,735,027	3,602,023	4,616,428	129%	51%	2,307,781
	Total kW	957	937	2,746	305	32%	51%	161

^a Totals do not represent sum of the parts due to rounding. Reported Total kWh taken from 2025 Electric Scorecard including Overdrive funding

CenterPoint Energy's *ex ante* savings for the Residential Prescriptive, Midstream, Home Energy Assessments, and In Store Discounts channels are derived primarily from 2025 program-evaluated savings. Most of the measures used the methodology from the Illinois TRM v13.0, since Indiana adopted this TRM. Differences between *ex ante* and *ex post* savings are largely due to differences in key inputs for the previous and current methodology, as well as participant survey results and program tracking data.⁴

Table 6 through Table 9 provide per-unit annual gross savings for each program measure by channel.

Table 6. 2025 Home Energy Solutions Program Gross Savings – Residential Prescriptive Channel

Measure Group	Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
		Reported	Evaluated	Reported	Evaluated
Appliance and Plug Load Reduction	Air Purifier	10,460.86	9,553.00	1.225	1.090
Appliance and Plug Load Reduction	Clothes Dryer	30,807.61	32,127.00	4.136	4.310
Appliance and Plug Load Reduction	Clothes Washer	34,981.76	40,904.00	4.500	5.270
Appliance and Plug Load Reduction	Dehumidifier	8,442.00	25,262.00	1.890	5.740
HVAC	AC Tune Up	22,484.70	37,343.00	7.354	0.200
HVAC	HP Tune Up	2,530.64	4,838.00	0.354	0.340
Other	HP Water Heater	33,330.42	45,742.00	1.579	2.170
Other	Pool Heater COP >= 6	1,492.00	1,211.00	0.022	0.000
Other	Pool Heater COP 5.5-5.9	5,404.00	3,757.00	0.080	0.000
Thermostats	Smart Programmable Thermostat - South (Dual)	68,315.53	32,421.00	44.550	0.320
Thermostats	Smart Programmable Thermostat - South (Electric)	19,382.80	43,952.00	0.000	0.000
Thermostats	Wifi Thermostat - South (Dual)	0.00	0.00	0.000	0.000
Thermostats	Wifi Thermostat - South (Electric)	0.00	0.00	0.000	0.000
Weatherization	Attic Insulation (Dual Fuel)	25,724.40	13,686.00	21.568	5.850
Weatherization	Attic Insulation (Electric)	39,314.00	58,456.00	4.389	4.180
Weatherization	Duct Sealing South (Dual Fuel)	0.00	0.00	0.000	0.000
Weatherization	Duct Sealing South (Electric Only)	0.00	0.00	0.000	0.000

⁴ Changes in year-to-year program tracking data include installed equipment efficiencies, equipment age, home square footage, installation location, baseline information (i.e., programmable thermostat prevalence and usage patterns), percentage of installations considered to be early replacements, etc.

Table 7. 2025 Home Energy Solutions Program Gross Savings – Midstream Channel

Measure Group	Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
		Reported	Evaluated	Reported	Evaluated
HVAC	Air Source HP 14 SEER	20,107.62	23,668.00	0.0	4.860
HVAC	Air Source HP 15 SEER	160,338.76	383,204.00	36.1	93.790
HVAC	Air Source HP 16 SEER	98,647.18	107,869.00	20.4	12.090
HVAC	Air Source HP 17 SEER	403,047.87	595,311.00	80.8	46.710
HVAC	Central Air Conditioner 14 SEER2	202,140.12	172,001.00	147.4	3.880
HVAC	Central Air Conditioner 15 SEER	332,748.00	370,024.00	204.1	4.840
HVAC	Central Air Conditioner 16 SEER	123,753.50	211,171.00	75.9	1.640
HVAC	Central Air Conditioner 17 SEER	292,752.00	542,896.00	144.1	2.890
HVAC	Ductless HP 17 SEER 9.5 HSPF	0.00	0.00	0.0	0.000
HVAC	Ductless HP 18 SEER 9.5 HSPF	35,759.04	82,810.05	3.7	-0.086
HVAC	Ductless HP 19 SEER 9.5 HSPF	71,203.60	60,660.47	3.3	1.885
HVAC	Ductless HP 20 SEER 10 HSPF	235,519.60	208,811.72	11.9	5.846
HVAC	Ductless HP 21 SEER 10 HSPF	243,078.00	204,866.22	13.0	6.733
HVAC	Ductless HP 22 SEER 10 HSPF	71,818.50	85,813.49	4.0	2.537
HVAC	Ductless HP 23 SEER 10 HSPF	367,098.00	323,362.32	27.5	13.925
Other	HP Water Heater	0.00	0.00	0.0	0.000
Thermostats	Wifi Thermostat - South (Dual)	88,291.80	41,381.00	0.0	0.000
Thermostats	Wifi Thermostat - South (Electric)	26,829.00	41,396.00	18.2	0.000
HVAC	Ductless HP 23 SEER 10 HSPF	20,107.62	23,668.00	0.0	4.860

Table 8. 2025 Home Energy Solutions Program Gross Savings – Home Energy Assessments Channel

Measure Group	Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
		Reported ^a	Evaluated	Reported ^a	Evaluated
Weatherization	Air Sealing Electric only	1,879.30	34.45	0.350	0.005
Weatherization	Air Sealing Gas Heating with A/C	3,122.01	1,762.98	1.890	0.918
Water-Saving Devices	Bathroom Aerator 1.0 gpm - Elec DHW	544.80	1,158.11	0.749	1.752
Weatherization	Door Sweep-Dual	5,752.91	380.64	0.152	0.299
Weatherization	Door Sweep-Electric	1,980.51	2,226.96	0.052	0.103
Weatherization	Door/Window Weather Stripping-Dual	12,346.34	411.05	0.125	0.252
Weatherization	Door/Window Weather Stripping-Electric	2,511.12	2,880.48	0.025	0.051
Weatherization	Duct Sealing Gas Heating with A/C	622.60	534.12	0.393	0.235
Water-Saving Devices	Kitchen Flip Aerator 1.5 gpm - Elec DHW	4,268.80	4,485.37	0.838	0.801
Lighting	LED Nightlight	31,411.86	31,489.66	0.000	0.000
Water-Saving Devices	Low Flow Showerhead 1.5 gpm - Elec DHW	3,241.68	5,820.96	0.315	0.580
Weatherization	Outlet Gaskets-Dual	2,319.85	664.00	0.263	0.522
Weatherization	Outlet Gaskets-Electric	810.55	917.44	0.092	0.182
Other	Pipe Wrap - Elec DHW (per home)	2,860.90	2,032.30	0.323	0.232
Audit Education	Site Visit and DI - Dual (Gas and Electric)	89,259.52	89,259.52	0.000	0.000
Audit Education	Site Visit and DI - Electric Only	16,126.72	16,126.72	0.000	0.000
Appliance and Plug Load Reduction	Smart Power Strips	45,520.00	45,520.00	5.121	5.108
Thermostats	Smart Thermostat - Dual (Gas & Electric)	24,561.60	35,839.63	0.000	20.952
Thermostats	Smart Thermostat (Electric)	3,464.56	5,821.32	0.000	0.749
Other	Water Heater Temperature Setback - Elec DHW	1,137.78	296.90	0.129	0.034

^a Reported savings at the measure level from program tracking database does not match 2025 Electric Scorecard.

Table 9. 2025 Home Energy Solutions Program Gross Savings – In Store Discounts Channel

Measure Group	Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
		Reported	Evaluated	Reported	Evaluated
Appliance and Plug Load Reduction	Air Filter	50,458.35	40,040.50	0.000	13.165
Appliance and Plug Load Reduction	Air Purifier	12,780.00	8,772.17	1.470	1.002
Appliance and Plug Load Reduction	Dehumidifier	13,132.00	42,643.86	2.940	9.692
Appliance and Plug Load Reduction	Smart Power Strips	8,804.40	19,470.16	0.994	2.185
HVAC	ENERGY STAR Room AC	6,522.12	6,920.74	5.173	2.156
Other	Bathroom Vent Fan	1,791.00	1,427.61	0.212	0.008
Other	Pipe Insulation	282,807.00	105,541.18	32.285	12.040
Weatherization	Door Sweep	26,595.42	337,436.24	0.702	0.940
Weatherization	Spray Foam	2,590.10	1,787.17	0.000	0.021
Weatherization	Weatherstripping	0.00	228.33	0.000	0.000

The following section describes measures with substantial differences between *ex post* and *ex ante* savings by program channel.

Residential Prescriptive

The following are the notable assumption differences between *ex ante* and *ex post* savings:

- **Dehumidifiers.** Differences in *ex ante* and *ex post* savings for dehumidifiers are mainly due to the differences in methodology for this evaluation using the Illinois TRM v13.0. Notably, the coincidence factor increased. The average capacity of pints per day also increased, based on the tracking data and ENERGY STAR's Qualified Product List (QPL).
- **Thermostats.** CenterPoint Energy appears to have used the proportion of learning and non-learning thermostats and ASHP average capacity from Cadmus' 2024 evaluation to determine savings. Cadmus followed the Illinois TRM v13.0 to determine the thermostat's *ex post* savings with program data. The differences between *ex ante* and *ex post* are largely due to differences in the program tracking data, responses to the participant surveys, and the Illinois TRM v13.0 assumptions.

Midstream

The majority of the Midstream channel's *ex ante* savings were based on evaluated savings for similar measures in the 2023 evaluation and differences in methodology from using the Illinois TRM v13.0. Following are notable assumption differences between *ex ante* and *ex post* savings:

- **Ductless Heat Pumps.** The updated algorithm in the Illinois TRM v13.0 primarily drives the differences in *ex ante* and *ex post* savings. This measure has seen an approximate 30% increase in savings across the board. The driving factor of the differences are the different EFLH values.
- **Air Source Heat Pumps.** Differences in reported-to-evaluated savings for ASHPs are primarily due to the differences in using the Illinois TRM v13.0 methodology. The main significant update to the savings formula was a significant change in EFLH values (for both heating and cooling).

Home Energy Assessments

The following are the notable assumption differences between *ex ante* and *ex post* savings:

- **Air Sealing.** Differences in reported-to-evaluated savings for air sealing are primarily due to the program tracking database showing no change in CFM50 before and after air sealing took place. Reported savings assumes a fixed, deemed savings amount per project regardless of leakage reduction while evaluated savings are calculated using the leakage reduction recorded in the tracking database.
- **Duct Sealing.** The program tracking database did not include before and after duct leakage measurements. Cadmus adopted assumptions for the duct sealing measure from the 2025 Income Qualified Weatherization program to calculate evaluated savings.
- **Water-saving devices.** It is unclear how reported savings were calculated, but disparities in savings for water-saving devices (including bathroom aerators, kitchen aerators, and showerheads) likely stem from variations in input assumptions. Cadmus used algorithms and assumptions from the Illinois v13.0 TRM, including inputs that have historically been sourced from the older Indiana TRM v2.2 or participant survey data, such as people per home, showers per home, in-service rates (ISRs), fixtures per home, and water supply temperature.
- **Weatherization.** Reported savings for weatherization measures (including door sweeps, weatherstripping, and outlet gaskets) uses deemed per unit savings consistent with electrically heated homes for all projects regardless of space heating fuel type. Evaluated savings attribute savings based on fuel types in the program tracking database.
- **Water Heater Temperature Setback.** Evaluated savings were less than reported savings due to differences in hot water temperature setpoint assumptions before and after the setpoint adjustment. The difference in temperature setpoints used for reported savings is from previous research for other CenterPoint Energy programs (about 15°F), compared with 5°F used for evaluated savings consistent with the Illinois TRM v13.0.
- **Pipe Wrap.** Reported savings for pipe wrap are higher than evaluated savings because they are calculated using the full length of pipe wrap installed rather than the effective length. Evaluated savings first calculates effective feet of pipe wrap installed based on water pipe orientation assumptions in the Illinois TRM v13.0 using its horizontal to vertical adjustment factor.
- **Thermostat.** Evaluated savings follows all assumptions in the Illinois TRM v13.0. This includes air handler electric energy savings for households with gas heat that appears to be missing from reported savings. This in combination with updated assumptions for heating and cooling capacity, full load hours, and heating and cooling reduction factors resulted in higher evaluated savings compared to reported.

In Store Discounts

The majority of the In Store Discount's *ex ante* savings were based on evaluated savings for similar measures in the 2024 evaluation and differences in methodology from using the Illinois TRM v13.0. Following are notable assumption differences between *ex ante* and *ex post* savings:

- **Door Sweeps.** Differences in reported-to-evaluated savings for ASHPs appear to be primarily due to the differences in using the Illinois TRM v13.0. For the *ex post* savings methodology, Cadmus used the Air Sealing, Methodology 2: Prescriptive Infiltration Reduction Measures.
- **Dehumidifiers.** Differences in *ex ante* and *ex post* savings for dehumidifiers are mainly due to the differences in methodology for this evaluation using the Illinois TRM v13.0. Notably, the coincidence factor increased. The average capacity of pints per day also increased, based on the tracking data and ENERGY STAR's Qualified Product List (QPL).

2.1.2. Energy Efficiency Store Program

CenterPoint Energy launched the **Energy Efficiency Store** in 2021 as the Online Marketplace. Through this program, customers can receive an instant discount for online purchases of measures including specialty LEDs, smart thermostats, advanced power strips, and air purifiers. Until 2025, the program was structured as a channel within the Home Energy Solutions Program. Franklin Energy took over as the program implementer in Q4 2025, which contributed to the Energy Efficiency Store becoming a standalone program.

Progress toward Program Goals

The program fell short of its electric participation and savings goals, partially due to goal setting inconsistencies. The program achieved just 27% of its participation goal and 34% of its savings goal in 2025. CenterPoint Energy staff noted that although the electric customer base is much smaller than its gas counterpart in CenterPoint Energy's northern territory, the electric participation goal of 7,209 products sold, was higher than the gas participation goal of 4,731 products sold. Implementer staff explained that the goals for gas versus electric participation in 2025 were not a proper fit. As a correction, in 2026 the gas goals are higher and the electric goals are lower than for 2025. Additionally, the incentive split for dual fuel customers was changed in July 2025 from 50% electric and 50% gas to 80% electric and 20% gas to align with desired savings goals. This adjusted incentive split will remain the same for 2026. CenterPoint Energy staff also suggested following up with customers who did not complete the purchase of the items they put in their carts and contacting customers who previously purchased items through the store to increase participation.

Recommendation: Reevaluate electric participation and savings goals to ensure that these goals are achievable. Goals should consider the size of the electric customer base, historical participation rates, and historical savings.

Recommendation: Consider conducting a survey of nonparticipants and partial participants (customers who added items to their cart but never made purchases) to evaluate reasons for nonparticipation and potential areas for improvement.

Participant Satisfaction

Program satisfaction remained high, but participants offered suggestions for improvement. The program's historically high satisfaction levels continued into 2025, with 95% (n=184) of survey participants reporting satisfaction with the program overall, which is consistent with 2024 (95%, n=174). Similarly, 90% (n=174) reported satisfaction with the measure they purchased and installed, and 88% (n=188) said they

were likely to recommend the Energy Efficiency Store to a friend or neighbor. Participants also expressed high satisfaction with specific aspects of the store, including the process of completing their order (95%, n=180) and the time it took for shipping and delivery (95%, n=183).

When asked if there was anything that CenterPoint Energy could have done to improve their overall experience with the Energy Efficiency Store, 29% of respondents (n=109) offered suggestions for improvement. The most common suggestions were to add more products to the store (19%), increase rebate amounts (13%), and improve customer service (9%) (n=32). Two respondents who suggested adding more products to the store specified that additional appliances and additional energy-efficient LED light bulbs should be added. Notably, six respondents expressed frustration with the smart thermostat they purchased through the store due to compatibility issues or not knowing how to install it.

Recommendation: For customers that purchase smart thermostats through the Energy Efficiency Store, send a follow-up email after purchases providing information on how to answer questions about smart thermostat installation and use.

Recommendation: Add information to smart thermostat product descriptions informing customers of the potential need for wire connection adapters and promote the availability of adapters through the Energy Efficiency Store.

Impact Evaluation Overview

Table 10 presents the evaluated savings summary for the Energy Efficiency Store Program.

Table 10. 2025 Energy Efficiency Store Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	544,034	544,034	539,132	484,534	89%	87%	420,459
Total kW	166	12	166	82	50%	87%	71

Table 11 provides per-measure annual gross savings for each program measure (incentive type).

Table 11. 2025 Energy Efficiency Store Program Per-Unit Gross Savings

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported	Evaluated	Reported	Evaluated
Smart Thermostat - South (Dual - Gas & Electric)	199	199	0.09	0.07
Smart Thermostat - South (Electric Only)	742	912	0.3	0.07
Deluxe (5) Window Insulation Kit	3	78	0.0	0.0
Weatherstripping	5	30	0.0	0.0
Pipe Insulation	334	89	0.04	0.01
Air Purifier	61	209	0.01	0.04
Kitchen Aerator	141	30	0.03	0.01
Bathroom Aerator	36	13	0.05	0.02

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported	Evaluated	Reported	Evaluated
Smart Power Strips	22	103	0.0	0.01
Switch and Outlet Sealing Gaskets, (10) pieces each	17	52	0.0	0.01
Dehumidifier	98	71	0.02	0.02
Showerhead – Fixed	321	220	0.03	0.03
Showerhead - Handheld	321	0	0.03	0.0
Showerstart TSV	14	67	0.0	0.06
T8 LED Lighting	116	106	0.01	0.02

2.1.3. Residential New Construction Program

Through the **Residential New Construction Program**, CenterPoint Energy provides incentives to builders who include energy-efficient measures in their newly constructed homes. All builders constructing a high-efficiency home to the program specifications in CenterPoint Energy's service territory are eligible to participate in the program. The program also educates builders on the benefits of energy efficient new homes.

Participants can select from two tiers of high-efficiency measures, allowing a flexible approach to fulfilling participant demand and maximizing efficiency gains at the measure level. The 2025 incentive structure includes individual measures that are referred to as *a la carte measures*, and several measure bundles that are referred to as *Builder Option Packages* or *BOPs* (see *Appendix A* for the full list). The BOP measures come in two tiers with a similar structure. BOP1 measures include installation of HVAC and DHW equipment that meet certain efficiency criteria and of smart thermostat controls. BOP2 measures include the same measure categories as BOP1 but typically have higher equipment efficiency criteria and require achieving at least 4.5 ACH50 air tightness. The program also provides a bonus incentive for homes that achieve a HERS score of 52 or lower.

Program and Incentive Structure Satisfaction

Builders reported high satisfaction with the incentive structure and program overall. The evaluation team received 13 total survey completions from participating builders. Eleven of 12 responding builders reported being satisfied with the program application process, the incentive structure, and the program overall. Eleven builders said they were *very likely* and one builder said they were *somewhat likely* to recommend the program to other builders.

For a majority of builders (12 of 13), the financial incentive was the primary motivator for participation. When asked about the incentive path they used most frequently, seven chose the *BOP* path, while five chose the *a la carte* path (n=12). Those who prefer the *BOP* path pointed to higher rebates, alignment with the equipment they typically install, and the desire to maintain consistency between the builder and the subcontractor by following a standardized process. Builders cited reasons such as customization and ease of use for using the *a la carte* option more frequently.

Recommendation: Encourage greater use of the BOP path by highlighting its rebates and alignment with commonly installed equipment. Developing and sharing case studies of builders successfully maintaining consistency with subcontractors could motivate other builders to adopt this path more frequently.

Program Performance

The Residential New Construction Program achieved its participation goal for electric but fell short of its savings goal, reaching 78% of planned kWh savings. The program implementer reported that new builders and HERS raters joined the program in 2025. The implementer attributed this increase in participation to enhanced marketing efforts targeted directly at builders, including outreach events through local chapters of building associations and distribution of marketing materials such as handouts. Program staff anticipate further expanding participation in 2026.

However, survey results suggest an opportunity to increase awareness among builders: only three of 13 respondents reported being aware of any CenterPoint Energy sponsored participant events. Limited program awareness was also the most frequently cited challenge associated with participating in the program (4 of 13 respondents), followed by high up-front costs (3 respondents) and the lengthy process and paperwork (3 respondents).

In addition to challenges reported by builders, the implementer also noted changes in personnel among participating builders in 2025. Staff transitions and onboarding processes affected the timing of paperwork submissions and caused project delays.

Recommendation: Leverage relationships with HERS raters, who have strong networks within the builder community, to help extend program reach. Consider providing incentives to HERS raters for each new builder they refer who becomes a program participant.

Recommendation: To increase program energy savings, explore ways to encourage adoption of higher-impact measures. For example, provide builders with tools, guidance, or incentives for installing measures with high savings per installation.

Recommendation: Provide targeted communications and onboarding and technical support to builders to increase awareness of program resources and events and reduce submission delays during staff transitions. For example, consider creating a comprehensive onboarding kit for new builders that includes program materials, answers to frequently asked questions, and a recorded webinar demonstrating how to submit paperwork.

Impact Evaluation Overview

For the 2025 evaluation, Cadmus evaluated projects using program documents and TRM-based calculations. The realization rates for the Residential New Construction Program were 190% for energy savings and 371% for demand reduction. Differences in TRM-based savings approaches contributed to very high electric realization rates. For example, reported savings used unknown TRM guidance and assumptions, and evaluated savings used Illinois TRM v13 guidance and program data to calculate savings. The evaluation used the measure home location/zip code to derive weather-dependent variable values for electric heating measures (weighted average per measure) like heat pump heating full load

hours, annual heat pump heating consumption, heat pump HSPF2 (Heating Seasonal Performance Factor 2) climate adjustment, heating N-factor, heat pump heat load factor, and heating degree days. Cooling weather-dependent values (weighted average per measure) include full load cooling hours, cooling N-factor, and cooling degree days. Furthermore, the evaluation used the reported installed equipment efficiencies to calculate average electric cooling (SEER2) efficiencies. Some parameters used in the evaluation relied on TRM default values because they were not recorded in the tracking database; these included heating and cooling capacities, cooling EER2, and heat pump HSPF2. In addition, the evaluation awarded electric savings for the air sealing requirement for BOP2 measures, which were previously excluded from savings.

Based on the review of impact data and calculation methods, the evaluation team developed the following impact-related recommendations:

Recommendation: Consider updating heat pump cooling efficiency participation requirement to exceed the Federal minimum efficiency update in 2023 for northern climate (14.3 SEER2 for heat pumps) in *a la carte* and BOP measures.

Recommendation: Consider including air sealing measure $ACH50 \leq 4.5$ as an *a la carte* measure. Consider tracking home area, ACH50 and CFM50 values, and heating/cooling equipment efficiencies from HERS certifications to calculate savings per TRM. Alternatively, be able to provide a random sample of HERS certs for evaluation to satisfy precision/accuracy requirements.

Recommendation: Consider increasing the heat pump water heater incentive to increase measure quantity (none installed in 2025).

Recommendation: Update deemed savings values for 2026 by using values from the 2025 evaluation. Verify that HERS Bonus Gas/Electric measures do not receive kilowatt-hour savings in program data.

Table 12 presents the evaluated savings summary for the Residential New Construction Program.

Table 12. 2025 Residential New Construction Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	61,328	56,759	56,759	116,595	190%	62%	72,081
Total kW	26	28	28	97	371%	62%	60

Table 13 provides per-measure annual gross savings for each program measure (incentive type).

Table 13. 2025 Residential New Construction Program Per-Unit Gross Savings

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported	Evaluated	Reported	Evaluated
Central Air Conditioner (15+ SEER2)	370	613	0.280	0.552
Heat Pump - Tier 2	842	1,328	0.182	0.585
Smart Tstat - Gas Furn + CAC	315	202	0.150	0.151
Smart Tstat - Heat Pump	510	798	0.000	0.157
Whole Home - BOP 1 - Gas Heat and CAC	315	782	0.150	0.705
Whole Home - BOP 2 - Gas Heat and CAC	315	1,228	0.150	0.946
52 HERS Kicker - Gas Heat + CAC	1,523	0	0.000	0.000

2.1.4. Income Qualified Weatherization Program

Through the **Income Qualified Weatherization (IQW) Program**, CenterPoint Energy offers its low-income customers (up to 200% of the federal poverty level) a walk-through home energy audit that includes full diagnostic testing for the home.

CenterPoint Energy sponsors the program. CLEAResult, as the program implementer, is responsible for scheduling appointments and completing initial assessments with its trained auditors. Auditors recommend weatherization measures or upgrades that facilitate installation of energy-saving measures at no cost to the customer. Auditors help participants schedule follow-up installation appointments with trade allies if professional contractor work is needed.

Gross Savings

An increase in the installation of smart strip measures contributed to greater per home savings in 2025 than in 2024. Savings per home increased to 396 kWh in 2025 from 351 kWh in 2024. This increase was likely driven by the number of homes that received smart strip measures. Smart strips accounted for 15% of all electric energy savings in 2024 compared to 17% in 2025. Smart strip installations increased from 653 in 2024 to 841 in 2025.

Recommendation: Whenever possible, promote installation of smart strips in homes.

Program Satisfaction and Performance

Program satisfaction and performance decreased from 2024 to 2025. The IQW program achieved 103% of its participation goal and 60% of its electric savings goal in 2025, compared with 129% and 112% in 2024, respectively. Satisfaction with the program overall also decreased significantly from 2024 to 2025. In 2025, 82% (n=124) of surveyed participants reported satisfaction with the program overall, and 89% (n=121) said they were likely to recommend the program to a friend or neighbor. In 2024, 91% (n=83) of participants were satisfied with the program overall, and 97% (n=82) said they were likely to recommend the IQW program to a friend or neighbor. Seven of the 20 dissatisfied respondents in 2025 reported that they were told they would receive follow up services such as additional measure installations but never received those services. Feedback from participants on specific measures installed supports these findings;

for example, two respondents dissatisfied with air conditioner tune-ups they received through the program reported that they were told that staff would return to fix their air conditioners, but no one did.

Recommendation: Work with the program implementer, auditors, and trade allies to ensure that they conduct adequate follow-up with participants to increase both participant satisfaction and measure installations. Along with the educational materials left behind after an audit, include materials explaining next steps and timing for subsequent follow-up contact and appointments.

Impact Evaluation Overview

Table 14 lists the evaluated savings summary for the IQW Program data.

Table 14. 2025 Income Qualified Weatherization Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	464,036	464,161	448,792	469,362	101%	100%	469,362
Total kW	85	40	39	94	110%	100%	94

Table 15 provides per-unit annual gross savings for each program measure.

Table 15. 2025 Income Qualified Weatherization Program Per-Unit Gross Savings

Measure	Annual Gross Savings (kWh) ^a		Annual Gross Savings (Coincident Peak kW) ^b	
	Reported	Evaluated	Audited	Evaluated
Bathroom Aerator 1.0 gpm - Elec DHW	11	18	0.010	0.023
Kitchen Flip Aerator 1.5 gpm - Elec DHW	213	56	0.032	0.010
Central Air Conditioner Tune Up	135	162	0.044	0.037
Air Sealing Gas Furnace w/ CAC	116	184	0.070	0.099
Air Sealing Heat Pump	376	547	0.070	0.099
Attic Insulation - Gas Heated (Gas)	0	312	0.000	0.000
Attic Insulation - Combo Gas and Electric	401	1576	0.378	0.755
Central Air Conditioner 15 + SEER2	514	324	0.315	0.297
Furnace Tune Up	0	8	0.000	0.000
HVAC/Furnace Tune Up (With filter replacement - filter whistle savings)	4	0	0.000	0.000
LED Nightlight	27	29	0.000	0.000
Pipe Wrap - Elec DHW (per home)	125	87	0.014	0.010
Refrigerator Replacement	209	177	0.031	0.027
Low Flow Showerhead 1.5 gpm - Elec DHW	125	213	0.011	0.021
Smart Power Strips	80	103	0.009	0.012
Smart Thermostat - Dual (Gas & Electric)	219	294	0.000	0.169
Smart Thermostat (Electric)	866	1429	0.000	0.169
Wall Insulation (Dual Gas & Electric)	260	205	0.200	0.087
Wall Insulation - Electric Only	2939	2690	0.196	0.180
Water Heater Temperature Setback - Elec DHW	81	21	0.009	0.002

Measure	Annual Gross Savings (kWh) ^a		Annual Gross Savings (Coincident Peak kW) ^b	
	Reported	Evaluated	Audited	Evaluated
Door/Window Weather Stripping-Dual	105	3	0.001	0.002
Door/Window Weather Stripping-Electric	105	122	0.001	0.002
Door Sweep-Dual	94	6	0.002	0.005
Door Sweep-Electric	94	116	0.002	0.004
Outlet Gaskets-Dual	6	2	0.000	0.001
Outlet Gaskets-Electric	28	7	0.000	0.001
Duct Sealing Electric only	353	411	0.079	0.058
Duct Sealing Gas Heating with A/C	125	125	0.079	0.058
Duct Sealing Gas Furnace w/ CAC	125	125	0.079	0.058
Site Visit and DI - Dual (Gas and Electric)	188	188	0.000	0.000
Site Visit and DI - Electric Only	188	188	0.000	0.000

^a CenterPoint Energy's 2025 DSM Scorecard did not have kWh savings at the measure level. These per-unit savings reflect audited savings from the 2025 program tracking data.

^b CenterPoint Energy's 2025 Electric DSM Scorecard reported an averaged, per-unit kW savings value.

Appliance and plug load reduction. Differences in savings varied by measure:

- **LED Nightlight** had evaluated savings that were slightly lower on average than reported because reported savings did not account for the electric savings heating penalty for electrically heated homes.
- **Smart Power Strips** had evaluated savings that were slightly higher than reported due to differences in assumptions for the number of plugs in the smart strips. Reported savings were calculated assuming the number of plugs in the smart strips was unknown and applying the corresponding deemed value in the Illinois TRM v13.0. Evaluated savings were calculated assuming the smart strips had seven plugs, which Cadmus confirmed through a data review. We then applied the corresponding deemed value in the Illinois TRM v13.0.
- **Refrigerator Replacement** had evaluated savings slightly lower than reported likely due to differences in assumed UEC baseline, UEC efficient and UEC existing values. Evaluated savings used actual values from looking up model numbers, while reported savings applied general deemed values likely from the Illinois TRM v13.0 to all refrigerator replacements.

HVAC and water heating measures. Differences in savings varied by measure:

- **Air Conditioner tune-ups** had evaluated savings that were higher than reported savings. To determine energy savings and demand reduction, Cadmus used the average capacity of 2025 program-installed central air conditioners as an input to the Illinois v13.0 TRM algorithm. It is unclear how reported savings were calculated, but the main driver for higher evaluated savings in 2025 is likely larger average EFLHcool and cooling capacity values, which are 1,082 hours and 28,526 Btu/hour, respectively.
- **Central Air Conditioner** had lower evaluated savings than reported savings in 2025 likely due to lower average cooling capacities than those used to calculate reported electric savings. Cadmus

used model numbers to look up actual capacities and SEER2 efficiency ratings to calculate savings.

- **Water Heater Temperature Setbacks** had evaluated savings that were less than reported savings due to differences in hot water temperature setpoint assumptions before and after the setpoint adjustment. The difference in temperature setpoints in the 2023 evaluation was about 15°F compared with 5°F in the 2025 evaluation. Another driver for variance in savings is the 83% ISR applied to evaluated savings, which was derived from the 2025 participant survey.

Water-saving devices. Disparities in savings for water-saving devices (including bathroom aerators, kitchen aerators, and showerheads) stem from variations in survey inputs for a single-family home, such as people per home, showers per home, in-service rates (ISRs), and bathroom faucets per home, from year to year as well as the algorithms and assumptions used to evaluate savings. It is unclear how reported savings were calculated as they do not align with calculations in the 2023 evaluation or any previous evaluations. Cadmus used algorithms and assumptions from the Illinois v13.0 TRM.

Weatherization. Reported and evaluated savings for weatherization measures differed widely because each installation had site-specific data that affected the savings attributed to each home while reported savings are based on prior year evaluated savings averages:

- **Air Sealing** had slightly higher evaluated savings than reported savings likely due to differences in algorithms and assumptions used to evaluate savings as well as the measure installation location distribution in 2025. Cadmus used algorithms and assumptions from the Illinois v13.0 TRM as well as site-specific data reported in the tracking data such as measurements recorded from blower door tests. The average difference between the pre- and post-installation air infiltration measurements from the blower door test, a basis of savings for the air infiltration reduction measure, was higher in 2025 than in 2023, at 555 cfm and 496 cfm, respectively.
- **Attic Insulation** and **Wall Insulation** per-unit savings differences were likely the result of different average installed square footage and R-values in 2025. Evaluated savings were calculated using the Illinois v13.0 TRM as well as inputs sourced from the tracking data like square footage and R-values. Attic insulation had higher evaluated savings than reported on average, while wall insulation measures had lower evaluated savings than reported on average

Weatherstripping and door sweeps. Reported and evaluated savings both pulled from the Illinois TRM v13.0 for weatherstripping and door sweep measures but used different assumptions that resulted in lower evaluated savings than reported savings.

- **Weatherstripping.** For weatherstripping measures, reported savings appear to have been calculated by multiplying deemed kWh savings in the Illinois TRM V13.0 by the known length of the weatherstripping. However, the reported savings did not apply deemed savings based on heating and cooling system types. Evaluated savings were substantially less than reported because a large portion of weatherstripping had been installed in homes with gas heat and air conditioning, and reported savings seemed to have been calculated under the assumption that all weatherstripping measures were installed in homes with electric heat.

- **Door sweeps.** Similar to weatherstripping, reported savings did not apply deemed savings based on heating and cooling system types listed in the tracking data. Reported savings seemed to have been calculated under the assumption that all door sweep measures were installed in homes with electric heat resulting in slightly lower evaluated savings than reported.

Outlet Gaskets. Similar to weatherstripping, reported savings did not apply deemed savings based on the heating and cooling system types listed in the tracking data. Reported savings seemed to have been calculated under the assumption that all outlet gasket measures were installed in homes with electric heat resulting in slightly lower evaluated savings than reported. Reported savings also differed from evaluated savings because reported savings did not align with the quantity of outlet gaskets recorded in the tracking data.

Demand reduction. Evaluated demand reduction was significantly higher than reported because 45.39 kW of peak demand savings that were recorded in the scorecard are missing from the tracking data. The missing savings likely were from smart thermostats, which are missing approximately 47 kW of claimable reported savings. Another driver for larger evaluated than reported demand reduction is the differences in coincidence factors used in the 2025 and 2024 evaluations. Evaluated savings used coincidence factors from the Illinois v13.0 TRM, and reported savings used coincidence factors from the Indiana TRM v2.2.

2.1.5. Multi-Family Energy Solutions Program

Through the **Multi-Family Energy Solutions Program**, CenterPoint Energy reduces energy consumption in rental units. CenterPoint Energy provides and arranges for the installation of energy-savings measures, including high efficiency showerheads, aerators, door and window weatherstripping, door sweeps, and smart thermostats, at no cost to tenants or landlords. CLEAResult, the program implementer, is responsible for ensuring that a field supervisor connects with multifamily building managers and for sending a field technician to complete the installations.

Program Performance

Tenants are highly satisfied with the program overall. Surveys of participating tenants indicated positive experiences with both the measures installed and the installation staff. All respondents expressed satisfaction with the measures they received, including kitchen faucet aerators (6 of 6 respondents), bathroom faucet aerators (5 out of 5 respondents), and energy-efficient showerheads (4 of 4 respondents). Additionally, seven of eight respondents reported that the installation staff were *very* courteous and respectful, and one of eight said that staff were *somewhat* courteous and respectful. Implementer interviews supported these findings, with CLEAResult reporting no significant customer satisfaction issues this year.

In 2025, program participation exceeded the planning goal significantly; however, claimed energy savings (kWh) fell short, achieving only 47% of the savings target. The implementer noted that it is challenging to predict the level of opportunity, or number of measure installations, per residential unit. Initial planning anticipated more measure installations per unit than were achieved in the field, which caused the discrepancy between participation and savings progress towards goals.

Outreach and Engagement

Multistep outreach through building managers and owners slows project approvals and can lead to cancellations. Implementer staff noted that program outreach is primarily conducted by a CLEAResult outreach representative. Outreach representatives have experienced challenges stemming from multilayered property management approval processes, which require first securing the building manager's support so they can coordinate with the building owner to approve permanent changes to the building that occur through participation in the program. This process sometimes requires approvals on local, regional, and national levels and can cause delays to scheduling and lead to cancellations.

Recommendation: Focus outreach on engaging directly with property owners, such as large real estate enterprises that own multiple multifamily properties, to streamline approvals and improve recruitment across buildings. While maintaining close coordination with building managers, it remains important to support tenant communication and installation scheduling, and developing relationships with decision-makers may reduce project delays and increase participation.

Gross Savings

Except for smart thermostats, these measures were not evaluated for electricity savings in previous program years. Demand savings were evaluated for 2025, but no *ex ante* demand savings were reported.

Impact Evaluation Overview

Table 16 lists the evaluated savings summary for the Multi-Family Energy Solutions Program. Electricity savings were evaluated using algorithms and modeling assumptions from the Illinois TRM v13.0 and the Indiana TRM's ResStock dataset.

Table 16. 2025 Multi-Family Energy Solutions Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings Reported
	Reported	Audited	Verified				
Total kWh	174,391	174,443	173,153	191,775	110%	100%	191,775
Total kW	295	0	0	51	17%	100%	51

Table 17 provides per-unit annual gross savings for each program measure.

Table 17. 2025 Multi-Family Energy Solutions Program Per-Unit Gross Savings

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported	Evaluated	Reported	Evaluated
Bathroom Aerator	17.57	38.65	0.00	0.04
Kitchen Aerator	175.08	175.08	0.00	0.05
Low Flow Showerhead	245.23	255.22	0.00	0.03
Smart Thermostat – Gas	0.00	36.56	0.00	0.00
Smart Thermostat - Electric	206.20	627.87	0.00	0.05
Smart Thermostat - Dual	219.30	137.03	0.00	0.08
Door Sweep	94.31	5.70	0.00	0.01
Site Visit and Direct Install (includes audit education) - Electric	187.52	0.00	0.00	0.04
Site Visit and Direct Install (includes audit education) - Dual	187.00	0.00	0.00	0.04

There are notable differences in *ex ante* and *ex post* electricity savings. *Ex ante* smart thermostat savings appear to be based on the 2023 evaluation, however the updated evaluation methodology produces higher electricity savings for thermostats controlling electric heating and lower electricity savings for thermostats controlling fossil fuel heat and electric cooling. Additionally, while no electricity savings were claimed *ex ante* for thermostats controlling only fossil fuel heating systems, the Illinois TRM v13.0 specifies savings due to reduced furnace fan electricity consumption.

Evaluated savings for bathroom aerators were much higher than the *ex ante* savings, and savings for door sweeps were much lower. No savings were attributed to the site visit measures, although they were claimed *ex ante*.

2.1.6. Community Connections Program

Through the **Community Connections Program**, CenterPoint Energy partners with food banks and trustee offices in its electric service territory to distribute energy efficient kits at no cost to recipients. Measures in the kits are adjusted each year; in 2025 the kits included a door sweep, six outlet gaskets, and 17 feet of door and window weatherstripping. CenterPoint Energy plans to add pipe wrap and spray foam to the kits in 2026.

Participant Trends

Program and measure-level satisfaction remained high, while installation rates varied. The program’s historically high satisfaction levels continued into 2025, with 10 of 10 survey participants reporting satisfaction with the program overall. Satisfaction with measures included in the kits was also high, with eight of 10 survey participants reporting satisfaction with the door sweep and nine of 10 reporting satisfaction with the weatherstripping. However, low installation levels were reported for the outlet gaskets (5 of 10 respondents), similar to 2024 (56%, n=30). Reasons cited for not installing the measure included already having outlet gaskets (2 of 5 respondents) and not knowing how to install them (1 of 5 respondents). Installation rates for weatherstripping increased, with all 10 respondents reporting

installing the weatherstripping, compared with 67% (n=30) in 2024. Similar to last year, six of 10 respondents reported installing the weatherstripping between two conditioned spaces rather than between conditioned and unconditioned spaces.

Recommendation: Consider removing outlet gaskets from kits due to consistently low installation rates.

Recommendation: Within measure kits, include materials that describe the benefits of measures as well as instructions and tips for installing certain measures such as door sweeps and weatherstripping to bolster installation and effectiveness, as well as measure satisfaction levels. This will be particularly important for the pipe wrap and spray foam measures planned to be included next year.

Awareness of CenterPoint Energy’s sponsorship of the program and effectiveness of cross-promotional efforts decreased. In 2025, four of 10 survey respondents said they were aware that CenterPoint Energy sponsored the Community Connections Program, a decrease from 2024 (45%, n=31) and 2023 (53%, n=30). Furthermore, while awareness of the variety of energy efficiency programs offered by CenterPoint Energy increased in 2025 (3 of 7 respondents) compared to 2024 (24%, n=21), only one of 10 respondents reported having participated in another energy efficiency program offered by CenterPoint Energy as a result of receiving the kit. The Neighborhood Weatherization Program is currently cross-promoted with the Community Connections Program; however, survey participants’ interest in participating in the NWP has fallen from 2023 (56%, n=30) to 2024 (42%, n=31) to 2025 (3 of 10 or 30%). The program implementer indicated plans to expand and diversify the customer reach of the program by changing the kit distribution network of food banks and trustee offices next year.

Recommendation: Consider diversifying the programs that are cross-promoted in the kits. For example, in addition to the Neighborhood Weatherization Program, consider including materials on other income-qualified or free energy efficiency program offerings such as the Targeted Income Program or the Home Energy Assessments offering.

Recommendation: While establishing partnerships with new food banks and trustee offices, share educational materials to help spread awareness of CenterPoint Energy’s sponsorship of the program and other offerings to customers served by program partners.

Impact Evaluation Overview

Table 18 lists the evaluated savings summary for the Community Connections Program. CenterPoint Energy realized 53% of reported annual energy savings and no reported demand reduction. Evaluated savings were lower than reported savings because of differences in ISRs and assumptions about the percentage of homes with electric heat.

Table 18. 2025 Community Connections Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	833,340	833,340	732,701	439,431	53%	100%	439,431
Total kW	26	0	0	56	214%	100%	56

Table 19 provides per-unit annual gross savings for each program measure.

Table 19. 2025 Community Connections Program Per-Unit Gross Savings

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported	Evaluated	Reported	Evaluated
Door and Window Weatherstripping	65.9	29.7	0.0000	0.0013
Outlet Gaskets	3.4	2.5	0.0000	0.0009
Door Sweep	52.8	28.3	0.0000	0.0029

Evaluated savings aligned with the Illinois TRM v13.0 methodology. For weatherstripping, outlet gaskets, and door sweeps measures, the difference between reported and evaluated savings is likely the result of differing assumptions for heating fuel saturations, heating type saturations, and ISRs. Evaluated savings incorporate an ISR for weatherstripping, outlet gaskets, and door sweeps based on 2025 participant survey data. Evaluated savings also assumes fuel and heating equipment saturations from Indiana ResStock data. The equipment saturations based on Indiana ResStock data were used to calculate a weighted average deemed energy savings value from the deemed savings provided for heating and cooling equipment in the Illinois TRM v13.0. For weatherstripping, the ISR was based on whether participants installed the measure, whether they installed all 17 linear feet of weatherstripping, and if not, what percentage of tape they installed. These responses resulted in an ISR of 86%, and the combination of these factors resulted in lower evaluated savings than reported savings.

2.1.7. Residential Behavioral Savings Program

Since 2012, the **Residential Behavioral Savings (RBS) Program** has been sending customers home energy reports (HERs), which provide energy consumption information and encourage the adoption of energy-saving behaviors and home improvements. These reports contain the household's energy use data, a similar-neighbor comparison of energy use, and energy-saving tips. The program also provides energy usage information to all residential CenterPoint Energy customers on the customer's online utility account webpage. Oracle is the program implementer.

The RBS Program uses an experimental design called a randomized control trial wherein customers are randomly assigned to either a treatment group (recipients of HERs) or a control group (nonrecipients). Treatment group customers are mailed print HERs, and those with valid email addresses also receive the reports via email. Control group customers do not receive HERs; the control group's energy consumption provides a baseline for measuring the program's energy savings.

Treatment and control group customers are further segmented into waves according to their CenterPoint Energy fuel service (electric only or dual fuel) and the year in which they were enrolled in the program. CenterPoint Energy operated the 2025 program with seven waves: the 2013 dual-fuel wave, a 2013 electric-only wave, the 2020 dual-fuel wave, a 2022 dual-fuel rolling enrollment wave, a 2023 electric-only wave, and both a 2025 electric-only and gas-only wave.

Program Performance

Modifications to messaging and targeted recommendations contributed to improved program performance in 2025. Progress toward savings goals has increased steadily over time from 2023 (73% of goal) to 2024 (85% to goal) to 2025 (102% to goal). The most significant changes in 2025 were shifting from monthly billing cycle data to AMI data for high bill alerts to increase the accuracy of the bill alert system and implementing opt-in weekly AMI reports. High bill alerts include energy-saving tips, timing-specific actionable recommendations, and daily usage data. The weekly reports communicate trends in energy usage and targeted tips to address where and how customers are using energy within their homes. Near-term plans for the program include improving navigation and widgets within the program's portal on CenterPoint Energy's website and introducing an annual report that will allow customers to view their energy consumption and behavior patterns over the past year. Though exceeding savings goals is an indicator of success, program staff noted that they had no formal way to gauge customer satisfaction with the weekly reports or other implemented changes.

Recommendation: Introduce a customer survey to monitor satisfaction and involvement with the weekly AMI reports to evaluate what is working well and what can be modified.

Recommendation: In annual reports, consider providing information on seasonal energy usage trends and positive feedback on customers' habits or behaviors that have reduced energy costs or increased the energy efficiency of their homes.

Savings and Uplift

Savings for both 2012 and 2020 dual fuel waves remained consistent from 2024 to 2025. Wave 4 (electric only) savings increased from 2024 to 2025 from 0.05% to 0.4%. Wave 1 dual-fuel savings fell from 1.27% to 1.18%, and Wave 2 dual-fuel savings climbed from 0.537% to 0.741%. Wave 3 rolling enrollment dual-fuel savings climbed from 1.959% to 2.029%.

Recommendation: Work with the implementer to identify different messaging or targeted recommendations for Wave 1 in 2026.

Recommendation: Compare performance of new Wave 5 enrollees to Wave 5 enrollees previously enrolled in a prior wave to identify effects of extended versus new education on energy efficiency.

Impact Evaluation Overview

Table 20 lists the evaluated savings summary for the Residential Behavioral Savings Program. The 2025 evaluation resulted in a 72% energy savings realization rate and a 43% demand realization rate. Cadmus deducted 13,528 kWh and 0.01 kW uplift savings to avoid double-counting savings claimed in other CenterPoint Energy programs. Due to inconsistent participant identifiers in the RBS Program tracking data, Cadmus applied 2024 uplift rates to the 2025 year's total savings.

Table 20. 2025 Residential Behavioral Savings Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	6,248,595	6,248,595	6,248,595	7,986,005	128%	100%	7,986,005
Total kW	1,850	1,850	1,850	1,665	90%	100%	1,665

Note: Evaluated savings have not been adjusted for uplift as Cadmus did not find uplift savings in 2025.

Table 21 and Table 22 show the 2025 reported and evaluated program net energy savings and demand reduction and the realization rates for the RBS Program. The reported energy savings and demand reduction are within Cadmus' 90% confidence interval for evaluated *ex post* savings. The confidence interval defines the range of values that are likely (specifically, 90% likely in this case) to contain the true *ex post* savings. If the *ex ante* savings are also within this range then the difference between *ex ante* and *ex post* savings is not statistically significant. Savings in these tables do not include the uplift findings.

Table 21. 2025 Residential Behavioral Savings Program Electric Savings

Customer Segment	Annual Net Electricity Savings (MWh/year) ^a		90% Confidence Interval		Relative Precision	Realization Rate
	Reported	Evaluated ¹	Lower Bound	Upper Bound		
Wave 1 Dual Fuel (2013)	3,978	2,587	-287	5461	±111%	N/A
Wave 2 Dual Fuel (2020)	975	733	-119	1585	±116%	N/A
Wave 3 Dual Fuel (2022)	0	4,335	-350	9021	±108%	N/A
Wave 4 Electric (2023)	298	331	-281	943	±185%	N/A
Wave 5 Electric (2025)	0	0	-573	407	±592%	N/A
Total	6,249^b	7,986	2,286	13,520	±71%	128%

^a Evaluated savings have not been adjusted for uplift.

^b Total reported savings include assumed savings for My Energy Analyzer.

Table 22. 2025 Residential Behavioral Savings Program Demand Reduction

Customer Segment	Annual Net Electricity Savings (MW/year) ^a		90% Confidence Interval		Relative Precision	Realization Rate
	Reported	Evaluated	Lower Bound	Upper Bound		
Wave 1 Dual Fuel (2013)	1.18	0.539	-0.060	1.138	±111%	N/A
Wave 2 Dual Fuel (2020)	0.29	0.153	-0.025	0.330	±116%	N/A
Wave 3 Dual Fuel (2022)	0.00	0.904	-0.073	1.881	±108%	N/A
Wave 4 Electric (2023)	0.09	0.069	-0.059	0.197	±185%	N/A
Wave 5 Electric (2025)	0.00	0.000	-0.119	0.085	±592%	N/A
Total	1.85^b	1.665	-0.336	3.631	±71%	90%

^a Evaluated savings have not been adjusted for uplift.

^b Total reported savings include assumed savings for My Energy Analyzer.

Table 23 shows the reported historical daily savings for all waves of the program.

Table 23. 2025 Residential Behavioral Program Historical Daily Electric Savings per Customer

Program Year	Wave 1 Dual Fuel		Wave 2 Dual Fuel		Wave 3 Dual Fuel		Wave 4 Electric		Wave 5 Electric	
	kWh/day ^a	Percentage ^b	kWh/day ^a	Percentage ^b	kWh/day ^a	kWh/day ^a	kWh/day ^a	Percentage ^b	kWh/day ^a	Percentage ^b
2012	0.211 (0.086)**	0.64%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2013	0.299 (0.101)***	0.96%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2014	0.43 (0.119)***	1.40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2015	0.465 (0.127)***	1.52%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2016	0.443 (0.143)***	1.41%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2017	0.4 (0.149)***	1.34%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2018	0.301 (0.169)*	0.95%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2019	0.476 (0.179)***	1.58%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2020	0.587 (0.186)***	2.02%	0.367 (0.208)*	1.36%	N/A	N/A	N/A	N/A	N/A	N/A
2021	0.448 (0.196)**	1.54%	0.176 (0.1)*	0.50%	N/A	N/A	N/A	N/A	N/A	N/A
2022	0.301 (0.208)	1.05%	0.288 (0.099)***	0.87%	0.122 (0.477)	0.41%	N/A	N/A	N/A	N/A
2023	0.367 (0.208)*	1.36%	0.231 (0.124)*	0.69%	0.004 (0.294)	0.01%	-0.013 (0.087)	-0.04%	N/A	N/A
2024	0.343 (0.217)	1.26%	0.170 (0.160)	0.53%	0.034 (0.136)	0.09%	0.016 (0.096)	0.04%	N/A	N/A
2025	0.335 (0.226)	1.18%	0.254 (0.180)	0.74%	0.831 (0.546)	2.02%	0.148 (0.166)	0.39%	-0.023 (0.084)	0.04%

^a Standard errors clustered on customers are presented after the estimated treatment effect in parentheses (*, **, *** indicates statistical significance at 10%, 5%, 1%). The treatment effects represent the average daily savings per treatment group customer.

^b Percentage savings are relative to control group consumption in the same time period.

In 2025, electric savings decreased slightly for Wave 1 dual fuel from 1.26% in 2024 to 1.18%. Wave 2 dual fuel savings increased from 0.53% in 2024 to 0.74% in 2025.

The program administrator described the customers added starting in October 2022 as backfilling Wave 1, the 2012 dual fuel wave. Cadmus did not consider these customers part of Wave 1 because they were not part of the initial experimental design for Wave 1. Additionally, these customers would not have had the same treatment effect as the original Wave 1 customers because the length of time these newly added customers were exposed to treatment is significantly shorter than the length of time the original customers were exposed. Instead, Cadmus modeled savings for these customers as a rolling monthly wave—Wave 3. Wave 3 displayed savings of 0.831 kWh per day in 2025, an increase from 0.034 kWh per day in 2024.

The electric-only Wave 4 produced positive savings in 2025 of 0.39%, an increase from 0.04% in 2024; the new electric-only Wave 5 produced negative but statistically insignificant savings of 0.04%. In total, the program showed mostly positive but statistically insignificant savings in 2025. This is potentially due to cohort times; program cohorts are either aging (Wave 1 and Wave 2) or relatively new (Wave 3 through Wave 5).

My Energy Analyzer Tool

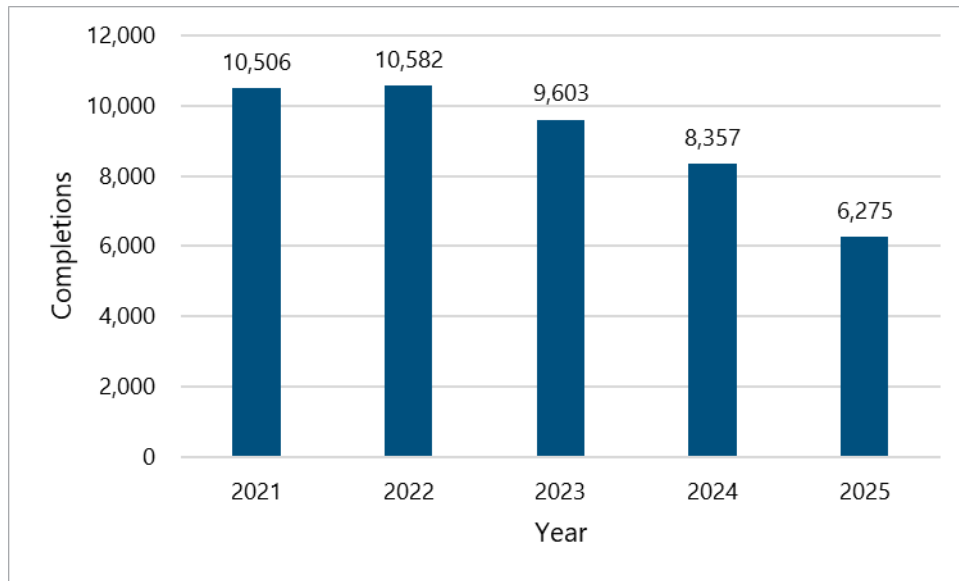
My Energy Analyzer (MEA) is a free, online tool that provides customers with education about and strategies for reducing energy consumption in their homes. Customers can access the tool through CenterPoint Energy's website. The tool uses actual billing data as well as the results of a brief survey on home characteristics and energy usage behaviors to provide tips and rebates specific to the customer as well as a comparison with neighboring customers' energy usage. The tool runs in conjunction with, and is promoted through, the Residential Behavioral Savings Program Home Energy Reports (HERs), which provide energy consumption information and encourage adoption of energy-saving behaviors and home improvements. Oracle is the tool's implementer.

Program Participation and Planning

Engagement with the My Energy Analyzer tool has consistently decreased since 2022. In 2025, a total of 6,275 customers⁵ completed the energy analyzer survey, compared with 8,357 completions in 2024. This decrease in survey completions continues a trend that began in 2023, as shown in Figure 1.

⁵ Completion data is a count of all customers with the status of "Completed" in the HEA Status Extract file. [opwr vec hea status extract 20260113 - Clean.csv](#)

Figure 1. Number of My Energy Analyzer Survey Completions (2021–2025)



Implementer staff noted that approximately 40,000 customers receive weekly AMI reports as part of the Residential Behavioral Savings program, which suggests that engagement with the My Energy Analyzer survey may be reaching saturation. In 2026, program staff plan to enhance the visibility of the tool on CenterPoint Energy’s website, update its look and feel, and potentially implement added functionality to improve the user experience and increase customer engagement.

Of the 6,275 customers who completed the MEA survey in 2025, 2,263 receive electric service (1,299 dual fuel and 964 electric only). Cadmus assessed the overlap of these 2,263 customers and RBS customers and found that 1,045 of the 2,263 electric customers who completed the MEA survey in 2025 (46%) were also HER recipients through the RBS program.⁶

Recommendation: Consider marketing the tool to customers outside the Residential Behavioral Savings Program and monitoring customer satisfaction with the tool to identify areas for improvement. For example, the tool could be marketed through other residential programs such as Energy Efficient Schools or Multi-Family Energy Solutions.

My Energy Analyzer Impact Investigation

For this year’s evaluation, Cadmus investigated whether there were potential energy savings from customers who completed the MEA survey via the online portal in 2024 or 2025 but were not enrolled in Residential Behavioral Savings Program HERs. In theory, customers who engaged with the portal could install energy efficient measures or change behaviors in a way that would reduce their overall energy consumption. Despite a rigorous billing-analysis-based investigation, Cadmus was unable to identify statistically significant persistent electric or gas energy savings from MEA portal survey only–customers.

⁶ These 1,045 customers make up only 1% of HER recipients in the RBS program.

Recommendation: Continue collecting monthly billing data for all MEA survey completes and continue to monitor the potential for this tool to produce savings in future evaluation years.

2.1.8. Smart Cycle Program

Through the **Smart Cycle Program**, CenterPoint Energy direct installs ecobee smart thermostats in residential homes to call load control events during the summer peak season. Although the program targets demand reduction during peak summer hours, it also achieves energy savings from the smart thermostats throughout the year.

Each year, CenterPoint Energy recruits participants from the long-running Summer Cycler Program to transition to the Smart Cycle Program.⁷ Summer Cycler participants receive complimentary removal of their load control switches, an ecobee thermostat installed by a technician at no cost, and automatic enrollment into the Smart Cycle Program.

For the 2025 program year, CenterPoint Energy contracted with Schneider Electric to schedule and perform the removal of the Summer Cycler load control switches and replace them with ecobee thermostats. The 2025 Smart Cycle Program evaluation focused only on savings derived from normal use of the ecobee thermostats that were direct installed during the 2025 program year.⁸

Program Administration and Delivery

Despite expanded participant benefits and increased marketing efforts, 2025 smart thermostat installations were far from the participation goal. The program achieved just 3% of its participation goal in 2025 (82 of 3,000 smart thermostat installations). Participation numbers were nearly the same in 2024, but participation percentage to goal was higher (84 of 500 installations, 17% to goal) because the participation goal increased from 500 to 3,000 installations. This increase was in part due to the anticipation of the rate case order in early 2025, which expanded benefits to customers enrolled in the Smart Cycle Program, including increasing monthly bill credit incentives from \$5.00 to \$7.50 and expanding the period for bill credits and curtailment from four to nine months. CenterPoint Energy also increased its focus on converting switches on hot water heaters and AC units and updated marketing materials and customer incentives.

CenterPoint Energy and implementer staff attributed the low number of installations to several factors including a small pool of eligible customers and customers' reluctance to replace existing thermostats that they are satisfied with. Staff also noted that in many cases, residents who had DLC switches installed had since moved residences, and the new residents were unfamiliar with the program and not interested in participating. As of 2024, Schnieder Electric had identified a substantial number of eligible customers that

⁷ The Summer Cycler Program is another CenterPoint Energy program designed to reduce air-conditioning and water-heating electricity loads during summer peak hours for residential and small commercial customers. Through this program, customers receive bill credits for allowing CenterPoint Energy to use radio communication equipment and load control switches to cycle off selected appliances during the summer.

⁸ Cadmus evaluates the demand response impacts of the Smart Cycle Program under a separate evaluation.

they could contact to replace switches with smart thermostats, but the challenge of persuading customers to switch remains a barrier.

Recommendation: Establish historically achievable participation and savings goals based on the number of customers eligible for the Smart Cycle program.

Recommendation: Increase visibility of incentives and participation benefits in marketing materials and on CenterPoint Energy’s website. Promotional efforts should emphasize the quick installation process, ease of use, and additional benefits smart thermostats offer beyond traditional thermostats.

Recommendation: Consider conducting research with nonparticipants through a survey or virtual focus groups to investigate the reasons why customers might be reluctant to participate and assess factors that may increase motivation to participate in the program.

Recommendation: Conduct a literature review or benchmarking study that compares the Smart Cycle program to similar programs to assess incentive levels, program implementation steps, marketing materials, or other strategies that these programs have used to encourage participation and engagement.

Peak Demand Reduction for Smart Thermostats

Not enough data exists to support the application of peak demand reduction for smart thermostats aside from savings achieved through load control events. A new version of the Indiana TRM adopts the Illinois TRM v13.0 methodology for thermostats, which assumes no coincident peak demand reduction for smart thermostats, and Cadmus could derive no consensus from researching other TRMs or studies. Peak definitions are highly dependent on climate and region, so it is best to rely on peak demand factors from local TRMs. The 2025 Smart Cycle evaluation focused only on savings from normal use of the smart thermostats; therefore, this conclusion does not apply to the demand response impacts from Smart Cycle load control events during 2025.

Recommendation: For planning purposes, assume no coincident peak demand reduction for normal use of smart thermostats until updated guidance is adopted.

Impact Evaluation Overview

Table 24 presents the evaluated savings summary for the Smart Cycle Program.

Table 24. 2025 Smart Cycle Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	40,373	40,373	43,730	42,679	106%	100%	42,679
Total kW	90	90	0	0	-	100%	-

Table 25 provides per-unit annual gross savings for the Smart Cycle Program.

Table 25. 2025 Smart Cycle Program Per-Unit Gross Savings

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported	Evaluated	Reported	Evaluated
Smart Cycle Thermostat - Dual Fuel	492	288	1.10	0
Smart Cycle Thermostat - Electric	492	1,094	1.10	0

The difference between reported and evaluated kilowatt-hour savings is probably due to differences in *ex ante* and *ex post* assumptions about home heating fuel. Cadmus was unable to verify the exact assumptions, but comparison with the 2024 *ex ante* savings indicated that a higher share of electric heating was assumed for 2025 *ex ante* savings. In the 2019 evaluation, 17.9% of surveyed participants had heat pumps and 12.5% had electric furnaces. No survey was conducted from 2020 through 2025 because the participant population was small, so Cadmus applied these 2019 survey results for home heating fuel to the 2022, 2023, 2024 and 2025 evaluations.

The Illinois TRM v13.0 does not assign coincident peak demand reduction for smart thermostats. Additional details for measure-level savings can be found in *Appendix A*.

2.2. Commercial and Industrial Programs

2.2.1. Commercial and Industrial Prescriptive Program

Through the **Commercial and Industrial (C&I) Prescriptive Program**, CenterPoint Energy provides prescriptive rebates to facilities for installing energy-efficient equipment and system improvements. The program implementer, Resource Innovations, processes program paperwork and with the help of trade allies promotes the program to CenterPoint Energy customers.

Customer Satisfaction

The program continued to achieve high satisfaction ratings, but some participants provided suggestions for improvements. All 18 participants who provided satisfaction ratings for the C&I Prescriptive Program reported being satisfied with the program, with 15 of 18 reporting being *very satisfied* and 3 of 18 reporting being *somewhat satisfied* with the program overall. Additionally, 16 of 19 respondents reported being *very likely* to recommend the program to another business owner or a friend, and three reported being *somewhat likely* to recommend the program.

Most responding participants (16 of 19) reported working with contractors or vendors to complete their projects. All 16 of those respondents reported being *very satisfied* with their contractor or vendor. The most common sources of awareness were contact through a trade ally, trade association or professional organization, and word of mouth, each reported by four of the 12 responding participants.

Although overall satisfaction with the program remained high, eight of the 20 respondents provided a response to the open-ended question regarding program improvements as shown in Table 26.

Table 26. 2025 Commercial and Industrial Prescriptive Program Suggested Improvements

Category	Specific Suggestion	Respondents (n=8)
Communication and Awareness	Additional outreach via email or other communications	3
	Better advertising	1
	Clearer descriptions of program offerings	1
	More frequent reminders that the program is available	1
Financial Incentives	Increase rebate amounts	1
No Improvements come to mind	Nothing comes to mind	1

Among those responding, the majority (6 of 8) suggested improvements related to program awareness and communication, including increased advertising, clearer descriptions of offerings, and more frequent reminders. One respondent recommended increasing rebate amounts, and one respondent indicated that no improvements were needed.

Recommendation: Enhance website tools and product descriptions to help customers identify eligible equipment. For example, enable users to search for eligible products by model number and ensure that product descriptions are clear and comprehensive.

Cadmus found that the reported calculations and inputs appropriately match the savings algorithms from the Illinois and Indiana TRMs. In 2025, the C&I Prescriptive Program realized 89% of annual reported electric savings and 58% of reported demand reduction. The few discrepancies that affected the overall realization rate for the prescriptive program were found through impact evaluation activities; however, Cadmus found measure-level discrepancies that impacted specific measure realization rates, which impacted the program realization rate when aggregated.

Impact Evaluation Overview

Table 27 lists the evaluated savings summary for the C&I Prescriptive Program.

Table 27. 2025 Commercial and Industrial Prescriptive Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	13,211,104	12,691,255	12,691,255	11,748,058	89%	79%	9,280,966
Total kW	4,638	2,263	2,263	2,690	58%	79%	2,125

More than 55% of reported electric energy savings in 2025 are from lighting measures; 42% are from chiller, compressed air, and HVAC measures; and 3% are from six measure categories (kitchen equipment, controls, refrigeration, thermostats, VFD/motors, and other).

Table 28 provides per-unit annual gross savings for each program measure.

Table 28. 2025 Commercial and Industrial Prescriptive Program Per-Unit Gross Savings

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported ^a	Evaluated	Reported ^a	Evaluated
Chillers	79,592	65,440	16.2	16.39
Compressed Air Systems	244,364	242,534	25.6	31.44
Controls	-	-	-	-
HVAC	4,646	4,219	1.6	1.87
Kitchen Equipment	1,858	1,269	0.3	0.11
Lighting	12,237	10,567	2.1	2.66
Refrigeration	2,713	2,668	0.3	0.31
Thermostat	3,221	1,717	-	0.50
Other	28	29	0.0	0.01
VFD/Motor	6,212	4,962	0.6	0.58

^a CenterPoint Energy's 2025 DSM Scorecard did not include per-unit kWh or kW savings.

Cadmus used available information to provide the averaged, per-unit reported savings.

Four measure types account for over 96% of reported savings for the C&I Prescriptive program: chillers, compressed air systems, HVAC and lighting. Cadmus found minor discrepancies between evaluated and reported energy savings for these four measure types, which are described below along with discrepancies found for kitchen equipment, Refrigeration, Thermostats, and VFD measures which only made up about 4% of the reported savings. Cadmus found minor discrepancies between the reported calculation inputs for chiller tune-ups, which account for 13% of reported energy savings, resulting in a 96% realization rate for this measure.

- **Compressed air measures** account for over 22% of total reported electric energy savings for the program. These include high-efficiency air compressors and compressed air leak audits. Compressed air leak audits account for 78% of electric energy savings in this measure category. Savings derive from reduced compressor energy use after identifying and eliminating leaks in a compressed air system. Cadmus found that evaluated energy savings closely matched reported energy savings for all compressed air measures resulting in a 99% realization rate for these measures.
- **Lighting** accounted for 55% of reported energy savings for the program, and lighting measures realized 54% of evaluated electric energy savings and 59% of evaluated demand reduction. The evaluation team used the Illinois TRM v13.0 to calculate savings, while 64% of reported savings used the 2015 Indiana TRM. The difference in methodologies between these two sources accounts for the discrepancies in realization rates. In addition, the Illinois TRM v13.0 methodology uses the updated waste heat factor for energy and demand per building type which is also a large contributing factor for the realization rates.
- **Kitchen equipment** accounted for less than 1% of reported savings. This category included dishwashers, electric ovens, hot food holding cabinets, griddles, and ice machines. Electric ovens were the only measure in this category that had a low realization rate of 68%. The evaluation team used the Illinois TRMv13.0 but could not exactly replicate reported savings and suspects ex

ante used different values for inputs like LB (food cooked per day) which was not reported. Evaluated savings uses default inputs from the TRM per oven type.

- **Freezer and refrigerators** accounted for the majority of the refrigeration measure category, contributing 51% total electric savings. *Ex ante* reported using the 2015 Indiana TRM which was the main discrepancy identified as using the 2015 Indiana TRM results in greatly different savings. *Ex ante* also misidentified one refrigerator as a freezer.
- **VFDs** realized 72% of energy savings. This was mainly due to *ex ante* using older Illinois TRM versions 7.0 and 9.0 in which inputs like ESF (energy savings factor) and Hours, for example, differed from the Illinois TRM v13.0.
- As in previous years, *ex ante* uses an energy modeling tool to estimate savings for **Wi-Fi** and **programmable thermostat** measures. Additional details on this approach are provided in *Appendix A*. Since *ex ante* uses an energy modeling tool., while Cadmus estimates savings using the algorithms specified in the Illinois TRM v13.0, thermostats realized 54% of electric savings.

2.2.2. Commercial and Industrial Midstream Program

Through the **Commercial and Industrial (C&I) Midstream Program**, CenterPoint Energy provides rebates to distributors of HVAC and Foodservice equipment to promote a market shift and stocking of efficient equipment. The program is intended to close savings gaps from commercial customers that may not take full advantage of the prescriptive channel. Until 2025, C&I Midstream was a channel within the C&I Prescriptive program; to capitalize on certain prescriptive measures, it is now a stand-alone program within CenterPoint Energy's commercial sector. The program implementer, Resource Innovations, provides administrative, outreach, engineering and marketing services to the program.

Distributor Satisfaction

The program achieved high satisfaction ratings from distributors in its first year as a stand-alone program. The evaluation team interviewed four participating distributors. Three of four were *very satisfied* with the program, and one of four was *somewhat satisfied*. The main benefits distributors said their companies get from participating were receiving incentives (4 of 4), the ability to offer incentives (4 of 4) and improving customer satisfaction (2 of 4). Two of the four contractors said their level of knowledge had increased since the program started and that this increased knowledge was a benefit to their business. One of those two added, "I learned that energy-efficient foodservice equipment can significantly reduce energy use and operating costs while qualifying for utility incentives when specified early." One distributor also said the program "helps us recommend qualifying equipment, maximize incentives, and add value for our customers as a dealer." When asked what they think has gone well with the program in 2025, all four distributors mentioned positive interactions with program staff.

Trade Ally Portal

While the distributors spoke highly of the program and implementation staff, they also alluded to improvements that could be made to the program portal. When asked whether they had encountered any issues while participating in the program, one of four distributors reported issues with receiving incentive/stipend payments from the program and added that the website "could be cleaned up a bit." Two other distributors also reported issues with the program website, citing "bugs" with file upload

functions and too many address field dropdowns. All four distributors reported that participating in the C&I Midstream program is easy; however, when asked to elaborate, three of four echoed challenges with the program portal, adding that the “portal [was] a little complicated,” there was “a lot of loading info, QCing takes time,” and “less clicks through the program would be nice, but it’s fine.” During interviews, implementation staff noted that encouraging distributors to remain engaged and fill out required forms was a minor but consistent challenge.

Recommendation: Conduct a review of the program portal to identify opportunities to streamline required processes. In future evaluations, Cadmus can add survey questions specifically about the program portal to pinpoint challenges experienced by distributors and identify areas for improvement.

Evaluated Ex Post Savings Performance

Cadmus found that the reported calculations and inputs appropriately match the savings algorithms from the Illinois and Indiana TRMs. In 2025, the Commercial Midstream program realized 143% of annual reported electric savings and 57% of reported demand reduction. Cadmus found two major sources of discrepancies. First, reported savings for some measures were calculated according to the 2015 Indiana TRM, whereas evaluated savings are calculated using the 2025 Illinois TRM. The Indiana TRM tends to overestimate savings compared with the Illinois TRM, resulting in lower-than-expected savings realization rates. Second, the majority of measures reported in 2025 do not include the calculation inputs; this required Cadmus to make assumptions regarding baseline equipment, likely leading to underestimation of savings and further driving down savings realization rates.

Impact Evaluation Overview

Table 29 lists the evaluated savings summary for the C&I Midstream Program.

Table 29. 2025 Commercial and Industrial Midstream Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	678,529	729,793	729,793	973,672	143%	79%	769,201
Total kW	126	98	98	72	57%	79%	57

The C&I Midstream Program realized 143% of reported energy savings and 57% of reported demand reduction. Of reported electric energy savings in 2025, 65% are from VFD/motor measures, 23% are from chiller measures, 9% are from HVAC measures, and 3% are from refrigeration and kitchen equipment measures.

Table 30 provides per-unit annual gross savings for each program measure.

Table 30. 2025 Commercial and Industrial Midstream Program Per-Unit Gross Savings

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported	Evaluated	Reported	Evaluated
Chillers	52,692	52,692	6.7	7.62
HVAC	3,292	2,549	1.4	1.47

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported	Evaluated	Reported	Evaluated
Kitchen Equipment	977	878	0.3	0.19
Refrigeration	639	453	0.1	0.05
VFD/Motor	31,421	53,742	1.6	1.4

Three measure types account for over 96% of reported savings: VFD/Motor, chillers, and HVAC. In 2025 the VFD/Motor measure type included HVAC supply and return fan motors, as well as HVAC hot and chilled water pump motors. The HVAC measure type included air conditioners and heat pumps. Cadmus found discrepancies between evaluated and reported energy savings for these measure types, which are described below. Most of the discrepancies can be attributed to differences in calculation algorithm sources and calculation inputs.

- VFDs** account for 65% of total reported energy savings for the program. Fourteen VFD measures were implemented in 2025, including six sets of supply and return fan motors, one hot water pump motor, and one chilled water pump motor. While all of the VFD measures reported used the 2019 Illinois TRM to calculate savings, Cadmus was unable to reproduce the reported savings using the same algorithm. The reported energy savings more closely match those resulting from the 2015 Indiana TRM; however, the reports do not contain enough detailed information for Cadmus to determine precisely which algorithm was used or which specific calculation inputs led to the discrepancies. Assuming that the 2015 Indiana TRM was used to calculate the reported energy savings, the updated calculation algorithm in the 2025 Illinois TRM resulted in a 171% electric energy savings realization rate and an 88% demand reduction realization rate for this measure.
- Chillers** account for 23% of total reported energy savings for the program. Three chiller measures were implemented in 2025, all of which reported energy savings calculated using the most recent Illinois TRM. While Cadmus used the same algorithm to calculate evaluated electric energy savings; the reports do not contain detailed information about the baseline (replaced) equipment, resulting in a 100% electric energy savings realization rate and 115% demand reduction realization rate for this measure.
- Air conditioners** account for about 5% of total reported energy savings for the C&I Midstream Program. Given the program design, reported savings cannot contain detailed information about the baseline (replaced) equipment, and Cadmus was required to make assumptions according to the 2025 Illinois TRM, leading to a 70% electric energy savings realization rate and a 114% demand reduction realization rate.
- Heat pumps** account for about 4% of total reported energy savings for the program. While the savings calculation algorithms require two data inputs for EFLH (one each for heating and cooling), the equipment operating hours were reported as a total value, which was greater than the sum of the estimated heating and cooling EFLH provided in the TRM. This resulted in an 88% electric energy savings realization rate and 19% demand reduction realization rate.

2.2.3. Commercial and Industrial Custom Program

Through the **Commercial and Industrial (C&I) Custom Program**, CenterPoint Energy focuses on energy-saving projects unique to the commercial participant's facility. To qualify for program incentives, the program implementer, Resource Innovations, analyzes and submits estimated project savings from customers or their trade allies that show first-year energy savings. CenterPoint Energy calculates program incentive levels using \$0.14 per kilowatt-hour saved and \$1.00 per Therm saved. Incentives cannot exceed 50% of total project costs. Projects achieving a simple payback of one year or less do not qualify for the program. CenterPoint Energy also offers a cost share on facility energy assessments that covers up to 100% of the assessment cost.

The C&I Custom Program includes multiple subcomponents, as described in Table 31.

Table 31. 2025 Commercial and Industrial Custom Program Subcomponents

Custom Incentives	Commercial New Construction and Energy Design Assistance	Building Tune-Up	Strategic Energy Management	Refrigeration Tune-Up
Supports the implementation of non-prescriptive, high-efficiency projects.	Promotes the implementation of energy-efficient, new building designs that exceed the Indiana building code.	Provides retro-commissioning support to encourage operational and capital improvements in small-to-midsize businesses.	Provides building audits and long-term technical support to encourage large businesses to undergo process improvements.	Implements energy efficiency into buildings with refrigeration systems by providing a fully incentivized system study and no- and low-cost measures.

CenterPoint Energy administers the program and contracts with Resource Innovations to implement the program and subcontractor Willdan to engage design teams for the new construction component. Trade allies, including design firms and installation contractors, promote the program and execute custom energy efficiency measures.

Participant Satisfaction

Satisfaction with the Commercial Custom Program remained high in 2025. Almost all program participants who completed the survey reported satisfaction with the program, with six of 10 respondents reporting being *very satisfied*, three of 10 respondents *somewhat satisfied*, and one of 10 respondents *not at all satisfied*.

Participants' responses to a question about program value suggest that financial incentives and rebates contribute to satisfaction with the program. Participants emphasized the role of incentives in project implementation, maximizing limited capital budgets, and supporting energy-savings on utility bills. Some respondents also noted positive communication and collaboration with program staff.

Participants were also highly likely to recommend the program to other business owners or managers. Seven of 10 respondents said they were *very likely* to recommend the program, and two of 10 said they were *somewhat likely* to recommend it. The one respondent who reported being *not at all satisfied* indicated that they were *not at all likely* to recommend the program. This respondent said the program felt “misleading” and “not transparent.” They expressed frustration with the many factors that influenced the final incentive amount and said that the projected figures were not realistic.

Trade allies and contractors play a key role in the program experience; nine of 10 respondents reported working with a contractor or vendor to install their energy-efficient equipment. Among the eight respondents who rated their satisfaction with the contractor or vendor they worked with, all reported positive experiences, with six of eight *very satisfied* and two of eight *somewhat satisfied*. Respondents described their contractor or vendor as “easy to work with,” “collaborative,” “knowledgeable,” and “helpful.”

Participant Insights

When asked how their business was impacted by inflation, seven of the 10 respondents mentioned increased costs for supplies or services needed to run their business. Other reported impacts included eliminating certain products or services from their businesses (3 of 10), tracking business expenses more closely (3 of 10), and being unable to find staff (3 of 10). Fewer respondents reported reducing staff (2 of 10), increasing prices charged to customers (1 of 10), and reducing inventory or services (1 of 10).

The C&I Custom program implementer similarly noted that inflation, tariffs, interest rates, and equipment lead times contributed to project delays and customer hesitation to participate in the program. Customers were often reluctant to move forward due to economic uncertainty, and extended lead times—particularly for HVAC equipment—further increased project timelines. However, the implementer reported that direct outreach by energy managers has been effective in maintaining participation, particularly among large customers.

Recommendation: Continue to leverage targeted outreach to large customers through energy managers. During outreach, energy managers should set expectations regarding potential delays due to market conditions to build trust with participants early in the project life cycle and increase project completion rates amid external cost pressures and financing concerns.

Gross Savings

CenterPoint Energy realized lower annual electric energy savings and demand reduction in 2025 than in prior years. In 2025, the C&I Custom Program produced realization rates of 98% for annual electric energy savings and 153% for electric demand reduction. Ten of 27 projects realized 100% of annual energy savings and electric demand reduction. Evaluated annual electric energy savings and demand reduction were found to be very close to reported savings with discrepancies as a result of baseline lighting power density factors being updated to IECC 2018 instead of ASHRAE 90.1-2007.

Recommendation: Assume IECC 2018 as the baseline moving forward for baseline lighting power density factors, since ASHRAE 90.1-2007 is now very out of date regarding both standard practice and technology availability.

Impact Evaluation Overview

Table 32 presents the evaluated savings summary for the C&I Custom Program.

Table 32. 2025 Commercial and Industrial Custom Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	5,340,054	5,340,054	5,340,054	5,208,420	98%	82%	4,270,905
Total kW	152	268	268	233	153%	82%	191

Table 33 provides per-unit annual gross savings for each program measure.

Table 33. 2025 Commercial and Industrial Custom Program Per-Unit Gross Savings

Measure (Application ID)	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)		Measure Description
	Reported	Evaluated	Reported	Evaluated	
311	55,199.50	54,717.00	53.08	52.60	CAS
1937	383,239.89	346,904.35	67.29	42.93	Various Measures
152	3,089,153.53	3,089,153.50	(11.80)	(11.80)	HVAC
2987	66,532.20	66,532.20	7.60	7.60	Lighting
2995	40,310.35	40,303.40	7.85	7.90	HVAC
3012	-	-	-	-	Other-HVAC
1403	-	-	-	-	Other-HVAC
528	375,321.73	374,156.90	26.68	26.72	Various Measures
3029	-	-	-	-	Other-HVAC
3030	-	-	-	-	Other-HVAC
3049	-	-	-	-	Other-HVAC
514	49,655.31	39,623.99	8.19	6.31	Various Measures
3052	-	-	-	-	Other-HVAC
912	373,834.29	373,834.30	25.97	26.00	Various Measures
3113	5,051.85	5,051.80	0.58	0.60	Refrigeration Controls
3116	6,174.34	5,776.70	0.68	0.60	Refrigeration Controls
3133	-	-	-	-	Other-HVAC
3167	10,717.08	10,718.40	-	-	Lighting
3188	-	-	-	-	Other-HVAC
3093	164,092.20	90,822.70	17.94	11.40	Various Measures
1858	62,461.94	62,461.94	8.43	8.43	Retro-Commissioning
939	-	-	-	-	Various Measures
2157	85,521.21	85,521.21	1.65	1.65	Retro-Commissioning
3072	184,678.36	179,138.01	16.76	16.26	Various Measures
1846	205,790.78	205,790.78	1.13	1.13	Retro-Commissioning
1547	146,865.25	142,459.29	35.79	34.72	Various Measures
2152	35,453.78	35,453.78	-	-	Retro-Commissioning

In 2025, 100 electric energy-saving measures were installed in 27 buildings under 27 application IDs through the C&I Custom Program. Cadmus performed desk reviews for all 100 measures:

- Ten of 27 projects realized 100% of reported annual energy savings.
- Eight of 27 projects realized 100% of reported demand reduction, where they were claimed.

Three projects included a lighting power density measure. The Indiana Technical Reference Manual Workbook v1.0 states that the IECC 2018 baseline should be used for lighting power density calculations instead of the ASHRAE 90.1-2007. The Indiana TRM is in effect after January 1, 2024, so the use of the ASHRAE standard was updated to the IECC 2018 lighting power density values. We recommend that CenterPoint Indiana adopt IECC 2018 as the baseline moving forward, since ASHRAE 90.1-2007 is now out of date regarding both standard practice and technology availability. Details of projects with realization rates under 100% and additional details for measure savings can be found in *Appendix A. Impact Evaluation Methodology*.

Weather dependent energy modeling, which impacts all HVAC measures, currently relies on TMY3 weather data and temperature bin analysis techniques to estimate energy and demand savings. The TMY3 dataset was published in 2006 and is now approximately 20 years out of date. We recommend the use of TMY datasets from the National Solar Radiation Database (NSRDB), which are updated annually for accurate weather-dependent energy modeling. Because the use of TMY3 weather datasets are currently standard practice, no adjustments were made for the 2025 evaluation on the basis of the weather data source.

Recommendation: Consider updating modeling practices to use TMY datasets from the National Solar Radiation Database (NSRDB) instead of TMY3 datasets to obtain more accurate results. Additionally, consider moving toward an hourly energy modeling analysis instead of the temperature bin analysis for increased precision of modeled energy and demand savings. Adjustments on the basis of modeling practices were not made in the 2025 evaluation.

2.2.4. Building Optimization Program

Through the Building Optimization Program, CenterPoint Energy incentivizes studies designed to identify potential low-cost or no-cost energy savings measures with rapid return on investment that can be implemented in a condensed time frame. CenterPoint Energy also investigates capital intensive energy projects such as major equipment replacement, lighting, process or plug loads as part of optimization studies. These projects must have the ability to manage systems operation relative to energy efficiency via a direct digital controls system or equivalent system with a computerized interface and must show a quantifiable opportunity to reduce energy consumption. Facilities with limited controls capabilities (e.g. programmable thermostats or simple unit-mounted controls) and facilities shown to be high performers, meaning they already operate efficiently compared to peer facilities and have limited opportunity for additional energy savings, are not eligible for this program. Energy savings measures do not include preventative maintenance repairs such as coil cleaning, filter changes or other repairs required to ensure proper equipment operation or prevent equipment damage. The program offers the study recipient an incentive of up to 75% of the study cost. The customer incentive is \$0.04 per kilowatt-hour verified for

opportunities identified and implemented because of the study capped at 100% of the implementation cost or \$300,000, whichever is less.

Program Performance

The Building Optimization Program exceeded its savings goal despite low participation. The program exceeded its electric savings goal (113%) but achieved just 40% of its participation goal, indicating substantial per-project kilowatt-hour savings. Four buildings participated in the program in 2025.

CenterPoint Energy and implementer staff indicated that building and sustaining a pipeline of participating customers has been the primary challenge in the program's first full year of implementation. The implementer emphasized that increasing participation will depend on identifying facilities that are both technically eligible for the program and operationally aligned with program energy performance goals. Interviews also highlighted that Key Account Managers play an important role in facilitating customer introductions and that broader internal awareness and structured engagement strategies could further strengthen the pipeline.

Recommendation: Formalize a proactive referral and screening process for high-potential facilities by developing a structured framework for Key Account Managers and internal staff to systematically identify strong candidates for the program based on energy usage levels, BAS readiness, and customer inquiries (e.g., billing or rate-related concerns). A standardized screening checklist could improve efficiency in qualifying customers and reduce time spent pursuing ineligible facilities.

Program Incentive Structure and Pathways

The program's incentive structure and Monitoring-Based Commissioning (MBCx) pathway are well aligned with participant needs. The implementer interview indicated that the 75% study cost-share is a key driver of participation and is viewed as highly attractive by customers. The implementer reported no instances of the 25% customer contribution requirement discouraging participation and noted that the 90-day implementation requirement has not posed a barrier to enrolled customers.

Additionally, the MBCx participation pathway was described by program staff as a successful enhancement to the program in 2025, providing ongoing engagement and verified savings that may exceed program goals for participating buildings. The implementer interview reinforced that this pathway works well for customers that have advanced BAS capabilities and supports sustained operational improvements. Together, these design features strengthen both program effectiveness and customer satisfaction.

Recommendation: Develop case studies using projects that have participated in the MBCx pathway to demonstrate value and build awareness among prospective customers. Share these case studies directly with facilities that have advanced BAS capabilities to increase adoption among technically qualified customers.

Impact Evaluation Overview

Table 34 presents the evaluated savings summary for the Building Optimization Program.

Table 34. 2025 Building Optimization Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	1,697,593	1,697,593	1,697,593	1,697,593	100%	90%	1,527,834
Total kW	8	-	-	0	0%	90%	0

In 2025, four projects were completed. Across these projects, implemented measures included optimization of multiple AHU's/RTU's, revised chilled water and condenser water reset strategies, and conversion of constant volume (CV) units to variable air volume (VAV) units. The evaluation team reviewed key assumptions, M&V calculation workbooks and reports, as well as trend data and site photos submitted for all projects. After reviewing, the evaluation team deemed the calculation methods and verified savings as reasonable and acceptable; the program realized 100% of annual gross electric energy savings. No significant demand savings were evaluated for this program, as reductions in electricity usage from the implemented measures occurred during non-peak hours.

Recommendation: Similar to projects in the Custom program, building optimization projects rely on weather-dependent energy modeling that uses TMY3 weather data to estimate energy savings. Given the TMY3 dataset was published almost 20 years ago, the evaluation team notes that the National Solar Radiation Database (NSRDB) TMY datasets, which are updated annually, could support more accurate energy modeling.

2.2.5. Small Business Energy Solutions Program

Through the **Small Business Energy Solutions (SBES) Program**, CenterPoint Energy helps qualifying businesses identify savings opportunities by providing free on-site energy assessments with installation of some energy-efficient measures, and low-cost pricing for other energy-efficient measures recommended in the assessments. To participate in the program, a customer's business must be in CenterPoint Energy's service territory and have a peak electric demand of 400 kW or less over the past 12 months and designated nonprofit organizations or multifamily opt-in customers regardless of peak energy demand are eligible to participate in the program. Resource Innovations is the program implementer. Participating trade allies are responsible for performing customer outreach, conducting on-site energy assessments, and installing no-cost and low-cost direct install measures.

Project Conversion Rates

Project conversion rates increased from 2024 to 2025. Program conversion rates (the rate at which program participants complete post-audit recommendations in the same calendar year as their audit) were at 51% in 2024 and increased to 95% in 2025. Like in previous years, the program ran a 50% bonus for project same-year conversions in 2025.

Program Satisfaction and Improvements

The program achieved high satisfaction and energy savings in 2025, but improvements in communication and the inclusion of additional equipment types could further enhance results. In 2025, the program achieved 160% of its electric savings goal. Participants reported high overall

satisfaction, with all nine respondents indicating that they were *very satisfied* with the program overall. All nine respondents also reported being *very satisfied* with both the contractor who completed the energy assessment and installed the equipment and with the equipment itself.

Most respondents reported being satisfied with the Energy Assessment Reports delivered through the program, with two respondents reporting being *very satisfied* and five reporting being *somewhat satisfied*. (n=9) The remaining two respondents did not recall receiving the report. When asked what could be improved about the program, two of the nine respondents suggested that CenterPoint Energy provide more information about eligible measures and incentives, and two suggested offering additional types of equipment through the program. One of the two respondents who requested additional types of equipment specified that the program should consider offering other types of HVAC equipment.

Nearly half of participants (4 of 9) learned about the program from a CenterPoint Energy employee, account representative, or customer service representative. The program implementer noted that outreach efforts have primarily targeted contractors, who then share information with their customers. Despite this, only one respondent learned about the program from a contractor, compared to 19 of 23 respondents in 2024. The implementer also indicated plans to increase its focus on promoting the program directly to eligible customers through targeted email campaigns.

The implementer mentioned challenges HVAC contractors had experienced when using the mobile assessment tool, which is an online tool required for submitting projects through the SBES Program. Staff noted that some HVAC contractors prefer to complete paper applications, which causes the associated energy savings to get routed through the C&I Prescriptive Program.

Recommendation: Enhance the Energy Assessment Reports delivered to small business customers by adding information about the SBES program and highlighting equipment offered through the program.

Recommendation: Consider conducting a survey of participating contractors to gather feedback on the mobile assessment tool and identify opportunities for improvement.

Recommendation: Provide training, technical assistance and ongoing support to contractors to resolve challenges and increase adoption of the tool.

Recommendation: If cost-effective, consider offering additional types of HVAC equipment through the program.

Impact Evaluation Overview

Table 35 presents the evaluated savings summary for the SBES Program.

Table 35. 2025 Small Business Energy Solutions Program Electric Savings

Energy Savings Unit	Ex Ante Savings			Evaluated Ex Post Savings	Realization Rate	NTG Ratio	Evaluated Net Savings
	Reported	Audited	Verified				
Total kWh	6,872,420	6,512,590	6,512,590	6,594,776	96%	96%	6,330,985
Total kW	9	1,404	1,404	1,466	16,648%	96%	1,407

Table 36 provides per-unit annual gross savings for each program measure.

Table 36. 2025 Small Business Energy Solutions Program Per-Unit Gross Savings

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported ^a	Evaluated	Reported ^a	Evaluated
Lighting – Controls	1089.4	754.9	0.26	0.28
Lighting	388.5	386.3	0.077	0.081
Lighting – Exit Signs	71.8	29.6	0.010	0.002
Thermostats	2934.9	1,465.6	0.0	0.191
Furnace	68.7	25.5	0.004	0.038
Chiller Tuneup	25,587.6	9,159	6.82	6.824
Air Conditioner	361.6	329.2	0.19	0.191
Variable Frequency Drive	4,857.5	3,450.1	0.3	0.894
Boiler Tuneup	0	0	0.0	0.0
Heat Pump	914.4	2,818.6	0.28	0.28

^a CenterPoint Energy's 2025 DSM Scorecard did not have kWh or kW savings at the measure level. Per-unit kWh savings reflect audited savings from the 2025 program tracking data, and per-unit kW savings reflect an averaged value based on the 2025 program tracking data.

In 2025, Lighting measures accounted for 88% of all reported electric energy savings. These measures realized 104% of demand reduction and 99% of annual electric energy savings. The remaining measures accounted for 12% of all reported savings. These measures realized 70% of reported annual electric savings. The majority of discrepancies were related to differences in the methodologies and inputs used to determine energy savings. The evaluation team used the Illinois TRM v13.0 methodologies and inputs to calculate savings, while a majority of the reported savings use older versions of the Illinois TRM. For lighting measures, minor discrepancies were found from the use of waste heat factors based on the building type and HVAC system type. Additionally, it was identified that reported savings for a heat pump project with five units installed were not provided in the reported data, resulting in omitted savings. After correction, inclusion of five installed heat pump units increased total evaluated kWh savings, with approximately 70% attributable to this project. Discrepancies were not systematic and do not warrant recommendations for changes in program implementation. No demand reduction was reported for Wi-Fi and programmable thermostats. Evaluated demand reduction was calculated for this measure using the Illinois TRM v13.0, which resulted in a higher realization rate for demand reduction.

Appendix A. Impact Evaluation Methodology

As a part of the impact evaluation, Cadmus reviewed gross savings, verified measure installation, and determined freeridership and spillover to calculate a net-to-gross (NTG) ratio and estimated realized program savings. The impact evaluation reports the following metrics:

- **Reported *ex ante* savings.** Annual gross savings for the evaluation period, as reported by CenterPoint Energy in the 2025 Electric DSM Scorecard.
- **Audited savings.** Annual gross savings after CenterPoint Energy's per-unit calculations and measure counts were confirmed by Cadmus (using 2025 program tracking data).
- **Verified savings.** Annual gross savings adjusted for ISR.
- **Evaluated *ex post* savings.** Annual gross savings adjusted for ISR and savings adjustments resulting from the gross savings review.
- **Realization rate (percentage).** The percentage of savings the program actually realized, calculated as follows:

$$\text{Realization Rate} = \frac{\text{Ex Post Savings}}{\text{Ex Ante Savings}}$$

- **Evaluated net savings.** Evaluated *ex post* savings, adjusted for NTG (i.e., freeridership and spillover).

A.1. Gross Savings Review

Cadmus calculated electric energy savings and demand reduction for all programs. This appendix details the specific methodology Cadmus used to determine per-unit gross savings. Table A-1 lists the evaluation activities Cadmus performed for each program, including these:

- **Engineering analysis.** To assess CenterPoint Energy's claimed energy savings and coincident peak demand reduction, Cadmus conducted an engineering desk review for most of CenterPoint Energy's 2025 demand-side management (DSM) programs. Cadmus used assumptions from technical reference manuals (TRMs) from Indiana and other states and industry studies to determine inputs to the savings estimates, which were calibrated with survey results and program tracking data where possible. Cadmus also determined if any additional savings were generated from the early replacement of measures installed through the residential and commercial and industrial (C&I) prescriptive programs, based on program data and survey results.
- **Regression/billing analysis.** Through billing analyses, Cadmus modeled savings by comparing the consumption of program participants to nonparticipants while controlling for exogenous factors such as weather.

Table A-1. 2025 Gross Savings Review Task by Program

Program	Engineering Analysis	Regression/ Billing Analysis
Residential Programs		
HES – Residential Prescriptive	✓	
HES – Residential Midstream ^a	✓	
HES – Home Energy Assessments	✓	
HES – In Store Discount	✓	
Energy Efficiency Store	✓	
Residential New Construction	✓	
Income Qualified Weatherization	✓	
Multi-Family Energy Solutions	✓	
Community Connections	✓	
Residential Behavioral Savings		✓
Smart Cycle	✓	
Commercial and Industrial Programs		
C&I Prescriptive	✓	
C&I Midstream	✓	
C&I Custom	✓	
Small Business Energy Solutions	✓	
Building Optimization	✓	

A.2.Measure Verification

Cadmus reviewed tracking data to audit measure installations for all programs. As shown in Table A-2, for most programs, Cadmus relied on surveys with program participants, along with program application documentation, to confirm customer participation status, the number and type of measures that received program incentives, and the persistence of installations. Cadmus used this equation to calculate the ISR for each program:

$$In - Service Rate = \frac{Verified Installations}{Reported Installations}$$

Table A-2. 2025 Measure Verification Method by Program

Program	Program Data Review	Participant Surveys	Deemed Value	Secondary Resource
Residential Programs				
HES – Residential Prescriptive	✓	✓		
HES – Residential Midstream ^a	✓	✓		
HES – Home Energy Assessments	✓	✓		
HES – In Store Discount	✓	✓		
Residential New Construction	✓		✓	
Income Qualified Weatherization	✓		✓	
Multi-Family Energy Solutions				
Community Connections	✓		✓	
Residential Behavioral Savings	✓			
Smart Cycle	✓		✓	
Commercial and Industrial Programs				
Commercial and Industrial Prescriptive	✓	✓		
Commercial and Industrial Midstream				
Commercial and Industrial Custom	✓	✓		
Small Business Energy Solutions	✓	✓		

A.3. Home Energy Solutions Program

Cadmus' impact evaluation of the Home Energy Solutions Program included measures with attributable electric savings:

HVAC measures:

- Air conditioner and heat pump tune-up
- Air source heat pumps
- Central air conditioners
- Ductless heat pumps
- Room AC

Thermostats:

- Smart programmable thermostats
- Wi-Fi thermostats

Weatherization measures:

- Air sealing
- Attic insulation
- Duct sealing
- Weatherstripping

Other:

- Air filters
- Air purifiers
- Bathroom vent fans
- Clothes dryers
- Clothes washers
- Dehumidifiers
- Faucet aerators
- Heat pump water heaters
- Nightlights
- Pipe wrap
- Pool heaters
- Showerheads
- Site visit and DI (HEA)

- Door sweeps
- Smart power strips
- Outlet gaskets
- Water heater temperature setback

Table A-3 through Table A-6 provide per-unit annual gross savings for each program measure by channel.

Table A-3. 2025 Home Energy Solutions Program Per-Unit Gross Savings – Residential Prescriptive Channel

Measure Group	Measure	Per-Unit Gross Savings (kWh)		Per Unit Savings (Coincident Peak kW)	
		Reported	Evaluated	Reported	Evaluated
Appliance and Plug Load Reduction	Air Purifier	418.43	395.96	0.049	0.050
Appliance and Plug Load Reduction	Clothes Dryer	160.46	173.39	0.022	0.020
Appliance and Plug Load Reduction	Clothes Washer	139.93	169.54	0.018	0.020
Appliance and Plug Load Reduction	Dehumidifier	134	415.51	0.030	0.090
HVAC	AC Tune Up	135.45	224.96	0.044	0.000
HVAC	HP Tune Up	316.33	604.7	0.044	0.040
Other	HP Water Heater	1851.69	2554.51	0.088	0.120
Other	Pool Heater COP >= 6	1492	1254.5	0.022	0.000
Other	Pool Heater COP 5.5-5.9	1351	973.32	0.020	0.000
Thermostats	Smart Programmable Thermostat - South (Dual)	248.42	137.17	0.162	0.000
Thermostats	Smart Programmable Thermostat - South (Electric)	206.2	544.01	0.000	0.000
Thermostats	Wifi Thermostat - South (Dual)	0	0	0.000	0.000
Thermostats	Wifi Thermostat - South (Electric)	0	0	0.000	0.000
Weatherization	Attic Insulation (Dual Fuel)	428.74	228.11	0.359	0.100
Weatherization	Attic Insulation (Electric)	1787	2657.07	0.200	0.190
Weatherization	Duct Sealing South (Dual Fuel)	0	0	0.000	0.000
Weatherization	Duct Sealing South (Electric Only)	0	0	0.000	0.000

Table A-4. 2025 Home Energy Solutions Program Per-Unit Gross Savings – Midstream Channel

Measure Group	Measure	Per Unit Gross Savings (kWh)		Per Unit Savings (Coincident Peak kW)	
		Reported	Evaluated	Reported	Evaluated
HVAC	Air Source HP 14 SEER	773.37	923.88	0.000	0.190
HVAC	Air Source HP 15 SEER	1,223.96	2,991.72	0.276	0.730
HVAC	Air Source HP 16 SEER	1,333.07	1,479.45	0.276	0.170
HVAC	Air Source HP 17 SEER	1,375.59	2,112.57	0.276	0.170
HVAC	Central Air Conditioner 14 SEER2	370.22	325.08	0.270	0.010
HVAC	Central Air Conditioner 15 SEER	513.50	589.56	0.315	0.010
HVAC	Central Air Conditioner 16 SEER	513.50	893.01	0.315	0.010
HVAC	Central Air Conditioner 17 SEER	912.00	1,766.02	0.449	0.010
HVAC	Ductless HP 17 SEER 9.5 HSPF	0	0	0.000	0.000
HVAC	Ductless HP 18 SEER 9.5 HSPF	2,234.94	5,603.07	0.230	-0.006
HVAC	Ductless HP 19 SEER 9.5 HSPF	5,477.20	4,735.83	0.256	0.147
HVAC	Ductless HP 20 SEER 10 HSPF	5,477.20	4,928.57	0.278	0.138
HVAC	Ductless HP 21 SEER 10 HSPF	5,524.50	4,835.44	0.296	0.159
HVAC	Ductless HP 22 SEER 10 HSPF	5,524.50	6,699.56	0.311	0.198
HVAC	Ductless HP 23 SEER 10 HSPF	4,318.80	3,861.04	0.324	0.166
Other	HP Water Heater	0	0	0.000	0.000
Thermostats	Wifi Thermostat - South (Dual)	243.90	137.17	0.000	0.000
Thermostats	Wifi Thermostat - South (Electric)	243.90	450.13	0.165	0.000

**Table A-5. 2025 Home Energy Solutions Per Unit Gross Savings –
Home Energy Assessments Channel**

Measure Group	Measure	Per-Unit Gross Savings (kWh)		Per Unit Savings (Coincident Peak kW)	
		Reported	Evaluated	Reported	Evaluated
Weatherization	Air Sealing Electric only	375.86	6.89	0.070	0.001
Weatherization	Air Sealing Gas Heating with A/C	115.63	65.30	0.070	0.034
Water-Saving Devices	Bathroom Aerator 1.0 gpm - Elec DHW	12.11	25.74	0.017	0.039
Weatherization	Door Sweep-Dual	94.31	6.24	0.002	0.005
Weatherization	Door Sweep-Electric	94.31	106.05	0.002	0.005
Weatherization	Door/Window Weather Stripping-Dual	104.63	3.48	0.001	0.002
Weatherization	Door/Window Weather Stripping-Electric	104.63	120.02	0.001	0.002
Weatherization	Duct Sealing Gas Heating with A/C	124.52	106.82	0.079	0.047
Water-Saving Devices	Kitchen Flip Aerator 1.5 gpm - Elec DHW	224.67	236.07	0.044	0.042
Lighting	LED Nightlight	27.41	27.48	0.000	0.000
Water-Saving Devices	Low Flow Showerhead 1.5 gpm - Elec DHW	135.07	242.54	0.013	0.030
Weatherization	Outlet Gaskets-Dual	5.59	1.60	0.001	0.001
Weatherization	Outlet Gaskets-Electric	5.59	6.33	0.001	0.001
Other	Pipe Wrap - Elec DHW (per home)	158.94	112.91	0.018	0.013
Audit Education	Site Visit and DI - Dual (Gas and Electric)	187.52	187.52	0.000	0.000
Audit Education	Site Visit and DI - Electric Only	187.52	187.52	0.000	0.000
Appliance and Plug Load Reduction	Smart Power Strips	80.00	80.00	0.009	0.009
Thermostats	Smart Thermostat - Dual (Gas & Electric)	219.30	320.00	0.000	0.187
Thermostats	Smart Thermostat (Electric)	866.14	1,455.33	0.000	0.187
Other	Water Heater Temperature Setback - Elec DHW	81.27	21.21	0.009	0.002

Table A-6. 2025 Home Energy Solutions Per Unit Gross Savings – In Store Discounts Channel

Measure Group	Measure	Per Unit Gross Savings (kWh)		Per Unit Savings (Coincident Peak kW)	
		Reported	Evaluated	Reported	Evaluated
Appliance and Plug Load Reduction	Air Filter	78.23	64.33	0.000	0.021
Appliance and Plug Load Reduction	Air Purifier	426.00	303.00	0.049	0.035
Appliance and Plug Load Reduction	Dehumidifier	134.00	450.91	0.030	0.102
Appliance and Plug Load Reduction	Smart Power Strips	31.90	73.10	0.004	0.008
HVAC	ENERGY STAR Room AC	26.73	28.79	0.021	0.009
Other	Bathroom Vent Fan	59.70	49.31	0.007	0.000
Other	Pipe Insulation	281.40	108.82	0.032	0.012
Weatherization	Door Sweep	94.31	1759.68	0.002	0.005
Weatherization	Spray Foam	5.90	5.90	0.000	0.000
Weatherization	Weatherstripping	0	3.81	0.000	0.000

A.3.1. HVAC Measures

Air Conditioner and Heat Pump Tune-Up

Cadmus started with the Illinois v13.0 methodology, which used this formula to calculate savings per air conditioner and heat pump tune-up:⁹

$$\Delta kWh_{CAC} = (FLH_{Cool} \times Capacity_{cooling} * \left(\frac{1}{SEER2_{CAC}}\right)) / 1,000 \times MF_E$$

$$\Delta kWh_{ASHP} = \left(FLH_{Cool} \times Capacity_{cooling} * \left(\frac{1}{SEER2_{ASHP}}\right) / 1,000 \times MF_E \right) + (FLH_{Heat} \times Capacity_{heating} * \left(\frac{1}{HSPF2_{ASHP}}\right)) / 1,000 \times MF_E$$

$$\Delta kW = Capacity_{cooling} \times \left(\frac{1}{EER2}\right) / 1,000 \times MF_D \times CF$$

Where:

FLH_{Cool} = Full load cooling hours

⁹ These equations are referenced in the Illinois TRM v12.0. www.ilsag.info/illinois-statewide-technical-reference-manual-version-12-0/

Capacity _{cooling}	=	Cooling capacity of equipment in Btu/hour (note: 1 ton = 12,000 Btu/hour)
SEER2 _{CAC}	=	SEER2 efficiency of existing central air conditioning unit receiving maintenance (= Actual. If unknown, assume 9.5 SEER2)
MF _E	=	Maintenance energy savings factor (= 0.05)
SEER2 _{ASHP}	=	SEER2 efficiency of existing air-source heat pump unit receiving maintenance (= Actual. If unknown, assume 9.5 SEER2)
FLH _{Heat}	=	Full load heating hours
Capacity _{heating}	=	Heating capacity of equipment in Btu/hour (note: 1 ton = 12,000 Btu/hour)
HSPF2 _{ASHP}	=	Heating season performance factor of existing air-source heat pump unit receiving maintenance (= Actual. If unknown, assume 5.8 HSPF2)
EER2	=	EER2 Efficiency of existing unit receiving maintenance in Btu/Hour/Watts calculated using Actual SEER2 (= 0.02*SEER22 + 1.12*SEER2)
MF _D	=	Maintenance demand reduction factor (= 0.02)
CF	=	Summer System Peak Coincidence Factor for Central A/C during system peak hour (= 68%)

To determine full-load hours (FLH), the evaluation team matched each installation to its nearest Indiana reference city using the installation location's zip code. The "Priority Measures_VEIC Review_FINAL_08.21.23" workbook provided by Indiana includes a reference city mapping of Indiana climate zones to comparable Illinois climate zones. Using the associated Indiana city and a mapping of Illinois climate zones to Indiana climate zones, each installation location was mapped to associated Indiana and Illinois reference cities. The FLH associated with the Illinois reference city in the TRM was then used in the savings calculation for the installation. Table A-7 shows the mapping of Indiana climate cities to Illinois climate cities. Table A-8 shows the other variables used for these measures.

Table A-7. Mapping for Illinois Climate Zones/Cities to Indiana Climate Zones/Cities

Indiana City/Zone	Heating Reference	Cooling Reference
Indianapolis	Springfield	Springfield
Fort Wayne	Chicago	Rockford
South Bend	Chicago	Chicago
Terre Haute	Belleville	Marion
Evansville	Marion	Belleville
Lafayette	Chicago	Chicago
Bloomington	Belleville	Chicago
Marion	Chicago	Chicago
Muncie	Springfield	Springfield

Table A-8. 2025 Home Energy Solutions Program Air Conditioner and Heat Pump Tune-Up Calculation Variables

Variable	Value	Units	Source
BTUH _{Heat}	Varies by install	BTUH	2025 Home Energy Solutions Program tracking data
SEER2 _{CAC}	9.5	BTUH/Watt-hour	Illinois TRM v13.0
MF _E	5%	%	Illinois TRM v13.0
SEER2 _{ASHP}	9.5	BTUH/Watt-hour	Illinois TRM v13.0
BTUH _{Cool}	Varies by install	BTUH	Assuming the same as heating capacity
HSPF2 _{ASHP}	5.8	BTUH/Watt-hour	Illinois TRM v13.0
EER2	AC 8.84 HP 8.84	BTUH/Watt-hour	Illinois TRM v13.0
MF _D	5%	%	Illinois TRM v13.0
CF	68% CAC, 72% ASHP	%	Illinois TRM v13.0
Conversion	1,000	W/kW	Constant

Air Source Heat Pump, Dual Fuel Heat Pump, Central Air Conditioner, and Ductless Heat Pump

Cadmus used these equations to calculate savings per heat pump installed (excluding ISR):¹⁰

Annual kWh Savings

$$\begin{aligned}
 &= \left[\left(\text{CoolingLoad} \times \left(\frac{1}{\text{SEER2}_{\text{base}} \times (1 - \text{DeratingCoolbase})} \right) \right) \right. \\
 &\quad \left. - \left(\text{CoolingLoad} \times \left(\frac{1}{\text{SEER2}_{\text{ee}} \times (1 - \text{DeratingCoollee})} \right) \right) \right] / 1000 \\
 &\quad + \left[\left(\text{HeatLoad Disp} \times \left(\frac{1}{\text{HSPF2}_{\text{base}} \times (1 - \text{DeratingHeatbase})} \right) \right) \right. \\
 &\quad \left. - \left(\text{HeatLoad Disp} \times \left(\frac{1}{\text{HSPF2}_{\text{ee}} \times (1 - \text{DeratingHeateee})} \right) \right) \right] / 1000
 \end{aligned}$$

Demand kW Savings

$$\begin{aligned}
 &= \left[\left(\text{Capacity}_{\text{cooling}} \times \left(\frac{1}{\text{EER2}_{\text{base}} \times (1 - \text{DeratingCoolbase})} \right) \right) \right. \\
 &\quad \left. - \left(\text{Capacity}_{\text{cooling}} \times \left(\frac{1}{\text{EER2}_{\text{ee}} \times (1 - \text{DeratingCoollee})} \right) \right) \right] / 1000 \times CF
 \end{aligned}$$

Cadmus calculated central air conditioner savings using the following equation:

¹⁰ Ibid

Annual kWh Savings =

$$= \left[\left(\text{CoolingLoad} \times \left(\frac{1}{\text{SEER2base} \times (1 - \text{DeratingCoolbase})} \right) \right) - \left(\text{CoolingLoad} \times \left(\frac{1}{\text{SEER2ee} \times (1 - \text{DeratingCoolbase})} \right) \right) \right] / 1000$$

Demand kW Savings

$$= \left[\left(\text{Capacity}_{cooling} \times \left(\frac{1}{\text{EER2base} \times (1 - \text{DeratingCoolbase})} \right) \right) - \left(\text{Capacity}_{cooling} \times \left(\frac{1}{\text{EER2ee} \times (1 - \text{DeratingCoolbase})} \right) \right) \right] / 1000 \times CF$$

To determine full-load hours (FLH), the evaluation team matched each installation to its nearest Indiana reference city using the installation location's zip code. The Illinois TRM v13.0 provided a reference city mapping of Indiana climate zones to comparable Illinois climate zones. Using the associated Indiana city and a mapping of Illinois climate zones to Indiana climate zones, each installation location was mapped to an associated Indiana, and Illinois reference city. The FLH associated with the Illinois reference city in the TRM was then used in the savings calculation for the installation. Table A-7 shows the Indiana climate city to Illinois climate city mapping. Table A-9 shows the other variables used in this evaluation.

**Table A-9. 2025 Home Energy Solutions Program
Heat Pump and Central Air Conditioner Inputs Variables**

Variable	Value	Units	Source
<i>SEERbase</i>	13.3 ASHP 13 CAC	Btu/Watt-hr	Illinois TRM v13.0
<i>EERbase</i>	10.5 Replacement	Btu/Watt-hr	Illinois TRM v13.0
<i>HSPFbase</i>	8.2 Replacement	Btu/Watt-hr	Illinois TRM v13.0
CF	0.72 ASHP 0.68 CAC	decimal	Illinois TRM v13.0
<i>FLHheat</i>	Based on Table A-7	hours	Illinois TRM v13.0
<i>FLHcool</i>	Based on Table A-7	hours	Illinois TRM v13.0
<i>CoolingLoad</i>	= FLH_cooling * Capacity_ASHPCool	Load	Illinois TRM v13.0
<i>DeratingCoolbase</i>	10%	%	Illinois TRM v13.0
<i>DeratingHeatbase</i>	10%	%	Illinois TRM v13.0

The Midstream channel data did not provide capacity (BTUH), SEER (SEERnew), EER (EERnew), or HSPF (HSPFnew) in the installation data. Cadmus used averages of these variables from the non-Midstream Home Energy Solutions program data from 2019, 2020, and 2021 to calculate savings for each installation. For the systems with new qualifications that were not in historical data, Cadmus used average values by

measure from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) directory¹¹. Baseline SEER, EER, and HSPF values come from the Illinois TRM v11, rather than the Illinois TRM v13.0, because the newer TRM has new test procedure values (SEER2, EER2, HSPF2), while CenterPoint’s non-Midstream Home Energy Solutions historical program data from 2019, 2020, and 2021 rely on the old test procedure values.

Early Replacement Savings

The tracking data provided a field to track early replacement units, but the field was not consistently populated. The tracking data did not contain early replacement information for HVAC electric. Therefore, Cadmus determined an early replacement proportion using historical installation data from 2019 to 2024 across all air source heat pump and central air conditioner measures. Cadmus further vetted these data by including only installations with data entries for “existing unit age” and “condition of existing unit.” Cadmus considered any installed equipment less than 18 years old for central air conditioners and 16 years for ASHPs and an operable condition to be an early replacement installation. Using this approach, 26% of air source heat pump and central air conditioner installations in 2025 qualified as early replacement.

Efficiency metrics of baseline equipment in early replacement cases were based on appropriate federal standard values for HSPF and SEER. These values are shown in Table A-10.

Table A-10. 2025 Mechanical System Efficiency by Age

Mechanical Systems	Units	1993–2006	2006–2015	2015–present
Air Source Heat Pump	HSPF	6.8	7.7	8.2
Air Source Heat Pump	SEER	10	13	14
Central Air Conditioner	SEER			

Using the table above in conjunction with equipment age information from installation data, Cadmus determined the baseline SEER and HSPF values. For installations missing input in this data field, Cadmus applied the average equipment age of the other installations for which the equipment age was less than the EUL of the measure.

Ductless Heat Pump

For the 2024 evaluation, Cadmus used the Illinois TRM v13.0 method. Cadmus calculated ductless heat pump savings using these equations (excluding ISR):

¹¹ AHRI directory used for SEER, HSPF, and EER input values by measure model number. [AHRI Certification Directory \(ahridirectory.org\)](https://ahridirectory.org)

Annual kWh Savings

$$\begin{aligned}
 &= \left[\left(\text{CoolingLoad}/\text{DuctlessSave} \times \left(\frac{1}{\text{SEER2base} \times (1 - \text{DeratingCoolbase})} \right) \right) \right. \\
 &\quad \left. - \left(\text{CoolingLoad}/\text{DuctlessSave} \times \left(\frac{1}{\text{SEER2ee} \times (1 - \text{DeratingCoollee})} \right) \right) \right] / 1000 \\
 &+ \left(\text{HeatLoad Disp}/\text{DuctlessSave} \times \left(\frac{1}{\text{HSPF2base} \times (1 - \text{DeratingHeatbase})} \right) \right) \\
 &\quad - \left(\text{HeatLoad Disp}/\text{DuctlessSave} \times \left(\frac{1}{\text{HSPF2ee} \times (1 - \text{DeratingHeatee})} \right) \right) / 1000
 \end{aligned}$$

Demand kW Savings

$$\begin{aligned}
 &= \left[\left(\text{Capacity}_{cooling} \times \left(\frac{1}{\text{EER2base} \times (1 - \text{DeratingCoolbase})} \right) \right) \right. \\
 &\quad \left. - \left(\text{Capacity}_{cooling} \times \left(\frac{1}{\text{EER2ee} \times (1 - \text{DeratingCoollee})} \right) \right) \right] / 1000 \times CF
 \end{aligned}$$

To determine full-load hours (FLH), each installation was matched to its nearest Indiana reference city using the installation location's zip code. The Illinois TRM v13.0 provided a reference city mapping of Indiana climate zones to comparable Illinois climate zones. Using the associated Indiana city, and a mapping of Illinois climate zones to Indiana climate zones, each installation location was mapped to an associated Indiana, and Illinois reference city. The FLH associated with that Illinois reference city in the TRM was then used in the savings calculation for the installation. Table A-11 shows the Indiana climate city to Illinois climate city mapping. Table A-12 shows the other variables used in this evaluation.

Cadmus used output capacity (a variable within *CoolingLoad*), SEER2 (SEER2_{ee}), EER2 (EER2_{ee}), and HSPF2 (HSPF2_{ee}) values of installed equipment from the program data on a per-installation basis. The Midstream channel data did not provide output capacity (*Capacity_{cool}* and *Capacity_{heat}*), SEER (SEER_{ee}), EER (EER_{ee}), or HSPF (HSPF_{ee}) in the installation data. Similar to the HVAC measures, Cadmus used model and make information from the 2025 program data to match SEER, EER, and HSPF values from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) directory¹².

¹² AHRI directory used for SEER, HSPF, and EER input values by measure model number. [AHRI Certification Directory \(ahridirectory.org\)](https://www.ahridirectory.org)

Table A-11. 2025 Home Energy Solutions Program Ductless Heat Pump Input Variables

Variable	Value	Units	Source
DuctlessSave	0.85	-	Factor used to adjust ducted heating or cooling load displaced by ductless systems that are not subject to losses from existing ductwork. From Illinois TRM v13.0. = 1-0.15 = 0.85 for ducted system displaced by ductless system.
HSPFbase	3.412	Btu/Watt-hour	Assume electric baseboard heat as baseline
SEERbase	10.9	Btu/Watt-hour	Illinois TRM v13.0, assuming existing room AC
EERbase	10.6	Btu/Watt-hour	Illinois TRM v13.0, assuming existing room AC
CF	0.72	-	Illinois TRM v13.0
FLH _{heat}	Based on Table A-7	hours	Illinois TRM v13.0
FLH _{cool}	Based on Table A-7	hours	Illinois TRM v13.0
CoolingLoad	= FLH _{cooling} * Capacity _{ASHPCool}	Load	Illinois TRM v13.0
DeratingCoolbase	10%	%	Illinois TRM v13.0
DeratingHeatbase	10%	%	Illinois TRM v13.0

A.3.2. Thermostat Measures

Smart Programmable (Learning) and Wi-Fi Thermostats (Non-Learning)

CenterPoint Energy's Home Energy Solutions Program has two types of thermostat measures: smart thermostats (mostly learning¹³ and Wi-Fi thermostats (mostly non-learning).

Cadmus calculated smart and Wi-Fi thermostat savings using the following equations (excluding ISR).

$$\text{Annual kWh Savings} = \Delta kWh_{HEATING} + \Delta kWh_{COOLING}$$

$$\Delta kWh_{HEATING} = FLH_{HEAT} * BTUH_{HEAT} * ESF_{AdjustedBaseline_{HEAT}} * \left(\frac{\%_{HEAT PUMP}}{\eta_{HEAT PUMP} * 3412} + \frac{\%_{ER}}{\eta_{ER} * 3412} \right) * TStat_Type_{Adjustment}$$

$$\Delta kWh_{Cooling} = \Delta Cooling_{AdjustedBaseline} * TStat_{Type_{COOLINGDiscountRate}} * \%AC$$

Each thermostat category has two measures: one for dual fuel and one for electric. Cadmus used the same savings methodology for both categories of thermostats, though savings differ significantly because of

¹³ Examples of learning thermostats are all Nest thermostats and ecobee3, which all have advanced features that can attribute to higher savings. These features include occupancy detection, heat pump lockout temperature control, upstaging and downstaging, optimal humidity/humidity control/air conditioner overcool, fan dissipation, behavioral features, and free cooling/economizer capability.

differences in the proportion of learning and non-learning thermostats in each category.¹⁴ Table A-12 shows the inputs Cadmus used to evaluate impacts for this measure.

Cadmus applied savings to installations with defined heating or cooling equipment for that equipment type. For installations with no defined equipment type, Cadmus applied partial electric and gas savings based on the equipment saturations of existing heating equipment reported in Table A-12. Cadmus used the average heat pump capacity from the tracking database for the BTUH capacity in the electric heating savings calculation. Cadmus used a heat pump efficiency of 2.40 based on the federal standard.

Thermostat savings are dependent on climate and region, however the Illinois TRM v13.0 does not contain data for Indiana. To determine EFLH, each installation was matched to its nearest Indiana TRM v2.2 reference city using the installation location's zip code. The FLH associated with that reference city was then used in the savings calculation for the installation.

For the program data that included fields describing service territory, water heater fuel type, and heating system fuel type, Cadmus used these fields to determine which installations should receive savings and for which fuel type.

Table A-12. 2025 Home Energy Solutions Program Thermostat Input Variables

Variable	Value	Units	Source
$\eta_{HEAT\ PUMP}$	2.40	-	Federal standard
η_{ER}	1.0	-	Indiana TRM v2.2
$BTUH_{HEAT}$	36,334	BTUH	Average of 2025 CenterPoint Energy Home Energy Solutions heat pump tracking data capacities
$\%_{HEAT\ PUMP}$	2%	%	2025 Home Energy Solutions Program participant survey
$\%_{GAS}$	92%	%	2025 Home Energy Solutions Program participant survey
$\%_{ER}$	6%	%	2025 Home Energy Solutions Program participant survey
Manual thermostat saturation	18%	%	2025 Home Energy Solutions Program participant survey
Programmable thermostat saturation	82%	%	2025 Home Energy Solutions Program participant survey

¹⁴ Cadmus reviewed thermostat capabilities using model numbers to determine if the thermostat was learning or non-learning.

Variable	Value	Units	Source
$TStat_Type_{DiscountRate}$	31% non-learning 100% learning	%	The 2013–2014 Thermostat Evaluation indicates that heating savings are highly dependent on thermostat technology and that cooling savings are not.
$TStat_Type_{COOLING_DiscountRate}$	100%	%	No cooling savings adjustment can be directly derived from the comparative study of smart Wi-Fi thermostats. Cadmus is not comfortable discounting products without direct supporting evidence. The 2013–2014 Thermostat Evaluation indicates that heating savings are highly dependent on thermostat technology and that cooling savings are not.
$ESF_{AdjustedBaseline_{HEAT}}$	9.7%	%	Calculated, example below
%AC	72%	%	2025 Home Energy Solutions Program participant survey
$\Delta Cooling_{AdjustedBaseline}$	253	kWh	Calculated, example below

Smart Thermostats

Cadmus calculated smart thermostat savings using the following equation (excluding ISR).

$$\Delta kWh = \left(\%AC \times \left(\frac{EFLH_c \times CAP_c \times \frac{1}{SEER2}}{1000} \right) \times Cooling\ Reduction \times Eff_{ISR_{Cool}} \right) + (\%Electric\ Heat \times Electric\ Heating\ Consumption \times Heating\ Reduction \times HF \times Eff_{ISR_{Heat}} + (\Delta Therms\ Heating * F_e * 29.3))$$

$$\Delta kW = \%AC \times \frac{CAP_c}{EER2 \times 1,000} \times Eff_{ISR_{Cool}} \times CF \times Cooling\ Demand\ Reduction$$

Savings inputs Cadmus used for its *ex post* calculations are shown in Table A-13.

Table A-13. 2025 Home Energy Solutions Program Smart Thermostat Savings Inputs

Variable	Value	Units	Source
Capacity (CAPc)	28,000; 33,600	BTUH/hour	Illinois TRM v13.0
Efficient SEER2	11.4	-	Illinois TRM v13.0
Efficient EER2	10		Illinois TRM v13.0
Electric Heating Consumption (Marion)	13,970		Illinois TRM v13.0
Cooling Reduction	8.4%	%	Illinois TRM v13.0
Cooling Demand Reduction	16.4%	%	Illinois TRM v13.0
Heating Reduction	8.5%	%	Illinois TRM v13.0
Household Factor to adjust heating consumption (HF)	100%	%	Illinois TRM v13.0
Furnace Fan Energy Consumption (Fe)	3.14%	%	Illinois TRM v13.0
Coincidence Factor (CF)	34%	%	Illinois TRM v13.0

2013–2014 Thermostat Evaluation and Adjusted Baseline

Cadmus' analysis of smart thermostat savings used the results of a separate Cadmus evaluation of programmable and Nest Wi-Fi thermostats in CenterPoint Energy South territory.¹⁵ This evaluation reports household cooling energy savings of 332 kWh and a household heating energy saving factor (ESF) of 5% for programmable thermostats. It reports household cooling energy savings of 429 kWh and a household heating ESF of 12.5% for Nest Wi-Fi thermostats.

This study used a 100% manual thermostat baseline for both programmable and Nest Wi-Fi thermostats. However, the 2023 and 2024 Home Energy Solutions Program participant survey data indicated that the saturation was 18% for manual thermostats and 82% for programmable thermostats.

Cadmus used the reported household cooling and heating savings for programmable thermostats from the 2013–2014 Cadmus thermostat study and a weighted average to adjust the savings for Nest thermostats from a manual thermostat baseline to a mixed manual and programmable thermostat baseline.

Cadmus used the following equations:¹⁶

$$\Delta Cooling_{AdjustedBaseline} = [18\% * 429 + 82\% * (429 - 215.3)] * 82\% = 253 \text{ kWh}$$

$$ESF_{AdjustedBaseline_{HEAT}} = 18\% * 12.5\% + 82\% * (12.5\% - 3.4\%) = 9.7\%$$

In the $\Delta Cooling_{AdjustedBaseline}$ calculation, the 215.3 represents the cooling savings (332 kWh multiplied by 65% correct use factor) for programmable thermostats.¹⁷ Cadmus did equivalent calculations to obtain adjusted baseline values for ESF-heat. The 2013–2014 thermostat evaluation investigated only homes with gas heating, so Cadmus assumed that the percentage of gas savings from that evaluation apply to electric heat as well.

Learning and Non-Learning Wi-Fi Thermostats

The 2014 thermostat evaluation concerned Nest Wi-Fi thermostats only. In 2025, the Home Energy Solutions Program's tracking data recorded many more models of smart and Wi-Fi-enabled thermostats. According to a later study Cadmus conducted in 2015 for a Midwest utility thermostat program,¹⁸ there is a significant difference in savings between Nest Wi-Fi thermostats and other Wi-Fi thermostats; this study yielded a heating savings discount rate of 31% for non-Nest Wi-Fi thermostats. This means non-learning

¹⁵ Cadmus. January 29, 2015. *Evaluation of the 2013–2014 Programmable and Smart Thermostat Program*.

¹⁶ Cadmus. January 29, 2015. *Evaluation of the 2013–2014 Programmable and Smart Thermostat Program*.

¹⁷ The correct use rate is the percentage of homeowners that use their basic programmable or non-learning Wi-Fi thermostat in an energy-saving manner (i.e. by turning the setpoint down in the winter or up in the summer).

¹⁸ Cadmus conducted an evaluation of thermostats for a Midwest utility, but the report is not publicly available.

thermostats save 31% as much heating energy as learning thermostats.¹⁹ The results of Cadmus' evaluation of the 2016 Vectren Smart Thermostat Pilot supported this conclusion.²⁰ However, no cooling savings adjustment can be directly derived from the comparative study conducted in 2015 for a Midwest utility because the result was not statistically different from 0%.

The Vectren 2013–2014 Programmable and Smart Thermostat Program Evaluation indicates that heating savings are highly dependent on thermostat technology and that cooling savings are not. Heating savings are 5% for programmable thermostats and 12.5% for smart Wi-Fi thermostats, and cooling savings are 13.1% for programmable thermostats and 13.9% for smart Wi-Fi thermostats. Cadmus did not discount specific name brands without direct supporting evidence and instead took a features-based approach. Cadmus determined if each thermostat in the tracking data exhibited learning features. For the 2025 evaluation, Cadmus applied the 31% discount rate to the heating savings of all non-learning thermostat installations.

CenterPoint Energy's thermostat offerings for 2025 align with this evaluation approach, segmenting Wi-Fi-enabled thermostats into two separate thermostat measures: smart and Wi-Fi thermostats. In 2025, Cadmus found that thermostats rebated through both the smart thermostats and Wi-Fi thermostat measure categories were overwhelmingly non-learning thermostats, which meant applying the 31% discount to all but a handful of thermostats for these measures. Differences in savings between these thermostat variants can be attributed to the proportion of learning thermostats in each thermostat measure.

A.3.3. Weatherization Measures

Air Sealing

The evaluation team used the air sealing's methodology 2 (the prescriptive method) from the Illinois TRM v13.0 to calculate *expost* per-measure energy savings and demand reduction for air sealing. For unknown HVAC fuel types, the evaluation team used the fuel saturations from the Indiana TRM v1.0. Because a blower door test was not conducted, the prescriptive methodology was used for air sealing, door sweeps, and foam spray:

$$\Delta kWh = (\Delta kWh_{Heating} + \Delta kWh_{Cooling}) * ADJR_{xAirsealing}$$

$$\begin{aligned} \Delta kWh_{Heating} = & (\Delta kWh_{gasket_heat} * ngasket * ISR + \Delta kWh_{windows_heat} * sfwindows * ISR \\ & + \Delta kWh_{sweep_heat} * nsweep * ISR + \Delta kWh_{sealing_heat} * lfsealing * ISR \\ & + \Delta kWh_{WX_heat} * lfWX * ISR) \end{aligned}$$

¹⁹ Examples of learning Wi-Fi-enabled thermostats are all Nest thermostats and Ecobee3, which have advanced features that Cadmus believes are attributable to higher savings. These features include occupancy detection, heat pump lockout temperature control, upstaging and downstaging, optimal humidity/humidity control/air conditioner overcool, fan dissipation, behavioral features, and free cooling/economizer capability.

²⁰ Cadmus. August 8, 2017. *Vectren Residential Smart Thermostat Program 2016 Energy Savings Analysis*.

$$\Delta kWh_{Cooling} = (\Delta kWh_{gasket_cool} * n_{gasket} * ISR + \Delta kWh_{windows_cool} * sf_{windows} * ISR + \Delta kWh_{sweep_cool} * ns_{sweep} * ISR + \Delta kWh_{sealing_cool} * lf_{sealing} * ISR + \Delta kWh_{WX_cool} * lf_{WX} * ISR)$$

Where:

ΔkWh_{gasket} = Annual kWh savings from installation of air sealing gasket on an electric outlet

n_{gasket} = Number of gaskets installed

Table A-14 shows the inputs Cadmus used to evaluate impacts for gaskets.

Table A-14. 2025 Climate Zone Inputs for Gaskets

Climate Zone (City based upon)	$\Delta kWh_{gasket_heat} / \text{gasket}$		$\Delta kWh_{gasket_cool} / \text{gasket}$	
	Electric Resistance	Heat Pump	With Cooling	Unknown Cooling
1 (Rockford)	10.5	5.3	1	0.7
2 (Chicago)	10.2	5.1	1.2	0.8
3 (Springfield)	8.8	4.4	1.4	1
4 (Belleville)	7	3.5	2	1.3
5 (Marion)	7.2	3.6	1.7	1.1

$\Delta kWh_{windows}$ = Annual kWh savings from installation of Shrink-Fit Window Kit²¹

Table A-15 shows the inputs Cadmus used to evaluate impacts for window kits

Table A-15. 2025 Climate Zone Inputs for Window Kits

Climate Zone (City based upon)	$\Delta kWh_{windows_heat} / \text{sq ft}$	
	Electric Resistance	Heat Pump
1 (Rockford)	4	2.1
2 (Chicago)	3.9	2
3 (Springfield)	3.3	1.7
4 (Belleville)	2.5	1.3
5 (Marion)	2.6	1.3

$sf_{windows}$ = square footage of shrink-fit window film

ΔkWh_{sweep} = Annual kWh savings from installation of door sweep

Table A-16 shows the inputs Cadmus used to evaluate impacts for door sweeps.

²¹ Prescriptive savings are based upon "Cost Benefit Analysis for 2018, Annual Report submitted to Virginia Natural Gas, Inc., submitted by Nexant." July 31, 2018. Adjusted for relative HDD of Virginia Beach VA with the Illinois climate zones. See "Window Film Savings Calculation.xlsx" for more information.

Table A-16. 2025 Climate Zone Inputs for Door Sweeps

Climate Zone (City based upon)	$\Delta kWh_{sweep_heat} / sweep$		$\Delta kWh_{sweep_cool} / sweep$	
	Electric Resistance	Heat Pump	With Cooling	Unknown Cooling
1 (Rockford)	202.4	101.2	3.9	2.6
2 (Chicago)	195.3	97.6	4.6	3
3 (Springfield)	169.3	84.7	5.7	3.7
4 (Belleville)	134.9	67.5	7.8	5.1
5 (Marion)	137.9	68.9	6.6	4.3

n_{sweep} = Number of sweeps installed

$\Delta kWh_{sealing}$ = Annual kWh savings from foot of caulking, sealing, or polyethylene tape

Table A-17 shows the inputs Cadmus used to evaluate impacts for sealing.

Table A-17. 2025 Climate Zone Inputs for Sealing

Climate Zone (City based upon)	$\Delta kWh_{sealing_heat} / ft$		$\Delta kWh_{sealing_cool} / ft$	
	Electric Resistance	Heat Pump	With Cooling	Unknown Cooling
1 (Rockford)	11.6	5.8	0.11	0.07
2 (Chicago)	11.2	5.6	0.12	0.08
3 (Springfield)	9.7	4.8	0.15	0.1
4 (Belleville)	7.7	3.9	0.21	0.14
5 (Marion)	7.9	3.9	0.18	0.12

$lf_{sealing}$ = linear feet of caulking, sealing, or polyethylene tape

ΔkWh_{WX} = Annual kWh savings from window weatherstripping or door weatherstripping

Table A-18 shows the inputs Cadmus used to evaluate impacts for weatherstripping.

Table A-18. 2025 Climate Zone Inputs for Weatherstripping

Climate Zone (City based upon)	$\Delta kWh_{WX_heat} / ft$		$\Delta kWh_{WX_cool} / ft$	
	Electric Resistance	Heat Pump	With Cooling	Unknown Cooling
1 (Rockford)	13.5	6.7	0.1	0.06
2 (Chicago)	13	6.5	0.12	0.08
3 (Springfield)	11.3	5.6	0.14	0.09
4 (Belleville)	9	4.5	0.2	0.13
5 (Marion)	9.2	4.6	0.16	0.11

lf_{WX} = Linear feet of window weatherstripping or door weatherstripping

$ADJ_{RxAirsealing}$ = Adjustment for air sealing savings to account for prescriptive estimates overclaiming savings²²

= 80%

ISR = In service rate of weatherization kits dependant on install method as listed in table below.²³

Table A-19 lists ISRs Cadmus used to evaluate impacts for these measures.

²² Although we do not have a specific evaluation to point to, modeled savings have often been found to overclaim. Further VEIC reviewed these deemed estimates and consider them to likely be a high estimate. As such an 80% adjustment is applied, and this could be further refined with future evaluations.

²³ For any air sealing kit measure, if research indicates that a certain percentage of participants who indicated during the original ISR survey that they plan to install are found to have actually installed at a later date, these future installations can be claimed as second- or third-year installs through an errata.

Table A-19 2025 Home Energy Solutions Program ISR Reference

Selection	ISR
Distributed School Weatherization Kits	0.57 ²⁴
Distributed Self-Install Income-Qualified Kits²⁵	
Weatherstripping	0.63
Outlet and Switch Gaskets	0.40 ²⁶
Window Kit	0.57
Door sweep	0.62 ²⁷
Other Distributed Self-Install Income-Qualified Measures	0.67 ²⁸
Opt-in Weatherization Kits²⁹	
V-seal weatherstripping	0.68
Cell foam tape weatherstripping	0.72
Rope Caulk	0.60
Switch and outlet gaskets	0.76
Door sweep	0.68
Other Self-Install Weatherization Measures	0.69
Direct Install, Retail	1.0

²⁴ Results from Home Energy Worksheets completed by student/families in 2020, 2021, and 2022 were nearly the same as values from ILLUME Advising LLC. School-Based Energy Education Programs: Goals, Challenges, and Opportunities. October 2015. See result for AEP Ohio Weather stripping/door sweep/gaskets kit in table on page 17. Home Energy Worksheets also establish the fraction of participants who indicate they “will install later” for specific measures. Follow-up research completed by Guidehouse for Nicor Gas in 2022 found that, on average, 51.3% of respondents who initially reported that they had not installed specific kit measures, but “planned to” subsequently had installed the measures. Combining these findings allows for an ISR that accounts for initial and one round of subsequent installations. To maintain a conservative estimate of ISR, the remaining 48.7% are presumed uninstalled. See: EESchoolKitSubsequentInstall_HEW.xlsx for data and calculations.

²⁵ Guidehouse. Income Eligible Gas Kits ISR Special Study Results. June 16, 2020.

²⁶ Research from 2021 Ameren Illinois Income Qualified participant survey, available on Illinois SAG website. ilsag.s3.amazonaws.com/AIC-Income-Qualified-Initiative-Participant-Survey-Results-Memo-FINAL-2022-02-01.pdf

²⁷ Research from 2021 Ameren Illinois Income Qualified participant survey, available on Illinois SAG website. ilsag.s3.amazonaws.com/AIC-Income-Qualified-Initiative-Participant-Survey-Results-Memo-FINAL-2022-02-01.pdf

²⁸ Straight average of other measures.

²⁹ Table 16, Illinois TRM Workpaper ESK ISR Follow-up Survey 2023-05-30

Attic Insulation

The evaluation team used two equations from the Illinois TRM v13.0 to calculate *expost* per-measure energy savings and demand reduction for attic insulation:

$$kWh\ savings_{insulation} = (\Delta kWh_{cooling} + \Delta kWh_{heatingElectric} + \Delta kWh_{heatingFurnace})$$

$$\Delta kWh_{Cool} = (((1/R_{old} - 1/R_{attic}) * A_{attic} * (1 - FF_{attic})) * 24 * CDD * DUA * ADJ_{A_Cool} * \%Cool) \eta_{Cool} * 1,000$$

$$kWh_{HeatElec} = (((1/R_{old} - 1/R_{attic}) * A_{attic} * (1 - FF_{attic})) * 24 * HDD * ADJ_{A_HeatElec} * \%HeatElec) \eta_{Heat} * 3,412$$

$$\Delta kW = (\Delta kWh_{cool} FLH_{cool}) * CF \quad \Delta kW = \Delta kWh_{cool} FLH_{cool} * CF$$

Where:

ΔkWh_{cool} = Reduction in annual cooling requirement due to attic insulation (kWh)

$\Delta kWh_{HeatElec}$ = Reduction in annual electric heating due to attic insulation (kWh)

R_{old} = R-value of old attic assembly

R_{attic} = R-value of new attic assembly and any existing insulation

A_{attic} = Total area of insulated attic (ft²)

FF_{attic} = Framing factor adjustment to account for area of framing (= 7%)

CDD = Cooling Degree Days, dependent on location

HDD = Heating Degree Days, dependent on location

DUA = Discretionary Use Adjustment (reflects the fact that people do not always operate their AC when conditions may call for it) (= 0.75)

η_{Cool} = Seasonal Energy Efficiency Ratio of cooling system (kBtu/kWh)

ADJ_{A_Cool} = Adjustment for cooling savings to account for inaccuracies in engineering algorithms

$ADJ_{A_HeatElec}$ = Adjustment for electric heating savings to account for inaccuracies in engineering algorithms

$\%Cool$ = Percentage of homes that have cooling (%)

$\%HeatElec$ = Percentage of homes that have electric space heating (%)

FLH_{cool} = Full load cooling hours of air conditioning

CF = Summer peak coincidence factor

1,000 = Converts Btu to kBtu (Btu/kBtu)

3,412 = Converts Btu to kWh (Btu/kWh)

Table A-20 provides variables for the attic insulation inputs.

Table A-20. 2025 Home Energy Solutions Program Attic Insulation Input Variables

Variable	Value	Units	Source
R _{old}	Varies by install	-	Actual from program data. Average values used for missing data.
R _{attic}	Varies by install	-	Actual from program data. Average values used for missing data.
A _{attic}	Varies by install	-	Actual from program data. Average values used for missing data.
FF _{attic}	7%	%	Illinois TRM v13.0
CDD	1,641	CDD	Illinois TRM v13.0 pg. 423. Mapped to Indiana cities based on "Priority Measures_VEIC Review_FINAL_08.21.23" workbook climate zone mapping (in READ ME tab)
HDD	3,188	HDD	Illinois TRM v13.0 pg. 423. Mapped to Indiana cities based on "Priority Measures_VEIC Review_FINAL_08.21.23" workbook climate zone mapping (in READ ME tab)
DUA	0.75	-	Illinois TRM v13.0
η _{Cool}	10	-	Illinois TRM v13.0
ADJ _{A_Cool}	114%	%	Illinois TRM v13.0
ADJ _{A_HeatElec}	63%	%	Illinois TRM v13.0
%Cool	72%	%	Vectren REP Participant Survey
%HeatElec	1%	%	Vectren REP Participant Survey
FLH _{cool}	Varies by install	-	Illinois TRM v13.0. Mapped to Indiana cities based on "Priority Measures_VEIC Review_FINAL_08.21.23" workbook climate zone mapping (in READ ME tab)
CF	69%	%	Illinois TRM v13.0

Duct Sealing

Cadmus applied this algorithm from the Illinois TRM v13.0 to calculate and verify energy savings (excluding ISR):

$$\Delta kWh = \Delta kWh_{cooling} + \Delta kWh_{fan} + \Delta kWh_{electric_heating}$$

$$\Delta kWh_{cooling} = \left(\frac{\Delta CFM25_{DL}}{\left(\frac{CapacityCool \times 400}{12,000} \right)} \times FLH_{cool} \times CapacityCool \times TRF_{cool} \times \%Cool \right) \times \left(\frac{n_{Cool}}{1,000} \right)$$

$$\Delta kWh_{fan} = \Delta Therms \times Fe \times 29.3$$

$$\Delta kWh_{electric_heating} = \left(\frac{\Delta CFM25_{DL}}{\left(\frac{CapacityHeat \times 400}{12,000} \right)} \times FLH_{heat} \times CapacityHeat \times TRF_{heat} \times \%ElectricHeat \right) \times \left(\frac{n_{Heat}}{3,412} \right)$$

$$\Delta kW = \frac{\Delta kWh_{cooling}}{FLH_{cool}} \times CF$$

The inputs used for these formulas are shown in Table A-21.

Table A-21. 2025 Home Energy Solutions Program Duct Sealing Savings Inputs

Description	Assumption	Source
Duct Leakage Reduction ($\Delta CFM_{25_{DL}}$)	Varies	2025 program tracking data
CapacityCool	28,526	2025 program tracking data; average capacity from air conditioning measures
CapacityHeat	29,518	2025 WI TRM
Thermal Regain Factor (TRFcool)	0.4	Illinois TRM v13.0
Thermal Regain Factor (TRFheat)	0.4	Illinois TRM v13.0
nCool	12.4	Illinois TRM v13.0
nHeat	1	Illinois TRM v13.0
FLHcool - Belleville	1082	Illinois TRM v13.0
FLHheat - Marion	1270	Illinois TRM v13.0
Furnace Fan energy consumption (Fe)	3.14%	Illinois TRM v13.0
Coincidence factor (CF)	0.68	Illinois TRM v13.0

A.3.4. Other Measures

Air Filter

The evaluation team used the Air Handler Filter Cleaning/Replacement from the Illinois TRM v13.0 to calculate *ex post* per-measure energy savings and demand reduction for air filters:

$$\Delta kWh = kW_{motor} * (EFLH_{heat} + (\%AC * EFLH_{cool})) * \%FanSave$$

Where:

kW_{motor} = Average air handler fan motor full load electric demand = 0.377 kW³⁰

$EFLH_{heat}$ = Equivalent Full Load Hours for heating. Depends on location. See Table A-22

Table A-22. 2025 Home Energy Solutions Program EFLH Heating Inputs

Indiana Climate Zone	Climate Zone (City based upon)	$EFLH_{heat}$
N/A	1 (Rockford)	1,520
Fort Wayne	2 (Chicago)	1,421
Indianapolis	3 (Springfield)	1,347
Terre Haute	4 (Belleville)	977

³⁰ Typical blower motor capacity for gas furnace is ¼ to ¾ hp. Midpoint is ½ hp. ½ hp × 0.746 (kW/hp)=0.377kW.

Indiana Climate Zone	Climate Zone (City based upon)	EFLH _{heat}
Evansville	5 (Marion)	994
Weighted Average	Weighted Average	1,406

%AC = Fraction of customers with thermostat-controlled air-conditioning. See Table A-23

Table A-23. 2025 Home Energy Solutions Program Thermostat Control Inputs

Thermostat control of air conditioning?	%AC
Yes	100%
No	0%
Unknown	82.5%

EFLH_{cool} = Equivalent Full Load Hours for cooling. Depends on location. If no cooling, assume 0. See Table A-24.

Table A-24. 2025 Home Energy Solutions Program EFLH Cooling Inputs

Indiana Climate Zone	Climate Zone (City based upon)	EFLH _{cool}
N/A	1 (Rockford)	323
Fort Wayne	2 (Chicago)	308
Indianapolis	3 (Springfield)	468
Terre Haute	4 (Belleville)	629
Evansville	5 (Marion)	549
Weighted Average	Weighted Average	364

%FanSave = Assumed percent fan savings = 10%

Air Purifier

Cadmus calculated air purifier savings based using the following equations (excluding ISR):³¹

$$\text{Annual kWh Savings} = kWh_{\text{Deemed}}$$

$$\text{Demand kW Savings} = \frac{\text{Annual kWh Savings}}{\text{Hours}} * CF$$

Table A-25 shows the inputs Cadmus used to evaluate impacts for this measure.

³¹ These equations are referenced in the Illinois TRM v12.0.

Table A-25. 2025 Home Energy Solutions Program Air Purifier Input Variables

Variable	Value	Units	Source
CF	66.7%	%	Illinois TRM v13.0
Hours	5,844	Hours	Illinois TRM v13.0

Cadmus used the Illinois TRM v13.0 to develop savings methodology for air purifiers.³² This method assigns deemed kilowatt-hour savings to an air purifier according to its smoke clean air delivery rate (CADR). The tracking data did not include equipment CADR, so Cadmus researched CADR values for each installation based on the installations reported equipment model number.

Clothes Dryer

Cadmus calculated clothes dryer savings using the following equations (excluding ISR):³³

$$\text{Annual kWh Savings} = \left(\frac{\text{Load}}{\text{CEF}_{\text{base}}} - \frac{\text{Load}}{\text{CEF}_{\text{eff}}} \right) * N_{\text{cycles}} * \% \text{Electric}$$

$$\text{Demand kW Savings} = \frac{\text{Annual kWh Savings}}{\text{Hours}} * \text{CF}$$

Table A-26 shows the inputs Cadmus used to evaluate impacts for this measure.

Table A-26. 2025 Home Energy Solutions Program Clothes Dryer Input Variables

Variable	Value	Units	Source
Load	Varies by dryer size	lbs	Illinois TRM v13.0
CEF_{base}	Varies by dryer class	lbs/kWh	Illinois TRM v13.0
CEF_{eff}	Varies by install	lbs/kWh	ENERGY STAR QPL
N_{cycles}	283	Cycles/year	Illinois TRM v13.0
%Electric	100%	%	Program design targets only electric dryers
Hours	283	Hours/year	Illinois TRM v13.0
CF	3.8%	-	Illinois TRM v13.0

Cadmus used the Illinois TRM v13.0 to develop savings methodology for clothes dryers. The tracking data did not include information about dryer size, dryer class, or combined energy factor (CEF), so Cadmus matched each installation's manufacturer and model number to the ENERGY STAR qualified product list (QPL) to pull these values. For the few dryers without matches on the ENERGY STAR QPL, Cadmus found these values from online retailers using the installations' reported equipment manufacturer and model number.

³² Ibid.

³³ Ibid.

Clothes Washer

Cadmus calculated clothes washer savings using the following equations (excluding ISR):³⁴

$$\begin{aligned}
 \text{Annual kWh Savings} &= \text{Capacity} * N_{\text{cycles}} \\
 &\quad * \left(\left(\frac{1}{\text{IMEF}_{\text{base}}} * \text{Consumption \%}_{\text{base}} \right) - \left(\frac{1}{\text{IMEF}_{\text{eff}}} * \text{Consumption \%}_{\text{eff}} \right) \right) \\
 \text{Consumption \%}_{\text{base}} &= \left(\%CW_{\text{base}} + (\%Electric_{\text{DHW}} * \%DHW_{\text{base}}) + (\%Dryer_{\text{base}} * \%Electric_{\text{dryer}}) \right) \\
 \text{Consumption \%}_{\text{eff}} &= \left(\%CW_{\text{eff}} + (\%Electric_{\text{DHW}} * \%DHW_{\text{eff}}) + (\%Dryer_{\text{eff}} * \%Electric_{\text{dryer}}) \right) \\
 \text{Demand kW Savings} &= \frac{\text{Annual kWh Savings}}{\text{Hours}} * CF \\
 \text{Water Savings} &= \text{Capacity} * N_{\text{cycles}} * (\text{IWF}_{\text{base}} - \text{IWF}_{\text{eff}})
 \end{aligned}$$

Table A-27 shows the inputs Cadmus used to evaluate impacts for this measure.

Cadmus used the Illinois TRM v13.0 to develop savings methodology for clothes washers. The tracking data did not include information about the integrated modified energy factor (IMEF), integrated water factor (IWF), or capacity, so Cadmus matched each washer's manufacturer and model number to the ENERGY STAR QPL to determine these values. For the few washers without matches on the ENERGY STAR QPL, Cadmus found these values from online retailers using the installations' reported equipment manufacturer and model number.

Therms savings were also calculated for clothes washer installation locations with gas accounts for cost-effectiveness inputs. These therms savings reflect the savings associated with a clothes washer upgrade's impact on a gas hot water system and gas dryer. Additional water savings benefits were also calculated for all clothes washer installations for cost-effectiveness inputs.

³⁴ These equations are referenced in the Illinois TRM V11.

Table A-27. 2025 Home Energy Solutions Program Clothes Washer Input Variables

Variable	Value	Units	Source
Capacity	Varies by install	Cubic feet	ENERGY STAR QPL
$IMEF_{base}$	1.71	lbs/kWh	Illinois TRM v13.0
$IMEF_{eff}$	Varies by install	lbs/kWh	ENERGY STAR QPL
N_{cycles}	295	Cycles/year	Illinois TRM v13.0
$\%Electric_{DHW}$	27%	Fuel share % of electric DHW systems	Illinois TRM v13.0
$\%Electric_{dryer}$	66%	Fuel share % of electric dryers	Illinois TRM v13.0
$\%Gas_{DHW}$	63%	Fuel share % of gas DHW systems	Illinois TRM v13.0
$\%Gas_{dryer}$	34%	Fuel share % of gas dryers	Illinois TRM v13.0
$\%CW_{base}$	6.7%	% of total baseline energy per wash used by washer	Illinois TRM v13.0
$\%DHW_{base}$	15.8%	% of total baseline energy per wash used by hot water system	Illinois TRM v13.0
$\%Dryer_{base}$	77.5%	% of total baseline energy per wash used by dryer	Illinois TRM v13.0
$\%CW_{eff}$	6.6%	% of total efficient case energy per wash used by washer	Illinois TRM v13.0
$\%DHW_{eff}$	13%	% of total efficient case energy per wash used by hot water system	Illinois TRM v13.0
$\%Dryer_{eff}$	80.4%	% of total efficient case energy per wash used by dryer	Illinois TRM v13.0
Hours	295	Hours/year	Illinois TRM v13.0
CF	3.8%	-	Illinois TRM v13.0
IWF_{base}	5.59	Gallons	Illinois TRM v13.0
IWF_{eff}	Varies by install	Gallons	ENERGY STAR QPL

Dehumidifier

Cadmus calculated dehumidifier savings based on the Indiana TRM v2.2 methodology:

$$Annual\ kWh\ Savings = X_{Dehum} * Capacity * \frac{0.473}{24} * Hours * \left(\frac{1}{\frac{L}{kWh_{base}}} - \frac{1}{\frac{L}{kWh_{eff}}} \right)$$

$$Demand\ kW\ Savings = \frac{Annual\ kWh\ Savings}{Hours} * CF$$

Table A-28 shows the inputs Cadmus used to evaluate impacts for this measure.

Table A-28. 2025 Home Energy Solutions Program Dehumidifier Input Variables

Variable	Value	Units	Source
Capacity	Varies by install	Pints/day	ENERGY STAR QPL
Pints to Liters	0.473	Liters/pint	Constant
Hours	2,200	Hours/year	Illinois TRM v13.0
Hours per Day	24	Hours/day	Constant
$\frac{L}{kWh_{base}}$	Varies by install	L/kWh	2019 Federal Standard
$\frac{L}{kWh_{eff}}$	Varies by install	L/kWh	ENERGY STAR QPL
X_{Dehum}	35.3%	% of operating hours dehumidifier is running (as opposed to fan and standby operations)	2015 NOPR TSD; Table 7.4.2
CF	0.50	-	Illinois TRM v13.0

The tracking data did not include information about capacity or liters per kilowatt hours (L/kWh), so Cadmus matched each installation's manufacturer and model number to the ENERGY STAR QPL to determine these values. For the few dehumidifiers that did not align with a model on the ENERGY STAR QPL, Cadmus found these values from online retailers using the reported equipment manufacturer and model number or used the averaged values of the other dehumidifier installations.

Faucet Aerators

Cadmus used the following Illinois TRM v13.0 equations to calculate savings per faucet aerator installed (excluding ISR):

$$\Delta kWh \text{ Savings} = \%ElectricDHW * EPG_{electric} * \frac{((GPM_{BASE} * L_{BASE}) - (GPM_{LOW} * L_{LOW})) * Household * 365.25 * DF}{FPH}$$

$$\Delta kW \text{ Savings} = \frac{\Delta kWh \text{ Savings}}{Hours} * CF$$

The savings inputs Cadmus used for its *ex post* calculations are shown in Table A-29.

Table A-29. 2025 Home Energy Solutions Program Faucet Aerator Savings Inputs

Input	Assumption		Source
	Kitchen Faucet	Bathroom Faucet	
Number of faucets per home (FH) – Single-Family	1	2.83	Illinois TRM v13.0
Average household size (Household)	2.62	2.62	Illinois TRM v13.0
Percentage of water flowing down drain (DF)	0.75	0.90	Illinois TRM v13.0
Gallons per minute of baseline faucet aerator (GPMbase)	1.63	1.53	Illinois TRM v13.0
Gallons per minute of low-flow faucet aerator (GPMlow)	0.94	0.94	Illinois TRM v13.0
Faucet usage (minutes/day/person) (MPD)	4.5	1.6	Illinois TRM v13.0
Proportion of water heating supplied by electric heating (%ElectricDHW)	Actual	Actual	2025 program tracking data
Energy per gallon of water used by faucet supplied by electric water heater (EPGelectric)	0.1054	0.0879	Illinois TRM v13.0
Hours per faucet (Hours)	123	15	Illinois TRM v13.0
Summertime peak coincidence factor (CF)	0.022	0.022	Illinois TRM v13.0

Heat Pump Water Heater

Cadmus calculated heat pump water heater (HPWH) savings using the following equations (excluding ISR):³⁵

$$\begin{aligned}
 &\text{Annual kWh Savings} \\
 &= \left(\frac{\left(\frac{1}{UEF_{BASE}} - \frac{1}{UEF_{ee}} \right) * GPD * Household * 365.25 * \gamma_{Water} * (T_{out} - T_{in}) * 1}{3412} \right) \\
 &\quad + CoolingImpact - ElecHeatImpact + Deh_Reduction \\
 \\
 &CoolingImpact = \left(\left(\frac{\left(\frac{1}{UEF_{BASE}} - \frac{1}{UEF_{ee}} \right) * GPD * Household * 365.25 * \gamma_{Water} * (T_{out} - T_{in}) * 1}{3412} \right) \right. \\
 &\quad \left. - \left(\frac{\left(\frac{1}{UEF_{ee}} \right) * GPD * Household * 365.25 * \gamma_{Water} * (T_{out} - T_{in}) * 1}{3412} \right) \right) * LF \\
 &\quad * 27\% / COP_{Cool} * LM
 \end{aligned}$$

³⁵ These equations are referenced in the Indiana TRM v2.2

ElecHeatImpact

$$= \left(\left(\frac{\left(\frac{1}{UEF_{BASE}} - \frac{1}{UEF_{ee}} \right) * GPD * Household * 365.25 * \gamma_{Water} * (T_{Out} - T_{In}) * 1}{3412} \right) - \left(\frac{\left(\frac{1}{UEF_{ee}} \right) * GPD * Household * 365.25 * \gamma_{Water} * (T_{Out} - T_{In}) * 1}{3412} \right) \right) * LF$$

$$* 5\% / COP_{Heat} * (1 - \%NaturalGas)$$

$$Demand\ kW\ Savings = \frac{Annual\ kWh\ Savings}{Hours} * CF$$

Table A-30 shows the inputs Cadmus used to evaluate impacts for this measure.

Table A-30. 2025 Home Energy Solutions Program Heat Pump Water Heater Input Variables

Variable	Value	Units	Source
UEF_{BASE}	0.92	-	Illinois TRM v13.0
$UEF_{Efficient}$	Varies by install	-	Res Rx Participant Data
GPD	17.6	GPA	Illinois TRM v13.0
Household	2.56	People	Illinois TRM v13.0
Days per Year	365.25	Days	Illinois TRM v13.0
γ_{Water}	8.33	lbs per gallon	Illinois TRM v13.0
T_{Out}	125	F	Illinois TRM v13.0
T_{In}	51	F	Illinois TRM v13.0
Btu per kWh	3412	Btu	Illinois TRM v13.0
<i>CoolingImpact</i>	Varies by install	kWh	Illinois TRM v13.0
<i>ElecHeatImpact</i>	Varies by install	kWh	Illinois TRM v13.0
Deh_Reduction	72	kWh	Illinois TRM v13.0

Cadmus obtained the unit energy savings for HPWHs by calculating the savings for each installation in the tracking database and averaging the results. Cadmus used assumptions from the Illinois TRM v13.0.

Cadmus used HPWH model specifications for efficient UEF values, provided in program data.

Cadmus used the federal standard coefficient of performance (COP) for <55 gallon electric storage water heaters because the storage capacity of HPWHs is larger for the same water heating load than for non-HPWHs. Cadmus assumed the baseline was a 50-gallon water heater to represent the typical electric storage water heater load, regardless of the HPWH tank size.

In addition, Cadmus did not consider early replacement for HPWHs. Due to the low number of installations for this measure, Cadmus was unable to gather sufficient data to support a breakout between replace-on-burnout and early replacement for this measure.

Nightlight

Cadmus used deemed savings from the Illinois TRM v13.0 to evaluate savings for LED night lights (excluding ISR):

$$\Delta kWh = \left(\left(\frac{Watts_{BASE} - Watts_{EFF}}{1,000} \right) * ISR * (1 - Leakage) * HOURS * WHFe \right) - \left(\left(\frac{Watts_{BASE} - Watts_{EFF}}{1,000} \right) * ISR * HOURS * HF \right) / nHeat$$

$$kW Savings = \left(\left(\frac{Watts_{BASE} - Watts_{EFF}}{1,000} \right) * ISR * (1 - Leakage) * WHFd * CF \right)$$

Table A-31 shows the input values and the source for each value.

Table A-31. 2025 Home Energy Solutions Program LED Night Light Per-Unit Gross Savings

Cadmus Assumptions	Inputs	Source
HOURS – Hours of use per year	4,380	Illinois TRM v13.0
Watts _{BASE} – Equivalent baseline wattage of program bulb	7	
WHFe – Waste heat factor for energy	1.06	
WHFd – Waste heat factor for demand	1.11	
Leakage – Adjustment to account for % of bulbs that leave utility jurisdiction	0	
HF – Heating Factor	49%	
nHeat – Efficiency in COP of Heating equipment	1	Spec sheets of program bulb
Watts _{EFF} – Wattage of program bulbs	0.3	
ISR	90%	2025 Participant Survey
CF	0%	Illinois TRM v13.0

Outlet gasket

Cadmus applied this algorithm and inputs from the Illinois TRM v13.0 to calculate and verify per unit energy savings (excluding ISR):

$$kWh Savings = (\Delta kWh_{gaskets,Heat} + \Delta kWh_{gaskets,Cool}) * n_{gaskets} * ISR * ADJ_{RxAirsealing}$$

$$kW Savings = \left(\frac{(\Delta kWh_{gaskets} * n_{gaskets} * ISR)}{FLH_{cooling}} \right) * CF$$

The inputs used for these formulas are shown in Table A-32.

Table A-32. 2025 Home Energy Solutions Program Gaskets Savings Inputs

Description	Assumption	Source
ΔkWh gaskets, Heat (Marion)	Varies	Illinois TRM v13.0
ΔkWh gaskets, Cool (Belleville)	Varies	Illinois TRM v13.0
n_gaskets	Varies	2025 Program Tracking Data
ADJ_RxAirsealing	0.8	Illinois TRM v13.0
Coincidence factor (CF)	0.68	Illinois TRM v13.0

Pipe wrap

Cadmus used the following equation to calculate savings per water heater with pipe wrap (excluding ISR):

$$\Delta kWh = \%ElectricDHW \times \frac{\left(\left(\frac{1}{R_{exist}} - \frac{1}{R_{new}}\right) \times C_{inside} \times L_{effective} \times \Delta T \times 8,760 \times ISR\right)}{nDHW \times 3412}$$

$$\Delta kW = \frac{\Delta kWh}{8,760}$$

The inputs used for these formulas are shown in Table A-33.

Table A-33. 2025 Home Energy Solutions Pipe Wrap Savings Inputs

Input	Assumption	Source
Pipe heat loss coefficient of uninsulated pipe (R_{exist})	0.444	Illinois TRM v13.0
Pipe heat loss coefficient of insulated pipe (R_{new})	3.444	Illinois TRM v13.0; Assumed based on insulation value = R-3.
Inside circumference of pipe (C_{inside})	0.1427	2025 Tracking Data
Effective length of pipe from water heating source covered in insulation ($L_{effective}$)	varies	2025 Tracking Data
Temperature difference between supplied water and outside air temperature (ΔT)	60	Illinois TRM v13.0
Electric water heater recovery efficiency (nDHW)	98%	Illinois TRM v13.0
%ElectricDHW	100%	Illinois TRM v13.0

Pool Heater

Pool heater measures are broken into two efficiency bins in the Home Energy Solutions Program:

- Pool Heater COP >=6
- Pool Heater COP 5.5-5.9

Cadmus used the following equations to calculate savings per pool heater installed (excluding ISR):

Annual kWh Savings

$$= \left(kWh \text{ Consumption} * \frac{COP_{Assumed}}{COP_{base}} - kWh \text{ Consumption} * \frac{COP_{Assumed}}{COP_{ee}} \right) * \left(\frac{Hrs_{Evansville}}{Hrs_{Chicago}} \right)$$

$$kWh \text{ Consumption} = \frac{Cost_{OPERATION}}{Year} * Price_{ELECTRICITY}$$

Annual kW Savings = There are no peak demand savings for this measure

Table A-34 shows the inputs Cadmus used to evaluate impacts for this measure.

Table A-34. 2025 Home Energy Solutions Program Pool Heater Input Variables

Variable	Value	Units	Source
COP_Assumed	5.0	unitless	Energy.gov. "Heat Pump Swimming Pool Heaters." energy.gov/energysaver/heat-pump-swimming-pool-heaters
COP_base	5.2	unitless	Engineering assumption, based on available models in Air Conditioning, Heating, & Refrigeration Institute (AHRI) catalogue
COP_ee	Varies	unitless	Based on model number research for each install
kWh Consumption	12,176	kWh/year	Calculated from equation, above
Hrs_Chicago: Hours June–Sep with temperature below 80°F	1,884	Hours	Typical Meteorological Year 3 (TMY3) bin data
Hrs_Evansville: Hours June–Sep with temperature below 80°F	1,514	Hours	Typical Meteorological Year 3 (TMY3) bin data
(Cost_OPERATION)/Year: Cost to operate a pool in Chicago per year	1,035	\$/year	Energy.gov. "Heat Pump Swimming Pool Heaters." energy.gov/energysaver/heat-pump-swimming-pool-heaters
Price_ELECTRICITY	0.085	\$/kWh	Energy.gov. "Heat Pump Swimming Pool Heaters." energy.gov/energysaver/heat-pump-swimming-pool-heaters

Cadmus used heat pump pool heater calculations from the U.S. Department of Energy to derive the average heating energy consumption for a residential pool in Chicago.³⁶ Cadmus adjusted this value for weather in Evansville, Indiana, using the ratio of the number of hours every June through September, assuming pools are operated for 121 days,³⁷ and assuming the outside air temperature is below 80°F in Evansville compared to Chicago.³⁸ This ratio is 80% (1,514 hours divided by 1,884 hours). Cadmus' calculations assumed a $COP_{Assumed}$ of 5.0, a pool area of 1,000 square feet, a temperature setpoint of 80°F, and a cost of 0.085 \$/kWh.

³⁶ The U.S. Department of Energy provides values only for large cities and Chicago is the closest city to CenterPoint's Indiana territory. ENERGY STAR. "Heat Pump Swimming Pool Heaters." energy.gov/energysaver/heat-pump-swimming-pool-heaters

³⁷ The Illinois TRM v12.0 provided a work example with the assumption of 121 operating days per year.

³⁸ TMY3 bin data for Chicago, Illinois, and Evansville, Indiana.

Showerhead

Cadmus used the following Illinois TRM v13.0 equations to calculate savings per efficient showerhead installed (excluding ISR):

$$\Delta kWh \text{ Savings} = \%ElectricDHW * EPG_{electric} * \frac{((GPM_{BASE} * L_{BASE}) - (GPM_{LOW} * L_{LOW})) * Household * SPCD * 365.25}{SPH}$$

$$\Delta kW \text{ Savings} = \frac{\Delta kWh \text{ Savings}}{Hours} * CF$$

The savings inputs Cadmus used for its *ex post* calculations are shown in Table A-35.

Table A-35. 2025. Home Energy Solutions Efficient Showerhead Savings Inputs

Input	Assumption	Source
Number of showerheads per home (SPH)	1.79	Illinois TRM v13.0
Average household size (Household)	2.62	Illinois TRM v13.0
Showers per Capita per Day (SPCD)	0.6	Illinois TRM v13.0
Gallons per minute of baseline showerhead (GPMbase)	2.24	Illinois TRM v13.0
Gallons per minute of low-flow showerhead (GPMlow)	1.5	Illinois TRM v13.0
Showerhead length in minutes (L _{low} , L _{base})	7.8	Illinois TRM v13.0
Proportion of water heating supplied by electric heating (%ElectricDHW)	Actual	2025 program tracking data
Energy per gallon of water used by showerhead supplied by electric water heater (EPGelectric)	0.125	Illinois TRM v13.0
Hours per faucet (Hours)	223	Illinois TRM v13.0
Summertime peak coincidence factor (CF)	2.78%	Illinois TRM v13.0

Site Visit and DI

The evaluation team applied the IQW Audit Education savings assumptions which match reported savings assumptions.

Smart power strips

The evaluation team calculated the advanced power strips using the following equation from the 2025 Illinois TRM v13.0. Advanced Power Strip – Tier 1, pg. 88:

kWh = Assumed annual kWh savings per unit

= 56.5 kWh for 5-plug units, 103 kWh for 7-plug units, or 80 kWh for unknown

Cadmus researched the manufacturers and models provided in the program data.

Water heater temperature setback

Cadmus used the following Illinois TRM v13.0 equations to calculate savings per water heater with temperature setback (excluding ISR):

$$\Delta kWh = \frac{(U \times A \times (T_{pre} - T_{post}) \times Hours \times ISR)}{(3,412 \times RE_{electric})}$$

$$\Delta kW = \Delta kWh / Hours \times CF$$

Savings inputs Cadmus used for *ex post* calculations are shown in Table A-36.

Table A-36. 2025 Home Energy Solutions Water Heater Temperature Setback Savings Inputs

Input	Assumption	Source
Heat transfer coefficient of tank (U)	0.083	Illinois TRM v13.0 default value
Surface area of tank (A)	24.99	Illinois TRM v13.0 default value
Water heater temperature before setback (T _{pre})	143	Illinois TRM v13.0 default value
Water heater temperature before setback (T _{post})	139.1	Illinois TRM v13.0 default value
Hours in a year (Hours)	8760	Illinois TRM v13.0; engineering judgment
Electric heater recovery efficiency (RE)	98%	Illinois TRM v13.0 default value
Coincidence factor (CF)	1	Illinois TRM v13.0 default value

A.4. Residential New Construction Program

Cadmus' impact evaluation of the Residential New Construction Program included individual measures or a measure bundle with attributable electric savings (Table A-37).

Table A-37. 2025 Residential New Construction Program Electric Measures

<i>A la Carte</i> ^a	BOP1 Requirements ^b	BOP2 Requirements ^b	HERS Bonus ^c
<ul style="list-style-type: none"> Central AC: 14+ SEER Heat pump - Tier 1: ≥ 8.5 HSPF, 13+ SEER Heat pump - Tier 2: ≥ 9.0 HSPF, 14+ SEER Smart Thermostat 	<ul style="list-style-type: none"> Cooling: 13+ SEER2 AC or heat pumps with 12+ SEER2 Smart thermostat control 	<ul style="list-style-type: none"> Cooling: 13+ SEER2 AC or heat pumps with 12+ SEER2 Smart thermostat control DHW: Heat pump water heater Air sealing: 4.5 ACH50 or below 	<ul style="list-style-type: none"> HERS score of 52 or lower

^a *A la carte* measures show individual measures.

^b BOP Requirements list all the requirements to qualify for each tier. BOP incentives for gas/electric homes have the same electric efficiency requirements listed and additional gas efficiency requirements.

^c HERS bonus measures do not have attributable electric savings. Under HERS, the lower the score the higher the efficiency.

A.4.1. New Construction Homes

The Residential New Construction Program kept the 2023 program design with 2024 updates that incentivizes several high-efficiency measure options.

In 2025, the program used four individual *a la carte* electric incentives, combined measures in BOP incentives, and a bonus incentive for achieving a HERS score of 52 or lower.

Cadmus calculated program realization rates as the evaluated savings divided by the reported savings of the program year. Realization rates were calculated for each measure and aggregated across all program measures. Realization rates for energy savings were between 0% (HERS Bonus Gas/Electric) and 390%, (BOP2 Gas/Electric) depending on the measure, and demand reduction was between 101% and 631% for measures with reported savings greater than zero, as shown in Table A-38.

Table A-38. 2025 Residential New Construction Program Kilowatt-hour Realization Rates

Annual Gross Savings Type	Ex Ante Savings	Ex Post Savings	Realization Rate
Central AC	11,107	18,382	166%
Heat Pump- Tier 1	0	0	N/A
Heat Pump- Tier 2	7,578	11,952	158%
Smart Tstat - Gas Heat & CAC	1,576	1,009	64%
Smart Tstat - Heat Pump	1,019	1,595	157%
BOP 1 - Gas/Electric	30,228	75,059	248%
BOP 2 - Gas/Electric	2,206	8,598	390%
HERS Bonus Electric	0	0	N/A
HERS Bonus Gas/Electric	7,615	0	0%
Total kWh	61,328	116,595	190%
Total Coincident Peak kW	26.2	97.2	371%

The following describes the formulas and parameter values used to evaluate savings for each electric measure.

Central AC

Cadmus used the following Illinois TRM v13.0 (5.3.3 Central Air Conditioning) equations to calculate per-unit savings for central AC systems:

kWh Savings

$$= \frac{FLH_{cool} * Capacity * \left(\frac{1}{SEER2_{base} * (1 - DeratingCoolBase)} - \frac{1}{SEER2_{ee} * (1 - DeratingCoolEff)} \right)}{1000}$$

kW Savings

$$= \frac{Capacity * \left(\frac{1}{EER2_{base} * (1 - DeratingCoolBase)} - \frac{1}{EER2_{ee} * (1 - DeratingCoolEff)} \right)}{1000} * CF$$

Table A-39 lists the savings inputs Cadmus used for its *ex post* calculations and savings results.

Table A-39. 2025 Residential New Construction Program Central AC Savings Inputs

Input Parameter	A La Carte	BOP1	BOP2	Source
FLH_Cool	1,082	1,082	1,082	Program data weighted average by mapping project location to Illinois reference city
Capacity	33,600	33,600	33,600	Illinois TRM v13 default if unknown
SEER2 base	13.4	13.4	13.4	Illinois TRM v13 update to 13.4 SEER2 for AC
SEER2 eff	15.14	14.92	15.05	Program data averages for Central AC measures
DeratingCool_Base	10%	10%	10%	Illinois TRM v13 default
DeratingCool_ee	0%	0%	0%	Illinois TRM v13 default for quality Installation performed
EER2 base	10.6	10.6	10.6	Illinois TRM v13 default for standard-size units
EER2 eff	12.4	12.4	12.4	Illinois TRM v13 default if unknown
CF	0.68	0.68	0.68	Illinois TRM v13 default
ΔkWh	612.7	577.1	598.9	
ΔkW	0.552	0.552	0.552	

Reported per-unit savings equaled 370.2 kWh/unit, while Cadmus' savings calculation totaled 612.7 kWh/unit because of the use of different input values for some parameters.

The net effect of higher per-unit savings increased the realization rate notably for this measure to 166% (kWh) and 197% (kW).

Air Source Heat Pumps:

Cadmus used the following Illinois TRM v13 (5.3.1 Air Source Heat Pumps) equations to calculate per-unit savings for air-source heat pump systems:

$$kWh\ Savings = ASHPSiteCoolingImpact + ASHPSiteHeatingImpact$$

Where:

ASHPSiteCoolingImpact

$$= \frac{\left(\frac{CoolingLoad}{DuctlessSave} * \left(\frac{1}{SEER2_{base} * (1 - DeratingCoolBase)} \right) \right) - \left(CoolingLoad * \frac{1}{SEER2_{ee} * (1 - DeratingCoolEff)} \right)}{1,000}$$

ASHPSiteHeatingImpact

$$= \frac{\left(\left(\frac{HeatLoad_{Disp}}{DuctlessSave} * \left(\frac{1}{HSPF2_{base} * HSPF2_{ClimateAdj} * (1 - DeratingHeatBase)} \right) \right) - \left(HeatLoad_{Disp} * \frac{1}{HSPF2_{ee} * HSPF2_{ClimateAdj} * (1 - DeratingHeatEff)} \right) \right)}{1,000}$$

kW Savings

$$= \frac{\left(\left(\frac{Capacity_{cooling}}{DuctlessSave} * \left(\frac{1}{EER2_{base} * (1 - DeratingCoolBase)} \right) - \left(Capacity_{cooling} * \frac{1}{EER2_{ee} * (1 - DeratingCoolEff)} \right) \right) \right)}{* 1,000 * CF}$$

The savings inputs Cadmus used for its *ex post* calculations and savings results are shown in Table A-40.

Table A-40. 2025 Residential New Construction Program Heat Pump Savings Inputs

Input Parameter	Heat Pump Tier 1*	Heat Pump Tier 2*	Source
FLH Cooling	N/A	1,082	Program data weighted average by mapping project location to Illinois reference city
Capacity Cooling	33,600	33,600	Illinois TRM v13 default cooling capacity for CAC
CoolingLoad	36,355,200	36,355,200	Illinois TRM v13 calculation: FLH Cooling*Capacity Cooling
DuctlessSave	1	1	Illinois TRM v13 default for ducted ASHP
SEER2_base	14.3	14.3	Illinois TRM v13 default baseline SEER2
SEER2_ee	13.0	14.2	Program data weighted average for heat pumps
DeratingCool_base	10%	10%	Illinois TRM v13 default
DeratingCool_Eff	0%	0%	Illinois TRM v13 default for quality installation assumed
ASHPSiteCoolingImpact	N/A	197	Illinois TRM v13 calculation
FLH_ASHP.heat	N/A	1,270	Program data weighted average by mapping project location to Illinois reference city
Capacity_ASHP.heat	33,600	33,600	Assumed same as cooling capacity
HeatLoadFactor	N/A	61%	Program data weighted average by mapping project location to Illinois reference city
HeatingLoad_Disb	N/A	26,029,920	Illinois TRM v13 calculation: FLH_ASHP.heat*Capacity_ASHP.heat*HeatLoadFactor
HSPF2_base	7.5	7.5	Illinois TRM v13 default baseline HSPF2
HSPF2_ee	8.5	9.0	Illinois TRM v13 default/program defined HSPF2
HSPF2_ClimateAdj	N/A	91%	Program data weighted average by mapping project location to Illinois reference city
DeratingHeat_base	10%	10%	Illinois TRM v13 default
DeratingHeat_Eff	0%	0%	Illinois TRM v13 default for quality installation assumed
ASHPSiteHeatingImpact	N/A	1,059	Illinois TRM v13 calculation
EER2 Base	10.6	10.6	Illinois TRM v13 default (no central cooling)
EER2 Eff	12.4	12.4	Illinois TRM v13 default for unknown
CF	0.72	0.72	Illinois TRM v13 default (CFssp sf) summer system peak coincidence factor for heat pumps in single-family homes (during utility peak hour)
ΔkWh	N/A	1,328.0	
ΔkW	N/A	0.585	

* A la carte measures included Tier 2 heat pumps only. No BOP1/BOP2 packages included heat pump equipment.

Reported electric energy per-unit savings equaled 842.1 kWh and did not report demand savings for Tier-2 Heat Pump measures. Evaluated savings totaled 1,256.1 kWh/unit and 0.786 kW/unit. The evaluation used Illinois TRM v13 algorithms and program data to calculate weighted average values for several parameters, which resulted in high realization rates (158% kWh) for Tier 2 for heat pumps. The average installed cooling SEER2 for heat pump measures is slightly less than the 2023 Federal minimum standard of 14.3 SEER2 for northern climate, resulting in relatively low cooling savings for heat pumps.

Smart Thermostats

Cadmus used the following Illinois TRM v13 equations (5.3.16 Advanced Thermostats) to calculate per-unit savings for smart thermostat controls and central air conditioners and heat pumps:

$$kWh\ Savings = \Delta kWh.heating + \Delta kWh.cooling$$

$$\Delta kWh.heating = \%ElectricHeat * Elec_{HeatingConsumption} * Heating_{Reduction} * HF * Eff_{ISRHeat} + (\Delta Therms * Fe * 29.3)$$

$$\Delta kWh.cooling = \%AC * \left(\frac{FLH * Capacity * \frac{1}{SEER2}}{1000} \right) * Cooling_{Reduction} * Eff_{ISRCool}$$

$$kW\ Savings = \%AC * \left(Cooling_{DemandReduction} * \frac{Btu}{hr} * \frac{1}{\frac{EER2}{1000}} \right) * EFF_{ISRCool} * CF$$

The savings inputs Cadmus used for its *ex post* calculations and savings results for smart thermostats and central AC units are shown in Table A-41.

**Table A-41. 2025 Residential New Construction Program Smart Thermostat –
Central AC Savings Inputs**

Input Parameter	<i>A La Carte</i>	BOP1 Gas/ Electric	BOP2 Gas/ Electric	Source
%AC	100%	100%	100%	Illinois TRM v13 default for CAC
FLH	1,082.0	1,082.0	1082.0	Program data weighted average by mapping project location to Illinois reference city
Capacity Btu/hr	33,600	33,600	33,600	Illinois TRM v13 default for single family
SEER2	15.14	14.92	15.05	Program data weighted average for smart thermostat measures /CAC
Cooling Reduction	8.4%	8.4%	8.4%	Illinois TRM v13 default
Eff_ISR_Cool	100%	100%	100%	Illinois TRM v13 default for Residential New Construction
ΔkWh_cooling	201.8	204.7	202.9	Illinois TRM v13 calculation
ΔkWh_heating	0.0	0.0	0.0	No heating kWh savings for smart thermostats/CAC
Cooling_DemandReduction	16.4%	16.4%	16.4%	Illinois TRM v13 default
EER2	12.4	12.3	12.3	TRM Calculation: $EER2 = (-0.02 * SEER2_{exist}^2) + (1.12 * SEER2_{exist})$
CF	34.0%	34.0%	34.0%	Illinois TRM v13 default
ΔkWh	201.8	204.7	202.9	
ΔkW	0.151	0.153	0.155	

The savings inputs Cadmus used for its *ex post* calculations and savings results for smart thermostats and heat pump units are shown in Table A-42.

Table A-42. 2025 Residential New Construction Program Smart Thermostat – Heat Pump Savings Inputs

Input Parameter	A La Carte	BOP1 Gas/ Electric	BOP2 Gas/ Electric	Source
% of Electric Heat	100%	100%	100%	TRM v13 default for heat pumps
Heat Pump Heating Consumption	8,218	N/A*	N/A*	Program data weighted average by mapping project location to Illinois reference city
Eff_ISR_Heat	100%	100%	100%	Illinois TRM v13 default
HF	100%	100%	100%	Illinois TRM v13 default
Heating Reduction	7.1%	7.1%	7.1%	Illinois TRM v13 default for programmable
Fe	3.14%	3.14%	3.14%	Illinois TRM v13 default
$\Delta kWh_{heating}$	583.5	0.0	0.0	Illinois TRM v13 calculation
%AC	100%	100%	100%	Illinois TRM v13 default for RNC
FLH	1,082	N/A*	N/A *	Program data weighted average by mapping project location to Illinois reference city
Capacity Btu/hour	33,600	33,600	33,600	TRM default for single family homes
SEER2_exist	14.3	N/A *	N/A *	Program data weighted average for Smart t-stat measures and heat pumps
Cooling Reduction	8.4%	8.4%	8.4%	Illinois TRM v13 default is 8.4%
Eff_ISR_Cool	100%	100%	100%	Illinois TRM v13 default for RNC
$\Delta kWh_{cooling}$	214.1	0.0	0.0	Illinois TRM v13 calculation
Cooling_DemandReduction	16.4%	16.4%	16.4%	Illinois TRM v13 default
EER2	11.9	N/A *	N/A *	TRM Calculation: $EER2 = (-0.02 * SEER2_exist^2) + (1.12 * SEER2_exist)$
CF	34.0%	34.0%	34.0%	Illinois TRM v13 default
ΔkWh	797.6	N/A *	N/A *	
ΔkW	0.157	N/A *	N/A *	

*No BOP1/BOP2 heat pump packages in 2025

Smart thermostats had reported per unit savings of 315 kWh for central AC systems and 510 kWh for heat pump systems. Evaluated savings equaled 202 kWh for central AC systems and 798 kWh for heat pump systems, resulting in 64% and 157% realization rates, respectively. The program database contained no deemed demand reduction for smart thermostat heat pump measures and 0.150 kW/unit for smart thermostat central AC measures. The evaluation calculated 0.151 kW and 0.157 kW for central AC controls and heat pump system controls, respectively.

Air Sealing $ACH50 \leq 4.5$:

Cadmus used the following Illinois TRM v13 equations (5.6.1 Air Sealing) to calculate savings for Air Sealing $ACH50 \leq 4.5$ (a BOP2 requirement):

$$kWh\ Savings = \Delta kWh_{cooling} + \Delta kWh_{heatingElectric} + \Delta kWh_{heatingFurnace}$$

$$\Delta kWh_{cooling} = [((((CFM50_{existing} - CFM50_{new})/N_{cool}) * 60 * 24 * CDD * DUA * 0.018)) / (1000 * \eta_{Cool}) * LM * ADJAirSealingCool] * IENetCorrection * \%Cool$$

$$\Delta kWh_{heatingElectric} = [((((CFM50_{existing} - CFM50_{new})/N_{heat}) * 60 * 24 * HDD * 0.018) / (\eta_{Heat} * 3,412))] * \%ElectricHeat$$

$$\Delta kWh_{heatingFurnace} = [((((CFM50_{existing} - CFM50_{new})/N_{heat}) * 60 * 24 * HDD * 0.018) / (\eta_{Heat} * 3,412))] * \%ElectricHeat$$

$$kW Savings = (\Delta kWh_{cooling} / FLH_{cooling}) * CF$$

The savings inputs Cadmus used for its *ex post* calculations and savings results for Air Sealing 4.5≤ACH50 are shown in Table A-43.

Table A-43. 2025 Residential New Construction Program Air Sealing ACH50≤4.5 Savings Inputs

Input Parameter	BOP 2 Gas Heat and CAC	Source
ACH50_existing	5.0	Code minimum
ACH50_new	3.20	Engineering assumption, average of 10 HERS cert sample
AFUE_base	96.6%	Engineering assumption, average of 10 HERS cert sample
SEER2_base	14.8	Engineering assumption, average of 10 HERS cert sample
Home Area, A	3,775.6	Engineering assumption, average of 10 HERS cert sample
Home Volume Cu.Ft.	37,990.4	Calculation from HERS Certs: CFM50*60/ACH50
Floor to Ceiling Height, H	9.7	Calculation: Vol/Area
CFM50_existing	3,165.9	Calculation: (Home Volume x ACH50_existing) / 60
CFM50_new	1,858.8	Engineering assumption, average of 3 HERS cert sample
N_cool	35.8	Program data weighted average by mapping project location to Illinois reference city
N_heat	24.6	
CDD 65	1,641.0	
HDD 60	3,390	
DUA	0.75	Illinois TRM v13 default
ηCool	12.4	Assumption: SEER2 * 84.0% Cooling dist eff (from BPI Distribution Efficiency Table)
ηHeat.gasfurnace	88.4%	Assumption: AFUE * 91.5% Heating dist eff (from BPI Distribution Efficiency Table)
LM	3.6	Program data weighted average by mapping project location to Illinois reference city
ADJAirSealingCool	114%	TRM default for Air sealing and attic insulation
IENetCorrection	100%	TRM default if not income eligible
%Cool	100%	Illinois TRM v13 default values
ADJAirSealingFossilHeat	76%	TRM default for Air sealing and attic insulation
%FossilHeat	100%	Illinois TRM v13 default for fuel heating
%ElectricHeat	0%	Illinois TRM v13 default for fuel heating

Input Parameter	BOP 2 Gas Heat and CAC	Source
Fe	3.14%	Illinois TRM v13 default for furnace fan energy consumption as a percentage of annual fuel consumption
ADJAirSealingHeatFan	113%	TRM default for air sealing and attic insulation
FLH_cooling	1,082.0	Program data weighted average by mapping project location to Illinois reference city
CF	0.68	Illinois TRM v13 default
ΔkWh	384.8	
ΔkW	0.242	

The air sealing requirement for BOP2 measures did not receive savings in *ex ante* calculations. The evaluation team used details from a sample of ten HERS certificates provided by the implementer to calculate air sealing savings for BOP2 projects using Illinois TRM v13 algorithms. The evaluation used home area, CFM50, ACH50, and heating/cooling efficiencies provided by HERS certificates and TRM default parameters to calculate savings.

The results show Whole Home - BOP 2 - Gas Heat and CAC projects achieve 384.8 kWh and 0.242 kW savings, and Whole Home - BOP 2 – Gas Heat projects could achieve 58 kWh savings for the furnace fan (excluded from kilowatt-hour totals because this is a gas measure and has relatively low kilowatt-hour savings). These values were included in BOP2 – Gas/Electric’s measure components, which aggregate each component’s savings to calculate the total measure savings.

BOP1/BOP2

BOP1/BOP2 measure savings followed the same methodology *as a la carte* measures, and aggregated each measure component to derive the total savings. Each BOP’s components/requirements are as follows:

- BOP 1 Gas/Electric Components
 - 92+% Gas Furnace and 13+ SEER2 AC
 - DHW: Storage Tank ≥ 0.64 UEF or Gas Tankless
 - Smart Thermostat
- BOP 2 Gas/Electric Components
 - 95+% Gas Furnace and 13+ SEER2 AC
 - DHW: Gas Tankless
 - Smart Thermostat
 - Air Tightness ≤ 4.5 ACH50
- BOP 1 Electric Components
 - 12 SEER2 Heat Pump
 - DHW: Storage Tank ≥ 0.64 UEF or Gas Tankless
 - Smart Thermostat

- BOP 2 Electric Components
 - 13+ SEER2 Heat Pump
 - DHW: Gas Tankless or heat pump water heater
 - Smart Thermostat
 - Air Tightness ≤ 4.5 ACH50

Table A-44 summarizes the component savings (per-unit) for gas heat and central AC BOP1 and BOP2 projects. The 2025 program year included 96 and seven BOP1 and BOP2 projects, respectively.

Reported kWh savings for BOP1/BOP2 measures are lower than the 2024 program year and appear to not award savings for air sealing while demand savings remained unchanged. As a result, electric realization rates are very high for BOP1 (248% kWh and 470% kW) and BOP2 (390% kWh and 631% kW) measures.

Table A-44. 2025 Residential New Construction Program Gas Heat and Central AC BOP Summary

Component	BOP1 - Gas Heat and CAC (n=64)		BOP2 - Gas Heat and CAC (n=4)	
	kWh	kW	kWh	kW
Gas Furnace 92%	0.0	0.000	0.0	0.000
AC Cooling 13+ SEER2	577.1	0.552	598.9	0.552
DHW	0.0	0.000	0.0	0.000
Smart Thermostat	204.7	0.153	202.9	0.152
≤ 4.5 ACH50	0.0	0.000	426.5	0.242
Evaluated Total	781.9	0.705	1,228.3	0.946
Ex Ante Total	169.4	0.150	231.4	0.150

The 2024 program did not include any BOP1/BOP2 projects with heat pumps (electric only).

Program History

The Residential New Construction Program did not change the 2024 program design. The 2025 program year increased the number of participants from 2024 and achieved much more electric and demand savings year over year.

Table A-45 compares the 2023 program year to prior years going back to 2019 (program year 2022 is excluded, because the program was suspended and only processed carry-over projects from 2021).

Table A-45. 2025 Residential New Construction Program History

	Program Year					
	2019	2020	2021	2023	2024	2025
Participants	194	245	256	186	137	146
Evaluated <i>Ex Post</i> Gross kWh Savings	259,578	364,825	144,301	110,977	82,268	116,595
Evaluated <i>Ex Post</i> Gross kW Savings	90	99	57	51	73	97

A.5. Income Qualified Weatherization Program

Cadmus' impact evaluation of the Income Qualified Weatherization (IQW) Program included the following measures with attributable electric savings:

Appliance and plug load reduction

- Refrigerator replacement
- Smart power strips
- LED Night lights

Water-saving devices

- Bathroom aerator
- Kitchen aerator
- Efficient showerhead

HVAC and water heating measures

- Air conditioner tune-up
- Central air conditioner
- Furnace Tune-ups
- Water heater setbacks

Thermostats

- Smart thermostat

Weatherization measures

- Air sealing
- Duct sealing
- Attic insulation
- Wall insulation
- Weatherstripping
- Door sweeps
- Pipe wrap
- Outlet gaskets

Site visits

- Site visits and direct installation

Table A-46 shows the percentage of households that participated in each recommended action that IQW Program participants reported engaging in after receiving an on-site energy assessment.

Table A-46. 2025 Income Qualified Weatherization Program Household Percentages and Average Savings per Recommended Measure

Recommendation	Percentage of Households that Reportedly Took Action	Average Per-unit Evaluated Savings for Action (kWh)
Behavioral Measures		
Turn off lights when not in use	79%	19
Unplug appliances when not in use	57%	12
Take shorter showers	62%	8
Program thermostat with efficient settings (excludes recipients of smart thermostats through program)	60%	96
Installation Measures		
Air sealing/weather-stripping	18%	20

Table A-47 shows the assumptions that went into the evaluated savings for each component. For all energy-saving actions, Cadmus adjusted savings to account for any efficient equipment that was installed. For turning off the lights and showerheads, this meant adjusting the baseline usage to account for the installed efficient equipment. For unplugging appliances and programming thermostats correctly, this meant not evaluating savings for participants who received smart strips or smart thermostats, respectively.

Table A-47. 2025 Income Qualified Weatherization Program Audit Education Savings Assumptions

Recommendation	Assumption	Source
Behavioral Measures		
Turn off lights when not in use	20% reduction in HOU per day	CPUC. <i>PY2006–2008 Indirect Impact Evaluation of the Statewide Marketing and Outreach Programs</i> . Vol II. 2009.
Unplug appliances when not in use	21.3 kWh	CPUC. <i>PY2006–2008 Indirect Impact Evaluation of the Statewide Marketing and Outreach Programs</i> . Vol II. 2009.
Take shorter showers	5% reduction in time spent in shower. Household showerhead usage was adjusted to account for efficient showerheads installed	Engineering judgment
Program thermostat with efficient settings (excludes recipients of smart thermostats through program)	Savings are equivalent to the savings from installing a new programmable thermostat (incorporating a proper usage factor)	Evaluation of the 2013–2014 Programmable and Smart Thermostat Program
Installation Measures		
Air sealing/weatherstripping	Additional air sealing and weatherstripping will achieve 50% of evaluated air sealing savings.	Engineering judgment

A.5.1. Water-Saving Devices

Faucet Aerators

Cadmus used the following Illinois TRM v13.0 equations to calculate savings per faucet aerator installed (excluding ISR):

$$\Delta kWh \text{ Savings} = \%ElectricDHW * EPG_{electric} * \frac{((GPM_{BASE} * L_{BASE}) - (GPM_{LOW} * L_{LOW})) * Household * 365.25 * DF}{FPH}$$

$$\Delta kW \text{ Savings} = \frac{\Delta kWh \text{ Savings}}{Hours} * CF$$

The savings inputs Cadmus used for its *ex post* calculations are shown in Table A-48.

Table A-48. 2025 Income Qualified Weatherization Program Faucet Aerator Savings Inputs

Input	Assumption		Source
	Kitchen Faucet	Bathroom Faucet	
Number of faucets per home (FH) – Single-Family	1	2.83	Illinois TRM v13.0
Number of faucets per home (FH) – Multi-Family	1	1.5	Illinois TRM v13.0
Average household size (Household)– Multi-Family	2.28	2.28	2020 MFDI participant survey
Average household size (Household) – Single-Family	2.10	2.10	2025 IQW participant survey
Percentage of water flowing down drain (DF)	0.75	0.90	Illinois TRM v13.0
Gallons per minute of baseline faucet aerator (GPMbase)	1.63	1.53	Illinois TRM v13.0
Gallons per minute of low-flow faucet aerator (GPMlow)	1.425	0.95	2025 program tracking data; Illinois TRM v13.0
Faucet usage (minutes/day/person) (MPD)	4.5	1.6	Illinois TRM v13.0
Proportion of water heating supplied by electric heating (%ElectricDHW)	100%	100%	Illinois TRM v13.0
Energy per gallon of water used by faucet supplied by electric water heater (EPGelectric)	0.1054	0.0879	Illinois TRM v13.0
Hours per faucet (Hours) – Single-Family	120	17	Illinois TRM v13.0
Hours per faucet (Hours) – Multi-Family	100	27	Illinois TRM v13.0
Summertime peak coincidence factor (CF)	0.022	0.022	Illinois TRM v13.0

Efficient Showerhead

Cadmus used the following Illinois TRM v13.0 equations to calculate savings per efficient showerhead installed (excluding ISR):

$$\Delta kWh Savings = \frac{\%ElectricDHW * EPG_{electric} * ((GPM_{BASE} * L_{BASE}) - (GPM_{LOW} * L_{LOW})) * Household * SPCD * 365.25}{SPH}$$

$$\Delta kW Savings = \frac{\Delta kWh Savings}{Hours} * CF$$

The savings inputs Cadmus used for its *ex post* calculations are shown in Table A-49.

Table A-49. 2025 Income Qualified Weatherization Program Efficient Showerhead Savings Inputs

Input	Assumption	Source
Number of showerheads per home (SPH) – Single-Family	1.79	Illinois TRM v13.0
Number of showerheads per home (SPH) – Multi-Family	1.30	Illinois TRM v13.0
Average household size (Household) – Single-Family	2.10	2025 IQW participant survey
Average household size (Household) – Multi-Family	2.28	2020 MFDI participant survey
Showers per Capita per Day (SPCD)	0.6	Illinois TRM v13.0
Gallons per minute of baseline showerhead (GPM _{base}) – TOS	2.35	Illinois TRM v13.0
Gallons per minute of low-flow showerhead (GPM _{low})	1.5	Illinois TRM v13.0
Showerhead length in minutes (L _{low} , L _{base})	7.8	Illinois TRM v13.0
Proportion of water heating supplied by electric heating (%ElectricDHW)	100%	2025 program tracking data
Energy per gallon of water used by showerhead supplied by electric water heater (EP _{Electric})	0.125	Illinois TRM v13.0
Hours per faucet (Hours) – Single-Family	286	Illinois TRM v13.0
Hours per faucet (Hours) – Multi-Family	236	Illinois TRM v13.0
Summertime peak coincidence factor (CF)	2.78%	Illinois TRM v13.0

A.5.2. HVAC and Water Heating

Air Conditioner Tune-Up

Cadmus used the following equations to calculate savings per air conditioner tune-up (excluding ISR):

Air Conditioner Tune-Up:

$$\Delta kWh_{CAC} = EFLH_{Cool} * Btuh_{Cool} * \frac{1}{SEER2_{CAC} * 1,000} * MF_E$$

$$\Delta kW = Btuh_{Cool} * \frac{1}{EER2_{CAC} * 1,000} * MF_D * CF$$

Where:

- $EFLH_{Cool}$ = Equivalent full load cooling hours
- $Btuh_{Cool}$ = Cooling capacity of equipment in BTUH
- $SEER2$ = SEER2 efficiency of existing central air conditioning unit or heat pump receiving maintenance
- MF_E = Maintenance energy savings factor
- $EER2$ = EER efficiency of existing unit receiving maintenance
- MF_D = Maintenance demand reduction factor
- CF = Summer peak coincidence factor

Cadmus calculated savings for air conditioner tune-ups implemented through the IQW Program using the savings inputs used for its *ex post* calculations shown in Table A-50.

Table A-50. 2025 Income Qualified Weatherization Program Air Conditioner Tune-Up Savings Inputs

Variable	Value	Units	Source
Btuh _{CoolCAC}	28,526	BTUH	2025 IQW Central Air Conditioner tracking data
EFLHcool	1082	Hours	Illinois TRM v13.0
SEER2	9.5	BTUH/Watt-hour	Illinois TRM v13.0
MF _E	5%	%	Illinois TRM v13.0
EER2	10.45	BTUH/Watt-hour	Illinois TRM v13.0 calculation to determine EER2 from SEER2 (EER2 = -0.02*SEER2 + 1.12*SEER2).
MF _D	2%	%	Illinois TRM v13.0
Coincidence factor (CF)	68%	%	Illinois TRM v13.0

Central Air Conditioner

Cadmus used these equations to calculate savings per air conditioner replacement (excluding ISR):

$$\Delta kWh = \frac{CAP}{1,000} \times EFLH_c \times \left(\frac{1}{(SEER2_{BASE} \times (1 - DeratingCool_{BASE}))} - \frac{1}{(SEER2_{EE} \times (1 - DeratingCool_{EE}))} \right)$$

$$\Delta kW = \left(\frac{CAP}{1,000} \times \left(\frac{1}{(EER2_{BASE} \times (1 - DeratingCool_{BASE}))} - \frac{1}{(EER2_{EE} \times (1 - DeratingCool_{EE}))} \right) \right) \times CF$$

Savings inputs Cadmus used for *ex post* calculations are shown in Table A-51.

Table A-51. 2025 Income Qualified Weatherization Program Central Air Conditioner Savings Inputs

Description	Assumption	Source
Efficient SEER2	Varies	2025 program tracking data
Efficient EER2	Varies	2025 program tracking data
Efficient DeratingCool	10%	Illinois TRM v13.0
Baseline SEER2	13.4	Federal Standard SEER2 Rating, Illinois TRM v13.0
Baseline EER2	10.6	Federal Standard EER2 Rating, Illinois TRM v13.0
Baseline DeratingCool	10%	Illinois TRM v13.0
CAC Btuh	Varies	2025 program tracking data
FLHcool – Evansville/Belleville	1,082	Indiana TRM v2.2
Coincidence factor (CF)	68%	Illinois TRM v13.0

Furnace Tune-Up

Cadmus used the following equations to calculate savings per furnace tune-up (excluding ISR):

Furnace Tune-Up:

$$\Delta kWh = \Delta Therms * Fe * 29.3$$

Cadmus calculated savings for furnace tune-ups implemented through the IQW Program using the savings inputs used for its *ex post* calculations shown in Table A-52.

Table A-52. 2025 Income Qualified Weatherization Program Furnace Tune-Up Savings Inputs

Variable	Value	Units	Source
$\Delta Therms$	8.7	therms	2025 tracking data and Illinois TRM v13.0
Fe	3.14	%	Illinois TRM v13.0
29.3	29.3	kWh/therm	Illinois TRM v13.0

Water Heater Temperature Setback

Cadmus used the following Illinois TRM v13.0 equations to calculate savings per water heater with temperature setback (excluding ISR):

$$\Delta kWh = \frac{(U \times A \times (T_{pre} - T_{post}) \times Hours \times ISR)}{(3,412 \times RE_{electric})}$$

$$\Delta kW = \Delta kWh / Hours \times CF$$

Savings inputs Cadmus used for *ex post* calculations are shown in Table A-53.

Table A-53. 2025 Income Qualified Weatherization Program Water Heater Temperature Setback Savings Inputs

Input	Assumption	Source
Heat transfer coefficient of tank (U)	0.083	Illinois TRM v13.0 default value
Surface area of tank (A)	24.99	Illinois TRM v13.0 default value
Water heater temperature before setback (Tpre)	143	Illinois TRM v13.0 default value
Water heater temperature before setback (Tpost)	139.1	Illinois TRM v13.0 default value
Hours in a year (Hours)	8760	Illinois TRM v13.0; engineering judgment
Electric heater recovery efficiency (RE)	98%	Illinois TRM v13.0 default value
Coincidence factor (CF)	1	Illinois TRM v13.0 default value

A.5.3. Thermostats

Smart Thermostats

Cadmus calculated smart thermostat savings using the following equation (excluding ISR).

$$\Delta kWh = \left(\%AC \times \left(\frac{EFLH_c \times CAP_c \times \frac{1}{SEER2}}{1000} \right) \times Cooling\ Reduction \times Eff_{ISR_{Cool}} \right) + (\%Electric\ Heat \times Electric\ Heating\ Consumption \times Heating\ Reduction \times HF \times Eff_{ISR_{Heat}} + (\Delta Therms\ Heating * F_e * 29.3))$$

$$\Delta kW = \%AC \times \frac{CAP_c}{EER2 \times 1,000} \times Eff_{ISR_{Cool}} \times CF \times Cooling\ Demand\ Reduction$$

Savings inputs Cadmus used for its *ex post* calculations are shown in Table A-54.

Table A-54. 2025 Income Qualified Weatherization Program Smart Thermostat Savings Inputs

Variable	Value	Units	Source
Capacity (CAPc)	28,000; 33,600	BTUH/hour	Illinois TRM v13.0
Efficient SEER2	11.4	-	Illinois TRM v13.0
Efficient EER2	10		Illinois TRM v13.0
Electric Heating Consumption (Marion)	13,970		Illinois TRM v13.0
Cooling Reduction	8.4%	%	Illinois TRM v13.0
Cooling Demand Reduction	16.4%	%	Illinois TRM v13.0
Heating Reduction	8.5%	%	Illinois TRM v13.0
Household Factor to adjust heating consumption (HF)	100%	%	Illinois TRM v13.0
Furnace Fan Energy Consumption (Fe)	3.14%	%	Illinois TRM v13.0
Coincidence Factor (CF)	34%	%	Illinois TRM v13.0

In 2025, smart thermostats were installed in homes with gas heating and central air conditioning as well as in homes with electric furnaces and central air conditioning. Cadmus calculated electric heating savings for all thermostats installed in electrically heated homes.

A.5.4. Appliance and Plug Load Reduction

Refrigerator Replacement

Cadmus used the following equation from the Illinois TRM v13.0 to calculate savings for replaced refrigerators (excluding ISR).

$$\Delta kWh = ((1 - ER) \times (UEC_{base} * IQAdj) - UEC_{ee}) + (ER \times ((UEC_{exist} * IQAdj) - UEC_{ee}))$$

$$\Delta kW = \frac{\Delta kWh}{8760} * TAF * LSAF$$

Cadmus calculated savings for each refrigerator replaced using the following sources:

- Illinois TRM v13.0 methodology for refrigerators to establish the unit energy consumption (UEC),
- ENERGY STAR database to determine the UEC of the new refrigerator units based on make and model numbers
- 2025 program tracking data for refrigerator characteristics for each participant

Savings inputs are shown in Table A-55.

Table A-55. 2025 Income Qualified Weatherization Program Refrigerator Replacement Savings Inputs

Description	Assumption	Source
UEC_efficient (kWh)	Varies (366.30 average)	2025 program tracking data, ENERGY STAR database
UEC_exist (kWh)	794.8	2025 program tracking data, Illinois TRM v13.0
UEC_baseline (kWh)	Varies (406.10 average)	2025 program tracking data, Illinois TRM v13.0
TAF	1.25	Illinois TRM v13.0
LSAF	1.057	Illinois TRM v13.0

Smart Strips

Cadmus used deemed savings from the Illinois TRM v13.0 to evaluate savings for smart strips (excluding ISR):

$$\Delta kWh = kWh * ISR$$

$$\Delta kW = \frac{\Delta kWh}{Hours} \times CF$$

The smart strips in the tracking data are 7-plug units and Cadmus used assumptions from the Illinois TRM v13.0 that align with this characterization. The savings inputs Cadmus used for its *ex post* calculations are shown in Table A-56.

Table A-56. 2025 Income Qualified Weatherization Program Smart Strip Savings Inputs

Input	Assumption	Source
Assumed annual kWh savings per unit (kWh)	103	Illinois TRM v13.0
Hours	7,129	Illinois TRM v13.0
Coincidence factor (CF)	80%	Illinois TRM v13.0

LED Night Lights

Cadmus used deemed savings from the Illinois TRM v13.0 to evaluate savings for LED night lights (excluding ISR):

$$\Delta kWh = \left(\left(\frac{Watts_{BASE} - Watts_{EFF}}{1,000} \right) * ISR * (1 - Leakage) * HOURS * WHFe \right) - \left(\left(\frac{Watts_{BASE} - Watts_{EFF}}{1,000} \right) * ISR * HOURS * HF \right) / nHeat$$

$$kW Savings = \left(\left(\frac{Watts_{BASE} - Watts_{EFF}}{1,000} \right) * ISR * (1 - Leakage) * WHFd * CF \right)$$

Table A-57 shows the input values and the source for each value.

Table A-57. 2025 Income Qualified Weatherization Program LED Night Light Per-Unit Gross Savings

Cadmus Assumptions	Inputs	Source
HOURS – Hours of use per year	4,380	Illinois TRM v13.0
Watts _{BASE} – Equivalent baseline wattage of program bulb	7	
WHFe – Waste heat factor for energy	1.06	
WHFd – Waste heat factor for demand	1.11	
Leakage – Adjustment to account for % of bulbs that leave utility jurisdiction	0	
HF – Heating Factor	49%	
nHeat – Efficiency in COP of Heating equipment	1	
Watts _{EFF} – Wattage of program bulbs	0.3	Spec sheets of program bulb
ISR	90%	2025 Participant Survey
CF	0%	Illinois TRM v13.0

A.5.5. Weatherization Measures

Air Sealing/Infiltration Reduction

Cadmus used these equations from the Illinois TRM v13.0 to calculate savings for each infiltration reduction retrofit (excluding ISR):

$$\Delta kWh = \Delta kWh_{cooling} + \Delta kWh_{heatingElectric} + \Delta kWh_{heatingFurnace}$$

$$\Delta kWh_{cooling} = \left(\left(\frac{CFM50_{EXIST} - CFM50_{NEW}}{N_{COOL}} \times 60 \times 24 \times CDD \times DUA \times 0.018 \right) \times \frac{LM \times ADJ_{AirSealingCool}}{1,000 \times nCool} \right) \times IE_{NetCorrection} \times \%Cool$$

$$\Delta kWh_{heatingElectric} = \left(\frac{CFM50_{EXIST} - CFM50_{NEW}}{N_{HEAT}} \times 60 \times 24 \times HDD \times 0.018 \right) \times \frac{\%ElectricHeat}{nHeat \times 3,412}$$

$$\Delta kWh_{heatingFurnace} = \Delta Therms \times Fe \times 29.3 \times ADJ_{AirSealingHeatFan}$$

$$\Delta kW = \frac{\Delta kWh_{cooling}}{FLH_{cooling}} \times CF$$

Savings for each site were calculated on an individual basis with different blower door measurements and heating and cooling types. The savings inputs Cadmus used for its *ex post* calculations are shown in Table A-58.

Table A-58. 2025 Income Qualified Weatherization Program Air Sealing Savings Inputs

Description	Assumption	Source
Leakage rate before installation (CFM50_exist)	Actual	2025 program tracking data
Leakage rate after installation (CFM50_new)	Actual	2025 program tracking data
Ncool	40.4	Illinois TRM v13.0
Conversion factor from leakage (N _{heat})	27.8	Illinois TRM v13.0
Efficiency of Air Conditioning equipment (nCool)	10	Illinois TRM v13.0
Efficiency of heating system (nHeat)	1.32	Illinois TRM v13.0
Cooling degree days (CDD) – Belleville	1641	Illinois TRM v13.0
Heating degree days (HDD) - Marion	3390	Illinois TRM v13.0
Discretionary Use Adjustment (DUA)	0.75	Illinois TRM v13.0
Latent Multiplier (LM)	3.6	Illinois TRM v13.0
Adjustment for cooling savings (ADJ _{AirSealingCool})	1	Illinois TRM v13.0
Adjustment for fan savings during heating season (ADJ _{AirSealingHeatFan})	1	Illinois TRM v13.0
Furnace Fan energy consumption (Fe)	3.14%	Illinois TRM v13.0
Summer peak coincidence factor (CF)	0.68	Illinois TRM v13.0

Duct Sealing

Cadmus applied this algorithm from the Illinois TRM v13.0 to calculate and verify energy savings (excluding ISR):

$$\Delta kWh = \Delta kWh_{cooling} + \Delta kWh_{fan} + \Delta kWh_{electric_heating}$$

$$\Delta kWh_{cooling} = \left(\frac{\Delta CFM25_{DL}}{\left(\frac{CapacityCool \times 400}{12,000} \right)} \times FLHcool \times CapacityCool \times TRFcool \times \%Cool \right) \times \left(\frac{nCool}{1,000} \right)$$

$$\Delta kWh_{fan} = \Delta Therms \times Fe \times 29.3$$

$$\Delta kWh_{electric_heating} = \left(\frac{\Delta CFM25_{DL}}{\left(\frac{CapacityHeat \times 400}{12,000} \right)} \times FLHheat \times CapacityHeat \times TRFheat \times \%ElectricHeat \right) \times \left(\frac{nHeat}{3,412} \right)$$

$$\Delta kW = \frac{\Delta kWh_{cooling}}{FLHcool} \times CF$$

The inputs used for these formulas are shown in Table A-59.

Table A-59. 2025 Income Qualified Weatherization Program Duct Sealing Savings Inputs

Description	Assumption	Source
Duct Leakage Reduction ($\Delta CFM25_{DL}$)	Varies	2025 program tracking data
CapacityCool	28,526	2025 program tracking data; average capacity from air conditioning measures
CapacityHeat	29,518	2025 WI TRM
Thermal Regain Factor (TRFcool)	0.4	Illinois TRM v13.0
Thermal Regain Factor (TRFheat)	0.4	Illinois TRM v13.0
nCool	10	Illinois TRM v13.0
nHeat	1	Illinois TRM v13.0
FLHcool - Belleville	1082	Illinois TRM v13.0
FLHheat - Marion	1270	Illinois TRM v13.0
Furnace Fan energy consumption (Fe)	3.14%	Illinois TRM v13.0
Coincidence factor (CF)	0.68	Illinois TRM v13.0

Attic Insulation

Cadmus applied this algorithm from the Illinois TRM v13.0 to calculate and verify energy saving (excluding ISR):

$$\Delta kWh = \Delta kWh_{cooling} + \Delta kWh_{heatingElectric} + \Delta kWh_{heatingGas}$$

$$\Delta kWh_{cooling} = \left(\left(\left(\left(\frac{1}{R_{old}} - \frac{1}{R_{attic}} \right) \times A_{attic} \times (1 - FramingFactorAttic) \right) \times 24 \times CDD \times DUA \right) / (1,000 \times nCool) \right) \times ADJ_{AtticCool} \times IE_{NetCorrection} \times \%Cool$$

$$\Delta kWh_{heatingElectric} = \left(\left(\left(\left(\frac{1}{R_{old}} - \frac{1}{R_{attic}} \right) \times A_{attic} \times (1 - FramingFactorAttic) \right) \times 24 \times HDD \right) \times \left(\frac{1}{nHeat \times 3412} \right) \right) \times ADJ_{AtticElectricHeat} \times \%ElectricHeat$$

$$\Delta kWh_{heatingGas} = \Delta Therms \times Fe \times 29.3 \times ADJ_{AtticHeatFan}$$

$$\Delta kW = \frac{\Delta kWh_{cooling}}{FLHcool} \times CF$$

The inputs used for these formulas are shown in Table A-60.

Table A-60. 2025 Income Qualified Weatherization Program Attic Insulation Savings Inputs

Description	Assumption	Source
R _{attic}	38	2025 program tracking data
R _{old}	varies	2025 program tracking data
Area of insulated attic (A _{attic})	varies	2025 program tracking data
FramingFactorAttic	7%	Illinois TRM v13.0
Heating Degree Days (HDD) - Marion	3390	Illinois TRM v13.0
Cooling Degree Days (CDD) - Belleville	1641	Illinois TRM v13.0
Discretionary Use Adjustment (DUA)	0.75	Illinois TRM v13.0
nCool	10	Illinois TRM v13.0
nHeat _{electric}	1	Illinois TRM v13.0
ADJ _{AtticCool}	114%	Illinois TRM v13.0
ADJ _{AtticElectricHeat}	63%	Illinois TRM v13.0
ADJ _{AtticHeatFan}	113%	Illinois TRM v13.0
Furnace fan energy consumption (Fe)	3.14%	Illinois TRM v13.0
Coincidence factor (CF)	0.68	Illinois TRM v13.0

Wall Insulation

Cadmus applied this algorithm from the Illinois TRM v13.0 to calculate and verify energy savings (excluding ISR):

$$\Delta kWh = \Delta kWh_{cooling} + \Delta kWh_{heatingElectric} + \Delta kWh_{heatingFurnace}$$

$$\Delta kWh_{cooling} = \left(\left(\left(\left(\frac{1}{R_{old}} - \frac{1}{R_{wall}} \right) \times A_{wall} \times (1 - FramingFactorWall) \right) \times 24 \times CDD \times DUA \right) / (1,000 \times nCool) \right) \times ADJ_{WallCool} \times \%Cool$$

$$\Delta kWh_{heatingElectric} = \left(\left(\left(\left(\frac{1}{R_{old}} - \frac{1}{R_{wall}} \right) \times A_{wall} \times (1 - FramingFactorWall) \right) \times 24 \times HDD \right) \times \left(\frac{1}{nHeat \times 3412} \right) \right) \times ADJ_{WallHeat} \times \%ElectricHeat$$

$$\Delta kWh_{heatingFurnace} = \Delta Therms \times Fe \times 29.3$$

$$\Delta kW = \frac{\Delta kWh_{cooling}}{FLH_{cool}} \times CF$$

The inputs used for these formulas are shown in Table A-61.

Table A-61. 2025 Income Qualified Weatherization Program Wall Insulation Savings Inputs

Description	Assumption	Source
R_{wall}	13	2025 program tracking data
R_{old}	varies	2025 program tracking data
Area of insulated wall (A_{wall})	varies	2025 program tracking data
FramingFactorWall	25%	Illinois TRM v13.0
Heating Degree Days (HDD) - Marion	3390	Illinois TRM v13.0
Cooling Degree Days (CDD) - Belleville	1641	Illinois TRM v13.0
Discretionary Use Adjustment (DUA)	0.75	Illinois TRM v13.0
nCool	10	Illinois TRM v13.0
nHeat (electric)	1	Illinois TRM v13.0
FLHcool - Belleville	1082	Illinois TRM v13.0
$ADJ_{WallCool}$	75%	Illinois TRM v13.0
$ADJ_{WallHeat}$	63%	Illinois TRM v13.0
Furnace fan energy consumption (Fe)	3.14%	Illinois TRM v13.0
Coincidence factor (CF)	0.68	Illinois TRM v13.0

Door Sweeps

Cadmus applied this algorithm and inputs from the Illinois TRM v13.0 to calculate and verify energy savings (excluding ISR):

$$kWh\ Savings = (\Delta kWh_{sweep,Heat} + \Delta kWh_{sweep,Cool}) * n_{sweep} * ISR * ADJ_{RxAirsealing}$$

$$kW\ Savings = \left(\frac{(\Delta kWh_{sweep} * n_{sweep} * ISR)}{FLH_{cooling}} \right) * CF$$

The inputs used for these formulas are shown in Table A-62.

Table A-62. 2025 Income Qualified Weatherization Program Door Sweep Savings Inputs

Description	Assumption	Source
$\Delta kWh_{sweep,Heat}$ (Marion)	Varies	Illinois TRM v13.0
$\Delta kWh_{sweep,Cool}$ (Belleville)	Varies	Illinois TRM v13.0
n_{sweep}	Varies	2025 IQW Program Tracking Data
$ADJ_{RxAirsealing}$	0.8	Illinois TRM v13.0
Coincidence factor (CF)	0.68	Illinois TRM v13.0

Weatherstripping

Cadmus applied this algorithm and inputs from the Illinois TRM v13.0 to calculate and verify energy saving (excluding ISR):

$$kWh\ Savings = (\Delta kWh_{wx,Heat} + \Delta kWh_{wx,Cool}) * LF_{wx} * ISR * ADJ_{RxAirsealing}$$

$$kW Savings = \left(\frac{(\Delta kWh_{wx,Cool} * LF_{wx} * ISR)}{FLH_{cooling}} \right) * CF$$

The inputs used for these formulas are shown in Table A-63.

Table A-63. 2025 Income Qualified Weatherization Program Weather Stripping Savings Inputs

Description	Assumption	Source
ΔkWh wx,Heat (Marion)	Varies	Illinois TRM v13.0
ΔkWh wx,cool (Belleville)	Varies	Illinois TRM v13.0
Lf_weatherstripping	17	2025 IQW Program Tracking Data
ADJ_RxAirsealing	0.8	Illinois TRM v13.0
Coincidence factor (CF)	0.68	Illinois TRM v13.0

Pipe Wrap

Cadmus used the following equation to calculate savings per water heater with pipe wrap (excluding ISR):

$$\Delta kWh = \%ElectricDHW \times \frac{\left(\left(\frac{1}{R_{exist}} - \frac{1}{R_{new}} \right) \times C_{inside} \times L_{effective} \times \Delta T \times 8,760 \times ISR \right)}{nDHW \times 3412}$$

$$\Delta kW = \frac{\Delta kWh}{8,760}$$

The inputs used for these formulas are shown in Table A-64.

Table A-64. 2025 Income Qualified Weatherization Program Pipe Wrap Savings Inputs

Input	Assumption	Source
Pipe heat loss coefficient of uninsulated pipe (R _{exist})	0.444	Illinois TRM v13.0
Pipe heat loss coefficient of insulated pipe (R _{new})	3.444	Illinois TRM v13.0; Assumed based on insulation value = R-3.
Inside circumference of pipe (C _{inside})	0.1427	2025 Tracking Data
Effective length of pipe from water heating source covered in insulation (L _{effective})	varies	2025 Tracking Data
Temperature difference between supplied water and outside air temperature (ΔT)	60	Illinois TRM v13.0
Electric water heater recovery efficiency (nDHW)	98%	Illinois TRM v13.0
%ElectricDHW	100%	Illinois TRM v13.0

Outlet Gaskets

Cadmus applied this algorithm and inputs from the Illinois TRM v13.0 to calculate and verify per unit energy savings (excluding ISR):

$$kWh Savings = (\Delta kWh_{gaskets,Heat} + \Delta kWh_{gaskets,Cool}) * n_{gaskets} * ISR * ADJ_{RxAirsealing}$$

$$kW Savings = \left(\frac{(\Delta kWh_{gaskets} * n_{gaskets} * ISR)}{FLH_{cooling}} \right) * CF$$

The inputs used for these formulas are shown in Table A-65.

Table A-65. 2025 Income Qualified Weatherization Program Gaskets Savings Inputs

Description	Assumption	Source
ΔkWh gaskets,Heat (Marion)	Varies	Illinois TRM v13.0
ΔkWh gaskets,Cool (Belleville)	Varies	Illinois TRM v13.0
n_gaskets	Varies	2025 Program Tracking Data
ADJ_RxAirsealing	0.8	Illinois TRM v13.0
Coincidence factor (CF)	0.68	Illinois TRM v13.0

A.6.Community Connections Measure Distribution

Cadmus' impact evaluation of the Community Connections Program included four measures with electric savings:

- Door Weatherstripping
- Window Weatherstripping
- Outlet Gaskets
- Door Sweeps

A.6.1. Weatherstripping, Door Sweeps, and Outlet Gaskets

Weatherstripping

Cadmus applied this algorithm and inputs from the Illinois TRM v13.0, Indiana TRM v2.2, and ResStock Data to calculate and verify energy saving (excluding ISR):

$$kWh Savings = (\Delta kWh_{wx,Heat} + \Delta kWh_{wx,Cool}) * IF_{wx} * ISR * ADJ_{RxAirsealing}$$

$$kW Savings = \left(\frac{(\Delta kWh_{wx,Cool} * IF_{wx} * ISR)}{FLH_{cooling}} \right) * CF$$

The inputs used for these formulas are shown in Table A-66.

Table A-66. 2025 Community Connections Program Weatherstripping Savings Inputs

Description	Assumption	Source
$\Delta kWh_{wx,cool}$ (Belleville)	0.13	Illinois TRM v13.0
$\Delta kWh_{wx,heat}$ (Marion)	2.4	Illinois TRM v13.0
IF,wx	17	2025 Program Tracking Data
ADJ_RxAirsealing	0.8	Illinois TRM v13.0
%HP (Homes with heat pumps out of homes with electric heat)	0.25	Indiana ResStock Data
%ER (Homes with electric resistance out of homes with electric heat)	0.75	Indiana ResStock Data

Door Sweeps

Cadmus applied this algorithm and inputs from the Illinois TRM v13.0 and ResStock Data to calculate and verify energy saving (excluding ISR):

$$kWh Savings = (\Delta kWh_{sweep,Heat} + \Delta kWh_{sweep,Cool}) * n_{sweep} * ISR * ADJ_{RxAirsealing}$$

$$kW Savings = \left(\frac{(\Delta kWh_{wx,sweep} * n_{sweep} * ISR)}{FLH_{cooling}} \right) * CF$$

The inputs used for these formulas are shown in Table A-67.

Table A-67. 2025 Community Connections Program Door Sweep Savings Inputs

Description	Assumption	Source
$\Delta kWh_{sweep,Heat}$ (Marion)	36.1	Illinois TRM v13.0
$\Delta kWh_{sweep,Cool}$ (Belleville)	5.1	Illinois TRM v13.0
n_sweep	Varies	2025 Program Tracking Data
%HP (Homes with heat pumps out of homes with electric heat)	0.25	Indiana ResStock Data
%ER (Homes with electric resistance out of homes with electric heat)	0.75	Indiana ResStock Data
ADJ_RxAirsealing	0.8	Illinois TRM v13.0

Gaskets

Cadmus applied this algorithm and inputs from the Illinois TRM V13.0, Indiana TRM v2.2, and ResStock Data to calculate and verify energy saving (excluding ISR):

$$kWh Savings = (\Delta kWh_{gaskets,Heat} + \Delta kWh_{gaskets,Cool}) * n_{gaskets} * ISR * ADJ_{RxAirsealing}$$

$$kW Savings = \left(\frac{(\Delta kWh_{gaskets} * n_{gaskets} * ISR)}{FLH_{cooling}} \right) * CF$$

The inputs used for these formulas are shown in Table A-68.

Table A-68. 2025 Community Connections Program Gaskets Savings Inputs

Description	Assumption	Source
Δ kWh gaskets,Heat (Marion)	1.9	Illinois TRM v13.0
Δ kWh gaskets,Cool (Belleville)	1.3	Illinois TRM v13.0
n_gaskets	Varies	2025 Program Tracking Data
%HP (Homes with heat pumps out of homes with electric heat)	0.25	Indiana ResStock Data
%ER (Homes with electric resistance out of homes with electric heat)	0.75	Indiana ResStock Data
ADJ_RxAirsealing	0.8	Illinois TRM v13.0

A.7. Residential Behavioral Savings Program

Cadmus' impact evaluation of the Residential Behavioral Savings (RBS) Program included a billing analysis to evaluate the effect of home energy reports (HERs) on the behavior of treated customers. The evaluation of the RBS Program savings and efficiency program uplift consisted of six tasks:

- Billing data collection, review, and preparation
- Equivalency checks on treatment and control groups
- Billing analysis
- Energy-savings estimations
- Energy efficiency program channeling analysis (uplift)
- Demand reduction analysis

A.7.1. Data Collection, Review, and Preparation

CenterPoint Energy provided data from monthly utility bills for electric only and dual fuel homes for treatment and control group customers between January 2011 and December 2025 (approximately 13 months of bills prior to the beginning of the RBS Program in 2012 and 172 months of bills after the program began). Cadmus removed the month of December, 2025 from analysis as billing data for this month only included partial reads. Billing data included these fields:

- Energy use during the monthly billing cycle
- The last day of the billing cycle
- Customer segment (electric only or dual fuel and launch date/wave)
- Assignment to treatment or control groups
- First report date
- Opt-out date for customers choosing not to participate in the program
- Move-out date for customers who have moved
- Electric and gas account numbers for linking to billing data

Cadmus collected National Oceanic and Atmospheric Administration (NOAA) daily temperature data up to August 2025 from the municipal airport weather stations near Henderson, Kentucky; Lawrenceville, Illinois; and Evansville, Indiana—the three stations nearest to all RBS Program treatment and control homes. From August 2025 onwards, NOAA data structuring changed to the new GHCN format. Due to increased gaps

in coverage in this format, Cadmus identified the closest weather stations to each station and covered gaps with weather data from the next closest weather station. This included weather data from an additional 9 stations. NOAA's data restructuring additionally resulted in a gap in weather data coverage between the old and new formatted data from 2025-08-30 to 2025-09-02. To avoid gaps in weather data over the period of billing data, Cadmus imputed daily weather data from 2025-08-30 to 2025-09-02 as a rolling average of the weather data during the surrounding two weeks for each respective station, excluding other gap days.

CenterPoint Energy provided participation and measure savings data for its 2025 DSM programs. For each program and measure, these data included the account number, the number and description of measures installed, measure installation dates, and verified savings. Cadmus used these data to estimate the RBS Program's participation and savings effects on other efficiency programs (uplift).

Data Preparation

Cadmus worked with CenterPoint Energy and the program implementer to acquire the data necessary for the RBS Program evaluation in 2025. Major data preparation steps included cleaning and compiling the program tracking data, billing consumption and weather data, and testing for significant differences in annual pretreatment consumption between treatment and control customers, by customer segment. This section describes the steps Cadmus took to process the data and verify customers in the tracking and billing data.

Program Tracking Data

Cadmus received RBS Program tracking data from the program implementer at the close of 2025. These data included treatment group customers who received HERs in the current or a previous year and control group customers tracked since the program's inception. Because the RBS Program was implemented as a randomized control trial, Cadmus included all possible customers in its evaluation, adopting a "once in, always in" policy for customers originally randomized into either the treatment or control group prior to the launch of the HERs.

Table A-69 shows customer attrition through 2025 by treatment and control groups, by customer segment, and as originally randomized and active at the beginning of treatment in 2025. The attrition process captures customers whose accounts closed (became inactive) since the launch of the program.

Table A-69. 2025 Residential Behavioral Savings Program Customer Attrition

Customer Segment	Originally Randomized		Active at the Beginning of Treatment in 2025	
	Treatment	Control	Treatment	Control
Wave 1 Dual Fuel (2013)	51,510	5,595	21,210	2,398
Wave 2 Dual Fuel (2020)	13,697	10,000	7,961	5,858
Wave 3 Dual Fuel (2022) ^a	5,801	629	14,766	1,609
Wave 4 Electric (2023)	10,000	10,000	6,352	6,353
Wave 5 Electric (2025)	10,000	6,000	9,810	5,882
Program Total	91,008	32,224	60,099	22,100

^aThe 2022 wave has had ongoing enrollment; customers continued to join since its beginning in 2022 through 2025.

Billing Data

Cadmus collected customer billing data for each customer segment from the program implementer. To clean the billing data, Cadmus followed these steps:

1. Drop customers whose accounts became inactive before the delivery of the first energy reports
2. Clean and calendarize bills, which included dropping bills that covered more than 100 days (about three months), dropping bills with negative consumption, dropping bills earlier than one year prior to the delivery of the first energy reports, and truing up bills with estimated reads
3. Drop customers with less than six months of pretreatment bills (six months was used as a cutoff to preserve sample sizes and be consistent across waves)

Table A-70 provides the attrition in the 2025 analysis sample from data cleaning steps. The final modeling sample included customers in Cadmus' final tracking data who were not dropped during the billing data cleaning process and were included in the billing analysis. These customers were not necessarily active at the beginning of treatment in 2025. Wave 3 is excluded from this table because of ongoing enrollment.

Table A-70. 2025 Residential Behavioral Savings Program Analysis Sample

Step in Attrition	Wave 1 Dual Fuel ^a		Wave 2 Dual Fuel ^a		Wave 4 Electric ^a		Wave 5 Electric ^a	
	Treatment	Control	Treatment	Control	Treatment	Control	Treatment	Control
Originally Randomized Customers	51,510 (100%)	5,595 (100%)	13,697 (100%)	10,000 (100%)	10,000 (100%)	10,000 (100%)	10,000 (100%)	6,000 (100%)
Included in Billing Data	50,846 (99%)	5,531 (99%)	13,602 (99%)	9,934 (99%)	9,985 (100%)	9,984 (100%)	9,861 (99%)	5,911 (99%)
Active at Program Launch	50,846 (99%)	5,531 (99%)	13,602 (99%)	9,934 (99%)	9,935 (99%)	9,937 (99%)	9,861 (99%)	5,911 (99%)
Less than Six Months of Pretreatment Data	49,643 (96%)	5,391 (96%)	13,186 (96%)	9,609 (96%)	9,242 (92%)	9,260 (93%)	9,835 (98%)	5,895 (98%)
Final Modeling Sample	49,643 (96%)	5,391 (96%)	13,186 (96%)	9,609 (96%)	9,242 (92%)	9,260 (93%)	9,835 (98%)	5,895 (98%)

^a The billing data analysis sample includes customers who were randomized into the program and active when treatment began in 2025. These customers were not necessarily active in 2025.

Table A-71 shows enrollment accrual for Wave 3, which experienced ongoing monthly enrollment starting at its launch in October 2022.

Table A-71. 2025 Residential Behavioral Savings Program Rolling Monthly Wave Analysis Sample

Wave 3 Enrollment Accrual	Included in Billing Data		At Least Six Months of Pretreatment Data	
	Treatment	Control	Treatment	Control
2022-10	5,745	624	5,242	571
2022-11	6,153	664	5,326	577
2022-12	6,332	688	5,319	579
2023-01	6,423	701	5,303	576
2023-02	6,508	716	5,342	580
2023-03	6,569	715	5,339	576
2023-04	6,597	716	5,312	572
2023-05	6,501	709	5,238	565
2023-06	6,361	704	5,149	561
2023-07	9,938	1,084	8,473	912
2023-08	9,803	1,061	8,349	892
2023-09	11,183	1,215	9,223	995
2023-10	13,515	1,462	11,255	1,204
2023-11	15,153	1,640	12,518	1,342
2023-12	15,349	1,673	12,564	1,357
2024-01	14,876	1,617	12,185	1,314
2024-02	14,702	1,607	12,057	1,306
2024-03	14,476	1,582	11,894	1,285
2024-04	14,332	1,558	11,794	1,266

Wave 3 Enrollment Accrual	Included in Billing Data		At Least Six Months of Pretreatment Data	
	Treatment	Control	Treatment	Control
2024-05	14,157	1,543	11,671	1,259
2024-06	15,632	1,696	13,004	1,403
2024-07	15,926	1,728	13,140	1,426
2024-08	15,758	1,707	12,994	1,406
2024-09	15,570	1,689	12,848	1,392
2024-10	15,327	1,665	12,671	1,379
2024-11	15,077	1,637	12,485	1,362
2024-12	14,876	1,614	12,326	1,344
2025-01	14,760	1,607	11,441	1,263
2025-02	14,669	1,595	11,394	1,252
2025-03	14,494	1,582	11,300	1,247
2025-04	14,159	1,550	11,043	1,218
2025-05	14,082	1,538	11,009	1,217
2025-06	14,016	1,533	10,983	1,212
2025-07	13,807	1,513	10,828	1,198
2025-08	13,645	1,498	10,707	1,189
2025-09	13,472	1,480	10,579	1,178
2025-10	13,292	1,451	10,446	1,154
2025-11	11,973	1,307	9,384	1,033

Weather Data

Cadmus collected weather data from the weather station closest to each home and estimated the heating degree days (HDDs) and cooling degree days (CDDs) for each customer billing cycle. After merging the weather and billing data, Cadmus allocated the billing cycle electricity consumption, HDDs, and CDDs to calendar months.

Verification of Balanced Treatment and Control Groups

Cadmus has historically verified that subjects in the randomized treatment and control groups were equivalent in their annual pretreatment energy consumption in past waves. Cadmus verified the equivalence of waves using the cleaned billing data, comparing preprogram average annual consumption from before the launch of the program.

A.7.2. Regression Analysis

Cadmus used regression analyses of monthly billing data from customers in the treatment and control groups to estimate the RBS Program's energy savings. The billing analysis conformed to IPMVP Option C, whole facility,³⁹ and the approach described in the Uniform Methods Project.^{40,41}

More specifically, Cadmus used a multivariate regression to analyze the energy use of customers who had been randomly assigned to treatment and control groups. Cadmus tested and compared two general model specifications to check the robustness of savings results:

- The **post-only** model regresses customer average daily consumption on a treatment indicator variable and includes as regressors customers' pretreatment energy use, month-by-year fixed effects and weather.⁴² The model is estimated only with posttreatment customer bills.
- The **difference-in-differences (D-in-D) fixed effects** model regresses average daily consumption on a treatment indicator variable, month-by-year fixed effects, customer fixed effects, and weather. The model is estimated with pre- and post-treatment customer bills.

Both models yielded savings estimates that were within each other's confidence intervals, meaning that their results were not statistically different. In 2025, Cadmus reported the results of the post-treatment only model, consistent with previous program years.

The error terms of the post-only model and D-in-D fixed effects model should be uncorrelated with program participation and other observable variables because of the random assignment of homes to treatment and control groups, and therefore ordinary least squares (OLS) regression should result in an unbiased estimate of the average daily savings per customer. Cadmus clustered the standard errors on customers to account for arbitrary correlation in customer consumption over the analysis period.

Post-treatment Only Model

Cadmus specified the post-treatment only model assuming the average daily consumption (ADC_{it}) of electricity of home i in month t as given by the following equation:

³⁹ Efficiency Valuation Organization. January 2012. *International Performance Measurement and Verification Protocol, Concepts and Options for Determining Energy and Water Savings, Volume 1*. Page 25. (EVO 10000 – 1:2012) www.evo-world.org/

⁴⁰ Agnew, K., and M. Goldberg. April 2013. *Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures, Chapter 8: Whole-Building Retrofit with Consumption Data Analysis Evaluation Protocol*. U.S. Department of Energy, National Renewable Energy Laboratory. (NREL/SR-7A30-53827) www1.eere.energy.gov/office_eere/de_ump_protocols.html

⁴¹ Stewart, J., and A. Todd. August 2014. *Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures, Chapter 17: Residential Behavior Protocol*. U.S. Department of Energy, National Renewable Energy Laboratory. (NREL/SR-7A40-62497) www1.eere.energy.gov/office_eere/de_ump_protocols.html

⁴² Allcott, H., and T. Rogers. 2014. "The Short-Run and Long-Run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation." *American Economic Review* 104 (10), 3003-3037.

$$ADC_{it} = \sum_{t=1}^T \beta_1 PART_i * PY_t + \sum_{m=1}^M \beta_2 Pre - ADC_{im} \times M_m + W' \gamma + \tau_t + \varepsilon_{it}$$

Where:

β_1	=	Coefficient representing the conditional average treatment effect of the program on electricity consumption (kWh per customer per day)
$PART_i$	=	Indicator variable for program participation (which equals 1 if customer i was in the treatment group and 0 otherwise)
PY_t	=	Indicator variable for each program year (which equals 1 if the month t was in the program year and 0 otherwise)
β_2	=	Coefficient representing the conditional average effect of pretreatment electricity consumption on posttreatment average daily consumption (kWh per customer per day)
$Pre - ADC_{im}$	=	Mean household energy consumption of customer i in month m in the pretreatment period
M_m	=	Variable indicating the month of the calendar year for months $m = 1, 2, \dots, 12$
W	=	Vector using both HDD and CDD variables to control for weather impacts on energy use
γ	=	Vector of coefficients representing the average impact of weather variables on energy use
τ_t	=	Average energy use in month t reflecting unobservable factors specific to the month (the analysis controls for these effects with month-by-year fixed effects)
ε_{it}	=	Error term for customer i in month t

D-in-D Fixed Effects Model

The D-in-D fixed effects model was specified, assuming average daily consumption (ADC_{it}) of electricity of customer ' i ' in month ' t ', as given by the following equation:

$$ADC_{it} = \alpha_i + \tau_t + W' \gamma + \beta_1 PART_i \times POST_t + \varepsilon_{it}$$

Where:

β_1	=	Coefficient representing the program's conditional average treatment effect on electricity use (kWh per customer per day)
$PART_i$	=	Indicator variable for program participation (which equals 1 if customer i was in the treatment group and 0 otherwise)
$POST_t$	=	Indicator variable for whether month ' t ' is pre- or post-treatment (which equals 1 if month t was in the treatment period and 0 otherwise)
W	=	Vector using HDD and CDD variables to control for weather impacts on energy use

γ	=	Vector of coefficients representing the average impact of weather variables on energy use
α_i	=	Average energy use in customer i reflecting unobservable, non-weather-sensitive, and time-invariant factors specific to the customer (the analysis controlled for these effects with customer fixed effects)
τ_t	=	Average energy use in month t reflecting unobservable factors specific to the month (the analysis controlled for these effects with month-by-year fixed effects)
ϵ_{it}	=	Error term for customer i in month t

Regression Analysis Estimates

Cadmus estimated separate treatment effects for each customer segment and program year, besides Wave 3 which is reported separately due to rolling enrollment. Table A-72 shows both the post-treatment only and D-in-D fixed effects model estimates of average daily savings per customer, by segment and program year. All of the models were estimated by OLS, and Huber-White robust clustered standard errors were adjusted for correlation over time in a customer's consumption. The post-treatment only and D-in-D fixed effects models produce statistically indistinguishable results each year, showing that estimated treatment effects are robust.

Table A-72. 2025 Residential Behavioral Savings Program Historical Model Comparison of Savings

Treatment Year	Wave 1 Dual Fuel ^a		Wave 2 Dual Fuel ^a		Wave 4 Electric ^a		Wave 4 Electric ^a	Wave 4 Electric ^a
	Post-Only (Standard Error)	D-in-D Fixed Effects (Standard Error)	Post-Only (Standard Error)	Post-Only (Standard Error)	Post-Only (Standard Error)	D-in-D Fixed Effects (Standard Error)	Post-Only (Standard Error)	D-in-D Fixed Effects (Standard Error)
2012	0.211 (0.086) **	0.167 (0.073) **	N/A	N/A	N/A	N/A	N/A	N/A
2013	0.299 (0.101) ***	0.275 (0.095) ***	N/A	N/A	N/A	N/A	N/A	N/A
2014	0.43 (0.119) ***	0.429 (0.116) ***	N/A	N/A	N/A	N/A	N/A	N/A
2015	0.465 (0.127) ***	0.444 (0.127) ***	N/A	N/A	N/A	N/A	N/A	N/A
2016	0.443 (0.143) ***	0.429 (0.144) ***	N/A	N/A	N/A	N/A	N/A	N/A
2017	0.4 (0.149) ***	0.411 (0.154) ***	N/A	N/A	N/A	N/A	N/A	N/A
2018	0.301 (0.169) *	0.343 (0.169) **	N/A	N/A	N/A	N/A	N/A	N/A
2019	0.476 (0.179) ***	0.501 (0.184) ***	N/A	N/A	N/A	N/A	N/A	N/A
2020	0.587 (0.186) ***	0.615 (0.192) ***	0.367 (0.208) *	0.378 (0.218) *	N/A	N/A	N/A	N/A
2021	0.448 (0.196) **	0.468 (0.202) **	0.176 (0.1) *	0.161 (0.084) *	N/A	N/A	N/A	N/A
2022	0.301 (0.208)	0.313 (0.214)	0.288 (0.099) ***	0.315 (0.097) ***	N/A	N/A	N/A	N/A
2023	0.367 (0.208) *	0.378 (0.218) *	0.231 (0.124) *	0.309 (0.123) **	-0.013 (0.087)	-0.02 (0.089)	N/A	N/A
2024	0.343 (0.217)	0.352 (0.225)	0.170 (0.160)	0.29 (0.16) *	0.016 (0.096)	0.084 (0.128)	N/A	N/A
2025	0.335 (0.226)	0.378 (0.229)*	0.254 (0.180)	0.342 (0.177)*	0.148 (0.166)	0.198 (0.157)	-0.023 (0.084)	0.015 (0.092)

Rolling Wave Post-Treatment Only Model

For the 2022 rolling enrollment wave, Cadmus specified a monthly post-treatment only model assuming the average daily consumption (ADC_{it}) of electricity of home ' i ' in month ' t ' as given by the following equation:

$$ADC_{it} = \sum_{t=1}^T \beta_{1t} PART_i * length_t + \beta_2 Pre - ADC_{im} + W'\gamma + \varepsilon_{it}$$

Where:

β_1	=	Coefficient representing the conditional average treatment effect of the program on electricity consumption in month t in the post-treatment period (kWh per customer per day)
$PART_i$	=	Indicator variable for program participation (which equals 1 if customer i was in the treatment group and 0 otherwise)
$length_t$	=	The length customer i has been participating in the program, in months, starting at 1 for customers in their first month
β_2	=	Coefficient representing the conditional average effect of pretreatment electricity consumption on posttreatment average daily consumption (kWh per customer per day)
$Pre - ADC_{im}$	=	Mean household energy consumption of customer i in month t in the pretreatment period
W	=	Vector using both HDD and CDD variables to control for weather impacts on energy use. For months October through March, this vector only includes HDD; for months May through September, this vector only includes CDD
γ	=	Vector of coefficients representing the average impact of weather variables on energy use
ε_{it}	=	Error term for customer i in month t

Regression Analysis Estimates

Cadmus estimated separate treatment effects for Wave 3 for each month of rolling enrollment. Table A-73 shows the post-treatment only model estimates of average daily savings per customer, by month. All of the models were estimated by OLS, and Huber-White robust clustered standard errors were adjusted for correlation over time in a customer's consumption.

**Table A-73. 2025 Residential Behavioral Savings Program
Rolling Wave Model Savings by Month**

Wave 4 Dual-Fuel – Treatment Month	Post-Only (Standard Error)
2022-10	0.267 (0.448)
2022-11	-0.098 (0.224)
2022-12	0.201 (0.181)

Wave 4 Dual-Fuel – Treatment Month	Post-Only (Standard Error)
2023-01	0.582 (0.137) ***
2023-02	0.655 (0.094) ***
2023-03	0.698 (0.066) ***
2023-04	0.572 (0.047) ***
2023-05	0.973 (0.049) ***
2023-06	1.21 (0.049) ***
2023-07	-0.588 (0.03) ***
2023-08	-0.776 (0.029) ***
2023-09	-0.243 (0.024) ***
2023-10	1.059 (0.021) ***
2023-11	-0.602 (0.016) ***
2023-12	-1.191 (0.019) ***
2024-01	0.055 (0.021) ***
2024-02	0.076 (0.017) ***
2024-03	-0.062 (0.014) ***
2024-04	-0.038 (0.013) ***
2024-05	0.123 (0.015) ***
2024-06	0.24 (0.017) ***
2024-07	0.1 (0.017) ***
2024-08	-0.032 (0.015) **
2024-09	0.01 (0.013)
2024-10	0.066 (0.012) ***
2024-11	-0.032 (0.012) ***
2024-12	-0.045 (0.014) ***
2025-01	-0.017 (0.016)
2025-02	-0.056 (0.015) ***
2025-03	0.012 (0.01)
2025-04	0.045 (0.009) ***
2025-05	-0.015 (0.01)
2025-06	-0.103 (0.013) ***
2025-07	-0.06 (0.015) ***
2025-08	0.024 (0.013) *
2025-09	0.006 (0.011)
2025-10	-0.043 (0.01) ***
2025-11	0.021 (0.011) *

Cadmus was unable to estimate a specific monthly estimate for December, 2025 due to incomplete billing data.

A.7.3. Program Total Savings Estimation

Cadmus estimated program savings in 2025 for each wave's population of treated customers as the product of average daily savings per participant and the number of days these customers were treated in

2025, as shown below. Cadmus assumed that the program implementer intended to treat all eligible customers at least once in 2025 and included treatment days for customers who should have received treatment in 2025 (i.e., those who were still active and randomized as a treatment customer), even when customers were not explicitly flagged as receiving 2025 treatment.

$$Savings_h = -\hat{\beta}_{1,h} * \sum_{i=1}^N Treatment\ Days_{i,h}$$

Where:

$$\begin{aligned} \hat{\beta}_{1,h} &= \text{Average daily savings (kWh) per treatment group customer in wave } h, \text{ estimated from the post-only regression model} \\ Treatment\ Days_{i,h} &= \text{The number of days customer } i \text{ in wave } h \text{ was treated in 2025}^{43} \end{aligned}$$

Cadmus estimated realization rates for each wave as the ratio of verified program savings to reported program savings (estimated by the program implementer).

Energy Efficiency Program Channel (Uplift) Analysis

Analysis of efficiency program uplift proved important for two reasons:

- CenterPoint Energy sought to learn whether and to what extent the Residential Behavioral Savings Program caused participation in CenterPoint Energy's other programs.
- To the extent that the RBS Program caused participation in other efficiency programs, energy savings resulting from this participation would be counted twice—once in the regression estimate of RBS Program savings and once in the other programs' savings, which meant that CenterPoint Energy should subtract the double-counted savings from the DSM portfolio savings.

The uplift analysis yielded estimates of the percentage of the RBS Program's effect on other efficiency program participation and on the double-counted savings. Cadmus limited the analysis, however, to program measures that CenterPoint Energy tracked at the customer level. Cadmus performed participation and savings uplift analyses for these residential efficiency programs:

- Income Qualified Weatherization (IQW) Program
- Home Energy Solutions Program (all delivery channels)
- Targeted Income Program
- Smart Cycle Program

Cadmus did not perform channeling analyses for these residential efficiency programs:

- The Energy Efficient Schools Program targeted school children and their families. Participation was not voluntary.

⁴³ For the rolling wave, average daily savings was multiplied by the number of treatment days for each customer within each month, rather than by a given customer's total treatment days for 2025.

- For the Residential Specialty Lighting Program, although the RBS Program may have influenced purchases of LEDs and other high-efficiency lighting, such purchases were tracked at the store level rather than the customer level.
- The Residential New Construction Program targeted builders of new homes, which the RBS Program did not target.

As with the energy-savings analysis, the uplift analysis followed the logic of the program's experimental design. Cadmus collected efficiency program participation and savings data in 2025, matching the data to RBS Program treatment and control homes, and applied a simple differences analysis to each customer segment and wave. Because customers in the treatment and control groups are expected to be identical, except for having participated in the RBS Program, the difference between these groups in other efficiency program participation would equal the RBS Program uplift.

In homes matching the 2025 efficiency program data, Cadmus excluded measures installed after an account became inactive or measures installed before the start of the evaluation year. When calculating energy uplift, Cadmus prorated a measure's savings based on the installation date, so a measure installed halfway through the year was only credited half a year of savings. In addition, Cadmus prorated a measure's savings based on weather sensitivity. For demand uplift, Cadmus included full demand reduction for any measure installed prior to the end of September 2025.

Cadmus set ρ_m as the participation rate (defined as the number of participants to the number of potential participants) in a program in 2025 for group m (as before, $m=1$, for treated homes, and $m=0$ for control homes) in period t (t in $\{0,1\}$), as illustrated in this equation:

$$\text{Participation uplift} = \rho_1 - \rho_0$$

Cadmus used this method to express participation uplift relative to the participation rate of control homes in 2025, which yielded an estimate of the percentage uplift, as in this equation:

$$\% \text{Participation Uplift} = \text{Program Uplift} / \rho_0$$

Cadmus estimated RBS Program savings from participation in other efficiency programs in the same way, by replacing the program participation rate with the program net savings per home, as illustrated in this equation:

$$\text{Net savings per home from participation uplift} = \sigma_1 - \sigma_0^{44}$$

Multiplying net savings per home by the number of program homes yielded an estimate for a customer segment of total RBS net savings counted in CenterPoint Energy's other efficiency programs.

⁴⁴ Cadmus obtained net savings by multiplying measure-verified gross savings by the estimated measure NTG ratio.

Demand Reduction Analysis

Cadmus estimated the peak-coincident demand reduction with Integral Analytics' DSMore software using a load shape for a typical CenterPoint Energy home and the evaluated net program energy savings as inputs. This is the same software that CenterPoint Energy uses to assess program cost-effectiveness, which helps maintain alignment. This methodology is a reasonable approach for programs that evaluate savings using billing analysis in the absence of an hourly analysis of treatment and control AMI data. These approaches and validities are further outlined in the Uniform Methods Project.^[7] Reported demand reduction was based on per-household estimates that do not take into account year-to-year differences in energy savings.

The Calibrated DSMore Load-Shape Differences (CLSD) approach uses CenterPoint Energy-specific residential load shapes built into DSMore and calibrates the load shapes to match the verified annual consumption of the treatment group to equal the annual kWh savings. It then identifies and reports the demand reduction during the coincident peak for the utility. Cadmus performed separate demand reduction analyses for dual-fuel and electric-only customers using load shapes specific to each customer segment.

The CLSD approach follows six specific steps:

1. Conduct a pre-post D-in-D (experimental design with randomized control group) billing analysis to identify average participant and program-wide energy (kWh) savings achieved (this is described in more detail above in the *Regression Analysis* section in this appendix)
2. Calibrate CenterPoint Energy-specific residential DSMore load shapes to match the kilowatt-hour consumption levels of the treatment group
3. Adjust the load shape so that the annual savings identified in the billing analysis are reflected on that load shape. Maintain the same shape, while reducing the amplification of that shape ⁴⁵
4. Record the coincident load reduction on the calibrated DSMore load shape for the peak period defined by CenterPoint Energy
5. Report the number determined in step four as the coincident kW reduction
6. Multiply the peak reduction determined in step five by the number of active treatment customers to report program kW impacts

The CLSD approach provides a reasonable estimate of the per household and program-wide peak kW reduction given the available data.

A.8.Smart Cycle Program

Cadmus' impact evaluation of the Smart Cycle Program focused on smart thermostats with attributable electric savings. Table A-74 provides per-unit annual gross savings. The Illinois TRM v13.0 does not assign

⁴⁵ This load-shape adjustment accounted for the fact that delivery of the first home energy reports occurred in late January and early February of 2012.

coincident peak demand reduction for smart thermostats, so Cadmus did not assign coincident peak demand reduction from normal use of smart thermostats.

Table A-74. 2025 Smart Cycle Program Per-Unit Gross Savings

Measure	Annual Gross Savings (kWh)		Annual Gross Savings (Coincident Peak kW)	
	Reported	Evaluated	Reported	Evaluated
Smart Cycle Thermostat – Dual Fuel	492	287.84	1.10	0
Smart Cycle Thermostat – Electric	492	923.66	1.10	0

A.8.1. Smart Thermostats

Using the same savings methodology used to calculate smart thermostat savings in the 2025 Home Energy Solutions Program, Cadmus calculated Smart Cycle thermostat savings using the following equations (excluding ISR):

$$\text{Annual kWh Savings} = \Delta kWh_{\text{HEATING}} + \Delta kWh_{\text{COOLING}}$$

$$\Delta kWh_{\text{HEATING}} = FLH_{\text{HEAT}} * BTUH_{\text{HEAT}} * ESF_{\text{AdjustedBaselineHEAT}} * \left(\frac{1}{\eta_{\text{HEAT PUMP}} * 3412} \right) * TStat_Type_{\text{DiscountRate}}$$

$$\Delta kWh_{\text{Cooling}} = \Delta Cooling_{\text{AdjustedBaseline}} * TStat_{\text{TypeCOOLINGDiscountRate}} * \%AC$$

Table A-75 shows the inputs Cadmus used to evaluate impacts for the smart (learning) thermostats. The Smart Cycle Program tracking database does not include information on home heating equipment capacity, so Cadmus used the average heat pump capacity from the 2025 Home Energy Solutions Program tracking database for the BTUH capacity in the electric heating savings calculation.

Cadmus used a heat pump efficiency of 2.40 coefficient of performance (COP) based on the federal standard. Thermostat savings are dependent on climate and region, however the Illinois TRM v13.0 does not contain data for Indiana. To determine FLH for this evaluation, Cadmus matched each installation to its nearest Indiana TRM v2.2 reference city using the installation location's zip code. The FLH associated with that reference city was then used in the savings calculation for the installation. Cadmus applied additional assumptions from the 2019 participant survey. Cadmus did not conduct a participant survey for the 2022, 2023, 2024, or 2025 Smart Cycle Program due to the small population size.

Table A-75. 2025 Smart Cycle Per-Unit Savings Inputs

Variable	Value	Units	Source
$\eta_{\text{HEAT PUMP}}$	2.40	N/A	Federal standard (COP)
η_{ER}	1.0	N/A	Indiana TRM v2.2 (COP)
$BTUH_{\text{HEAT}}$	33,407	BTUH	Average of 2025 Home Energy Solutions Program heat pump tracking data capacities
$\%_{\text{HEAT PUMP}}$	18% for program;	%	2019 participant survey

Variable	Value	Units	Source
	59% for electric only		
% _{GAS}	68% for program; 98% for dual fuel	%	2019 participant survey
% _{PROPANE}	1% for program; 2% for dual fuel	%	2019 participant survey
% _{ELECTRIC FURNACE}	13% for program; 41% for electric only	%	2019 participant survey
Manual thermostat saturation	38%	%	2019 participant survey
Programmable thermostat saturation	62%	%	2019 participant survey
$TStat_Type_{DiscountRate}$	31% non-learning 100% learning	%	The 2013–2014 Programmable and Smart Thermostat Evaluation indicates that heating savings are highly dependent on thermostat technology (learning vs. non-learning) and that cooling savings are not. All ecobee thermostats are learning thermostats, so this value is 100% for this program.
$TStat_Type_{COOLING\ DiscountRate}$	100%	%	The 2013–2014 Programmable and Smart Thermostat Evaluation indicates that heating savings are highly dependent on thermostat technology and that cooling savings are not. No cooling savings adjustment can be directly derived from the comparative study of smart Wi-Fi thermostats to programmable thermostats.
$ESF_{AdjustedBaseline_{HEAT}}$	10.38%	%	Calculated, example below
% _{AC}	100%	%	Program design assumption; all Smart Cycle participants much have central air conditioning to participate in the program
$\Delta Cooling_{AdjustedBaseline}$	296	kWh	Calculated, example below in 2013–2014 Thermostat Evaluation and Adjusted Baseline section

2013–2014 Thermostat Evaluation and Adjusted Baseline

Cadmus' analysis of the thermostat savings for the 2025 Smart Cycle Program used the results of a separate Cadmus evaluation of programmable and Nest Wi-Fi thermostats in Vectren's Indiana South territory in 2013 and 2014.⁴⁶ The 2013 and 2014 evaluation reports household cooling energy savings of 332 kWh and a household heating energy saving factor (ESF) of 5% for programmable thermostats. The evaluation reports household cooling energy savings of 429 kWh and a household heating ESF of 12.5% for Nest Wi-Fi thermostats.

⁴⁶ Cadmus. January 29, 2015. *Evaluation of the 2013–2014 Programmable and Smart Thermostat Program*.

The 2013 and 2014 study used a 100% manual thermostat baseline for both programmable and Nest WiFi thermostats. However, the 2025 Smart Cycle Program includes participants regardless of their existing thermostat type. Therefore, Cadmus used results from the 2019 Smart Cycle Program participant survey to inform methodology inputs. Survey data indicated a saturation of 38% for manual thermostats and 62% for programmable thermostats.

Cadmus used the reported household cooling and heating savings for programmable thermostats from its thermostat study for the 2013–2014 program and a weighted average to adjust the savings for learning thermostats from a manual thermostat baseline to a mixed manual and programmable thermostat baseline.

Cadmus used these equations:⁴⁷

$$\Delta Cooling_{AdjustedBaseline} = [38\% * 429 + 62\% * (429 - 215.3)] * 100\% = 296 kWh$$

$$ESF_{AdjustedBaseline_{HEAT}} = 38\% * 12.5\% + 62\% * (12.5\% - 3.45\%) = 10.38\%$$

In the $\Delta Cooling_{AdjustedBaseline}$ calculation, the 215.3 represents the cooling savings (332 kWh multiplied by a 65% correct use factor) for programmable thermostats. The 65% cooling correct use factor is from the 2025 Home Energy Solutions Program participant survey, which asked homeowners with programmable thermostats about their thermostat usage related to cooling. Cadmus performed equivalent calculations to obtain adjusted baseline values for the heating energy saving factor.

The 2013–2014 thermostat evaluation investigated only homes with gas heating, so Cadmus assumed that the percentage of gas savings from that evaluation apply to electric.

A.9. Multi-Family Direct Install Program

Cadmus' impact evaluation of the MFDI Program included measures with attributable electric impacts:

- Energy-efficient bathroom and kitchen faucet aerators
- Energy-efficient showerheads
- Door Sweeps
- Smart thermostats (ecobee3 lite)

A.9.1. Energy-Efficient Faucet Aerators

Cadmus used the following equations from the Illinois TRM (v13.0) to calculate savings per faucet aerator:

$$\Delta kWh = \%ElectricDHW * ((GPM_{base} * L_{base}) - (GPM_{low} * L_{low})) * DF * \left(\frac{365.25 * PPH}{FPH} \right) * EPG_{electric} * ISR$$

$$\Delta kW = \Delta kWh * CF / Hours$$

⁴⁷ Cadmus. January 29, 2015. *Evaluation of the 2013–2014 Programmable and Smart Thermostat Program*.

Cadmus calculated savings for kitchen and bathroom faucet aerators installed through the MFDI Program using values from the Illinois TRM (v13.0) and participant surveys to determine household characteristics, as shown in Table A-76.

Table A-76. 2025 MFDI Program Faucet Aerator Savings Inputs

Input	Bathroom Faucet Assumption	Kitchen Faucet Assumption	Source
Baseline flow rate (GPM _{base})	1.60	1.63	Illinois TRM v13.0
Low-flow rate (GPM _{low})	0.94	0.94	Illinois TRM v13.0
Baseline faucet usage in minutes/person/day (L _{base})	1.6	4.5	Illinois TRM v13.0
Baseline faucet usage in minutes/person/day (L _{low})	1.6	4.5	Illinois TRM v13.0
People per household (PPH)	2.28	2.28	Illinois TRM v13.0
Faucets per household (FPH)	1.8	1	Illinois TRM v13.0
Drain recovery factor (DF)	0.90	0.75	Illinois TRM v13.0
Energy per gallon of water used (EPG _{electric})	0.0879	0.1054	Illinois TRM v13.0
WaterTemp	86	93	Illinois TRM v13.0
SupplyTemp	50.7	50.7	Illinois TRM v13.0
Recovery Efficiency (RE _{gas})	0.67	0.67	Illinois TRM v13.0
ISR	95.5%	95.5%	Illinois TRM v13.0
%ElectricDHW	100%	100%	Electric only measures
CF	0.022	0.022	Illinois TRM v13.0
Hours	23	99	Illinois TRM v13.0

A.9.2. Energy-Efficient Showerhead

Cadmus used the following equations from the Illinois TRM v13.0 to calculate savings per showerhead:

$$\Delta kWh = \%ElectricDHW * ((GPM_{base} * L_{base}) - (GPM_{low} * L_{low})) * SPCD * \left(\frac{365.25 * PPH}{SPH} \right) * EPG_{electric} * ISR$$

$$\Delta kW = \Delta kWh * CF / Hours$$

Cadmus calculated savings for showerheads installed through the MFDI Program using values from the Illinois TRM v12.0 and participant surveys to determine household characteristics, as shown in Table A-77.

Table A-77. 2025 MFDI Program Showerhead Savings Inputs

Input	Assumption	Source
Baseline flow rate (GPM _{base})	2.35	Illinois TRM v13.0
Low-flow rate (GPM _{low})	1.5	Actual from program
Baseline faucet usage in minutes/person/day (L _{base})	7.8	Illinois TRM v13.0
Baseline faucet usage in minutes/person/day (L _{low})	7.8	Illinois TRM v13.0
People per household (PPH)	2.28	Illinois TRM v13.0
Showerheads per household (SPH)	1.62	Illinois TRM v13.0

Input	Assumption	Source
Showers per person per day (SPCD)	0.60	Illinois TRM v13.0
Energy per gallon of water used (EPG _{electric})	0.1253	Illinois TRM v13.0
WaterTemp	101	Illinois TRM v13.0
SupplyTemp	50.7	Illinois TRM v13.0
Recovery Efficiency (RE _{gas})	0.67	Illinois TRM v13.0
ISR	96.5%	2020 participant survey
%ElectricDHW	100%	Electric only measure
CF	0.0278	Illinois TRM v13.0
Hours	224	Illinois TRM v13.0

A.9.3. Door Sweeps

Cadmus used the following equation from the Illinois TRM v13.0 to calculate savings per unit for door sweeps:

$$\Delta kWh_{cooling} = \%ElectricCool * \Delta kWh_{sweep,cool} * ADJ_{RxAirsealing} * ISR$$

$$\Delta kW = CF * \Delta kWh_{cooling} / FLH_{cooling}$$

Cadmus calculated savings for door sweeps through the MFDI Program using values from the Illinois TRM v13.0 as shown in Table A-78.

Table A-78. 2025 MFDI Program Air Sealing Savings Inputs

Input	Door Sweep Assumption	Source
$\Delta kWh_{sweep,cool}$	5.7	Illinois TRM v13.0
ADJ _{RxAirsealing}	0.8	Illinois TRM v13.0
ISR	100%	Illinois TRM v13.0
%ElectricCool	100%	Electric cooling measure
CF	0.68	Illinois TRM v13.0
FLH _{cooling}	7.7	Illinois TRM v13.0

A.9.4. Thermostat

Cadmus used the following equations from the Illinois TRM v13.0 to calculate savings per unit savings for thermostats:

$$\Delta kWh = \Delta kWh_{heating} + \Delta kWh_{cooling}$$

$$\Delta kWh_{heating} = \%ElectricHeat * Electric_Heating_Consumption * Heating_Reduction * HF * ISR + \Delta Therms * F_e * 29.3$$

$$\Delta kWh_{cooling} = \%AC * Cooling_Capacity * Cooling_Reduction * ISR / (SEER2 * 1,000)$$

$$\Delta kW = Cooling_Reduction * Cooling_Capacity * CF / (EER2 * 1,000)$$

Cadmus calculated savings for thermostats through the MFDI Program using values from the Illinois TRM v13.0 and participant surveys, as shown in Table A-79.

Table A-79. 2025 MFDI Program Thermostat Savings Inputs

Input	Thermostat Assumption	Source
Elec_Heating_Consumption	12,299	Illinois TRM v13.0 Springfield values for HP and electric resistance heating electricity consumption, weighted by Indiana TRM v1.0 ResStock data
Heating_Reduction	7.1%	Illinois TRM v13.0
Cooling_Reduction	8.4%	Illinois TRM v13.0
HF	0.65	Illinois TRM v13.0
ISR	100%	Illinois TRM v13.0
ΔTherms	Calculated	Calculated based on the gas savings methodology, for measures with gas heat
%ElectricHeat	100%, 0%	Value was determined based on whether the measure was electric only or gas-based.
F _e	3.14%	Illinois TRM v13.0
%AC	100%, 60%	Value was determined based on whether the measure was dual fuel (assumed to have thermostat-controlled air conditioning 100% of the time) or electric-only (which was assigned a percentage according to Indiana TRM v1.0 ResStock data).
Cooling_Capacity	28,000	Illinois TRM v13.0
Cooling_Reduction	84%	Illinois TRM v13.0
SEER2	11.4	Illinois TRM v13.0
EER2	10.0	Illinois TRM v13.0
CF	34%	Illinois TRM v13.0

A.10. Commercial and Industrial Prescriptive Program

Cadmus' impact evaluation of the Commercial and Industrial Prescriptive Program included measures with attributable electric savings:

- Chillers
- Compressed Air Systems
- Controls
- HVAC
- Lighting
- Refrigeration
- Thermostats
- Other

A.10.1. Chillers

Following are equations and assumptions used for each type of chiller measure.

Chiller Replacements

Cadmus used the Illinois TRM v13.0 algorithms for water cooled chiller replacements energy savings:

$$\Delta kWh = TONS \times (IPLV_{base} - IPLV_{ee}) \times EFLH$$

Cadmus used the Illinois TRM v13.0 algorithms for air cooled chiller replacements energy savings:

$$\Delta kWh = TONS \times \left(\frac{12}{IPLV_{base}} - \frac{12}{IPLV_{ee}} \right) \times EFLH$$

Cadmus used the Illinois TRM v13.0 algorithms for air- and water-cooled chiller replacements demand calculation:

$$\Delta kW = TONS \times (PE_{base} - PE_{ee}) \times CF$$

Where:

- $TONS$ = chiller actual installed cooling capacity in tons (note: 1 ton = 12,000 Btu/hr)
- $IPLV_{EE}$ = efficiency of high efficiency equipment expressed as Integrated Part Load Value (kW/ton). Actual installed
- $IPLV_{BASE}$ = efficiency of baseline equipment expressed as Integrated Part Load Value(kW/ton) obtained from current IECC Minimum Efficiency Table – Path (A). Refer to Baseline Efficiency Values by Chiller Type and Capacity in the Reference Tables & Equations section.
- $EFLH$ = Equivalent Full Load Hours for cooling in Existing Buildings or New Construction are provided in section 4.4 HVAC End Use.
- PE_{base} = Peak efficiency of baseline equipment expressed as Full Load (kW/ton)
- PE_{ee} = Peak efficiency of high efficiency equipment expressed as Full Load (kW/ton)
- CF = Summer System Peak Coincidence Factor for commercial cooling during system peak hour (= 91.3%)

Values provided in COP must be converted to kW/ton to use the algorithms above.

A.10.2. Compressed Air Systems

VSD Air Compressors

Cadmus used the Illinois TRM v13.0 algorithms for the efficient air compressor project (manufacturing process application):

$$\Delta kWh = 0.9 * hp_{compressor} * HOURS * (CF_b - CF_e)$$

$$\Delta kW = \frac{\Delta kWh}{HOURS} * CF$$

Where:

- $hp_{compressor}$ = compressor motor nominal hp
- 0.9 = compressor motor nominal hp to full load kW conversion factor

<i>HOURS</i>	= compressor total hours of operation below depending on shift
CF_b	= baseline compressor factor
CF_e	= efficient compressor factor
	= 0.705 for units <= 40 hp
	= 0.658 for units 50 hp to 200 hp
CF	= Summer peak coincidence factor for this measure
	= 0.95 for shift manufacturing;
	= 0.89 if unknown)

The high efficiency equipment is a compressor ≤ 200 hp with variable speed control. The baseline equipment is either an oil-flooded compressor ≤ 200 hp with inlet modulating with blowdown or load/no-load controls.

Compressed Air Leak Audit

Cadmus used the Wisconsin Focus on Energy Compressed Air System Leak Survey and Repair measure algorithm for the compressed air leak audits:

$$\Delta kWh = \frac{CFM_{reduced}/CFM}{BHP} * 0.746 * Hours/Eff$$

Where:

$CFM_{reduced}$ = Total CFM reduction in entire compressed air system (directly from the leak log survey)

CFM/BHP = Average amount of CFM per brake horsepower (= 4.2)

.746 = Motor brake horsepower to kilowatt conversion factor

Hours = Average annual compressor run hours

Eff = Air compressor deemed motor efficiency (= 90%)

A.10.3. Controls

Boiler Tune-Up

Cadmus used the energy savings algorithms in the Illinois TRM v13.0 for boiler tune-ups:

$$\Delta Therms = \frac{\left(Capacity * EFLH_H * \left(\left(\frac{Eff_{before} + E_i}{Eff_{before}} \right) - 1 \right) \right)}{100,000}$$

Where:

Capacity = boiler gas input size (Btu/hr)

$EFLH$	= Equivalent Full Load Hours for heating in Existing Buildings are provided in section 4.4 HVAC End Use
Eff_{before}	= Efficiency of the boiler before the tune-up. Actual. Default value is 8135%.
E_i	= Efficiency improvements of the boiler tune-up measure. Actual. Default value is 2.3%
100,000	= Converts Btu to therms

This measure is for a nonresidential boiler that provides space heating. The tune-up will improve boiler efficiency by cleaning and/or inspecting burners, combustion chamber, and burner nozzles.

A.10.4. HVAC

Air Conditioner

Cadmus followed the energy savings algorithms in the Illinois TRM v13.0 for Single-Package and Split System Unitary Air Conditioners:

$$\Delta kWh = (EFLH * kBtu/h * (1/SEER_{base} - 1/SEER_{ee}))$$

Where:

$EFLH_{RoomAC}$	= Full Load Hours of air conditioning unit = Equivalent Full Load Hours for cooling in Existing Buildings are provided in section 4.4 HVAC End Use
$kBtu/h$	= Input capacity of unit = Actual. If unknown assume 8.5 kBtu/hour
$SEER_{base}$	= Seasonal Energy Efficiency Ratio of the baseline equipment = As provided in tables A-67
$SEER_{ee}$	= Seasonal Energy Efficiency Ratio of the energy efficient equipment (actually installed) = Actual. If unknown, assume minimum qualifying standard as provided in tables A-67

Heat Pump

Cadmus followed the energy savings algorithms in the Illinois TRM v13.0 for Air and Water Source Heat Pump Systems:

$$\Delta kWh = [Cooling\ savings] + [Heating\ savings]$$

$$Cooling\ Savings = (Capacity_{cool} * EFLH_{cool} * (1/SEER2_{base} - 1/SEER2_{EE}))/1000$$

$$Heating\ Savings = (Capacity_{Heat} * EFLH_{Heat} * (1/HSPF2_{base} - 1/HSPF2_{EE}))/1000$$

Where:

Capacity _{cool}	= Cooling Output Capacity of Ground Source Heat Pump (Btu/hr)
	= Actual installed
EFLH _{cool}	= Cooling Equivalent Full Load Hours Dependent on building type and Existing Buildings or New Construction, provided in section 4.4 HVAC End Use
SEER2 _{Base}	= Seasonal Energy Efficiency Ratio of baseline equipment = As provided
SEER2 _{EE}	= Seasonal Energy Efficiency Ratio of efficient equipment = Actual installed
Capacity _{Heat}	= Heating Output Capacity of Ground Source Heat Pump (Btu/hr)
	= Actual installed
EFLH _{Heat}	= Heating Equivalent Full Load Hours of heat pump Dependent on building type and Existing Buildings or New Construction, provided in section 4.4 HVAC End Use
HSPF2 _{Base}	= Heating System Performance Factor of baseline electric heating system
HSPF2 _{EE}	= Heating System Performance Factor of energy efficient electric heating system

Advanced Rooftop Controls

Cadmus followed the energy savings algorithms in the Illinois TRM v13.0 for Advanced Rooftop Controls measures:

$$\Delta kWh = (Capacity_{Cool} \times Normalized Electric Cooling Energy Savings) + (Capacity_{Heat} \times Normalized Electric Heating Energy Savings)$$

Where:

Capacity = capacity of the cooling equipment in tons (nominal tonnage may be used)

Normalized Electric Energy Savings = kWh/ton savings value for the appropriate combination of building type, climate zone, and measure scenario

Furnace

Cadmus used this evaluated savings algorithm from the 2025 Illinois TRM v13 for efficient furnaces installed with electronically commutated motor (ECM) fans and adjusted it due to the new federal standard furnace fan requirement:

$$\Delta kWh = Heating Savings + Cooling Savings + Shoulder Season Savings$$

Where:

Heating Savings = Brushless DC motor or Electronically commutated motor (ECM)

= 418 kWh

Cooling Savings = Brushless DC motor or electronically commutated motor (ECM) savings during cooling season.

If air conditioning = 263 kWh

If no air conditioning = 175 kWh

Shoulder Season Savings = Brushless DC motor or electronically commutated motor (ECM) savings during shoulder seasons.
= 51 kWh

Air Conditioner Tune-Ups

Cadmus followed the energy savings algorithms in the Illinois TRM v13.0 for Air Conditioner Tune-Up measures:

$$\Delta kWh = (kBtu/hr) * [(1/EER_{before}) - (1/EER_{after})] * EFLH$$

Where:

kBtu/hr = capacity of the cooling equipment actually installed in kBtu per hour (1 ton of cooling capacity equals 12 kBtu/hour).

= Actual

EER_{before} = Energy Efficiency Ratio of the baseline equipment prior to tune-up.

= Actual

EER_{after} = Energy Efficiency Ratio of the baseline equipment after to tune-up

= Actual

EFLH = Equivalent Full Load Hours for cooling in Existing Buildings are provided in section 4.4 HVAC End Use

Kitchen Equipment

The kitchen equipment measure category contains a variety of commercial appliances including convection ovens, dishwashers, griddles, and ice machines.

Convection Ovens and Combination Ovens

For electric combination ovens Cadmus used the following 2025 Indiana TRM v13 equations that incorporates deemed values for inputs depending on the pan capacity of the oven:

$$\Delta kWh = (\Delta CookingEnergy_{ConvElec} + \Delta CookingEnergy_{SteamElec} + \Delta IdleEnergy_{ConvElec} + \Delta IdleEnergy_{SteamElec} + \Delta PreHeatEnergy_{Elec}) * Days/1,000$$

$$\Delta CookingEnergy_{ConvElec} = LB_{Elec} * \left(\frac{EFOOD_{ConvElec}}{ElecEFF_{ConvBase}} - \frac{EFOOD_{ConvElec}}{ElecEFF_{ConvEE}} \right) * \%_{Conv}$$

$$\Delta CookingEnergy_{SteamElec} = LB_{Elec} * \left(\frac{EFOOD_{SteamElec}}{ElecEFF_{SteamBase}} - \frac{EFOOD_{SteamElec}}{ElecEFF_{SteamEE}} \right) * \%_{Steam}$$

$$\Delta IdleEnergy_{ConvElec} = \left[\left(ElecIDLE_{ConvBase} * \left(\left(HOURS - \frac{LB_{Elec}}{ElecPC_{ConvBase}} \right) * \%_{Conv} \right) - ElecIDLE_{ConvEE} * \left(HOURS_{DAY} - \frac{LB_{Elec}}{ElecPC_{ConvEE}} \right) * \%_{Conv} \right) \right]$$

$$\Delta IdleEnergy_{SteamElec} = \left[\left(ElecIDLE_{SteamBase} * \left(\left(HOURS - \frac{LB_{Elec}}{ElecPC_{SteamBase}} \right) * \%_{Steam} \right) - ElecIDLE_{SteamEE} * \left(HOURS_{DAY} - \frac{LB_{Elec}}{ElecPC_{SteamEE}} \right) * \%_{Steam} \right) \right]$$

$$\Delta PreHeatEnergy_{Elec} = Preheat_{BaseElec} - Preheat_{EEElec} =$$

Where:

LB	= Pounds of food cooked per day (custom, if unknown, 200 lbs (If P<15) or 250 lbs (If P>=15))
E _{Food}	= amount of energy absorbed by the food during cooking in convection mode (= 73.2Wh/lb)
ElecEFF _{ConvBase}	= cooking energy efficiency of baseline oven in convection mode (=72%)
ElecEFF _{ConvEE}	=cooking energy efficiency of ENERGY STAR oven in convection mode (=78%)
% _{Conv}	= percentage of time in convection mode, (=50%)
ElecEFF _{SteamBase}	= cooking energy efficiency of baseline oven in steam mode (=52%)
ElecEFF _{SteamEE}	= cooking energy efficiency of ENERGY STAR in steam mode (=55%)
EFOOD _{SteamElec}	= Energy absorbed by food product for electric oven in steam mode (30.8 Wh/lb)
% _{steam}	= percentage of time in steam mode = 1-% _{conv}
ElecIDLE _{ConvBase}	= Idle energy rate of baseline model in convection mode (P <15 = 1,754 W; 15 <= P < 30 = 2,966 W; P >= 30 = 4,418 W)
ElecIDLE _{ConvBase}	= Idle energy rate of baseline model in steam mode (P <15 = 5,260 W; 15 <= P < 30 = 8,866 W; P >= 30 = 11,875W)
HOURS _{DAY}	= Daily operating hours (= 12)
ElecPC _{ConvBase}	= Production capacity (lbs/hr) of baseline oven in convection mode(P <15= 79; P>= 15 =166)
ElecPC _{SteamBase}	= Production capacity (lbs/hr) of baseline oven in steam mode(P <15= 126; P>= 15 =295)

$ElecIDLE_{ConvEE}$ = Idle energy rate of ENERGY STAR electric oven in convection mode = $(0.08 * P + 0.4989) * 1000$

$ElecPC_{ConvEE}$ = Production capacity (lbs/hr) of ENERGY STAR oven in convection mode ($P < 15 = 119$; $P \geq 15 = 201$)

$ElecPC_{SteamEE}$ = Production capacity (lbs/hr) of ENERGY STAR oven in steam mode ($P < 15 = 177$; $P \geq 15 = 349$)

$ElecIDLE_{SteamEE}$ = Idle energy rate of ENERGY STAR electric oven in steam mode = $(0.133 * P + 0.64) * 1000$ for 5-40 pan capacity; $(0.60 * P) * 1000$ for 3-4 pan capacity

$Preheat_{BaseElec}$ = Total preheat energy consumption (Wh) per day of baseline electric unit ($P < 15 = 1,635$; $P \geq 15 = 3,146$)

$Preheat_{EEElec}$ = Total preheat energy consumption (Wh) per day of ENERGY STAR electric unit ($P < 15 = 997$; $P \geq 15 = 1,633$)

DAYS = Operating days per year (= 365)

1,000 = Wh to kWh conversion factor

Hot Food Holding Cabinets

For convection ovens, Cadmus used the following 2025 Illinois TRM v13 equations:

$$\Delta kWh = IdleEnergyRateBase - IdleEnergyRateES * HOURS_{day} * \frac{Days}{1000}$$

$$\Delta kW = \frac{\Delta kWh}{HOURS} * CF$$

$$IdleEnergyRateBase = 30 * V$$

$$V = custom, otherwise assume 15 cu ft$$

$$IdleEnergyRateES = custom, or if unknown assume 15 cu ft, resulting in 284W$$

Where:

$$IdleEnergyRateES = V < 13 = 21.5 * V, 13 \leq V < 28 = 2 * V + 254, V \geq 28 = 3.8 * V + 203.5$$

V = Volume of HFHC (cubic feet)

HOURS = Average Daily Operation (= 9)

DAYS = Operating days per year (= 365)

CF = Summer peak coincidence factor

Freezers and Refrigerators

For freezers and refrigerators, Cadmus used the following 2025 Illinois TRM v13:

$$\Delta kWh = (kWh_{base} - kWh_{EFF}) * 365.25$$

$$\Delta kW = \frac{\Delta kWh}{HOURS} * CF$$

Where:

- kWh_{base} = Baseline maximum daily energy consumption in kilowatt hours
- kWh_{EFF} = Efficient maximum daily energy consumption in kilowatt hours
- $HOURS$ = Number of hours equipment is operating (= 8,766)
- CF = Summer peak coincidence factor (= 0.937)

Ice Machines

Cadmus used the following formulas to determine energy savings and demand reduction from the Illinois TRM v13.0:

$$\Delta kWh = \frac{kWh_{base} - kWh_{EE}}{100} * DC * H * 365.25$$

$$\Delta kW = \frac{\Delta kWh}{HOURS * DC} * CF$$

Where:

- kWh_{base} = baseline kWh consumption per 100 pounds of ice, using 2018 federal standards⁴⁸
- kWh_{EE} = ENERGY STAR kWh consumption per 100 pounds of ice, (= actual)
- 100 = Conversion factor from 100 lbs of ice to per pound of ice
- DC = Duty cycle of ice machine (= 0.57)
- H = Harvest rate of ice machine (= actual)

Griddles and Fryers

Cadmus used the following formulas to determine energy savings and demand reduction from the Illinois TRM v13.0:

$$\Delta kWh = (\Delta IdleEnergy + \Delta PreheatEnergy + \Delta Cooking Energy) * Days / 1,000$$

⁴⁸ Code of Federal Regulations. Automatic Commercial Ice Makers: 10 CFR §431.136(c). "Energy conservation standards and their effective dates." www.ecfr.gov/cgi-bin/text-idx?SID=a25116a0785a0c488243d01bddb84f90&mc=true&node=se10.3.431_1136&rgn=div8.

A.10.5. Lighting

Retrofits

Retrofits were the predominant type of lighting measure, and the basic algorithm is the same regardless of the replaced or efficient lighting technology (LED panels, high output T8 fixtures, refrigerated LEDs, and so on). Cadmus evaluated all retrofit lighting measures using these Illinois TRM v13.0 algorithms:

$$\Delta kWh = \frac{(WATTS_{BASE} - WATTS_{EE})}{1000} * Hours * WHF_e * ISR * (1 - Leakage)$$

$$\Delta kW = \frac{(WATTS_{BASE} - WATTS_{EE})}{1000} * ISR * WHF_d * CF$$

Where:

$WATTS_{ee}$ = Wattage of the new lighting

$WATTS_{base}$ = Wattage of the lighting being replaced

$Hours$ = Average hours of use per year are provided in the Reference Table in Section 4.5 for each building type.

CF = Peak demand coincidence factor, provided in the Reference Table in Section 4.5.

WHF_E = Waste heat factors for energy

WHF_D = Waste heat factor for demand

ISR = In Service Rate -the percentage of units rebated that get installed. 100% if application form completed with sign off that equipment is not placed into storage

$Leakage$ = Adjustment to account for the percentage of program bulbs that move out (and in if deemed appropriate) of the Utility Jurisdiction

Program tracking data reported savings and new and replaced wattages for each lighting project. In accordance with the Illinois TRM v13.0, Cadmus used actual wattages (from the program tracking data) for $WATTS_{ee}$ and $WATTS_{base}$.

Fluorescent Delamping

The program also offered several fluorescent delamping measures, which Cadmus evaluated using the lighting power density reduction method described in the Illinois TRM v13.0:

$$\Delta kWh = \frac{(WSF_{BASE} - WSF_{effic})}{1000} * SF * Hours * WHF_e$$

$$\Delta kW = \frac{(WSF_{BASE} - WSF_{effic})}{1000} * SF * CF * WHF_d$$

Where:

- $Hours$ = Annual site-specific hours of operation of the lighting equipment collected from the customer. If not available, use building area type as provided in the Reference Table in Section 4.5.
- SF = Provided by customer based on square footage of the building area applicable to the lighting design for new building.
- WSF_{Base} = Baseline lighting watts per square foot or linear foot as determined by building or space type.
- WSF_{effic} = The actual installed lighting watts per square foot or linear foot.
- WHF_E = Waste heat factors for energy
- WHF_D = Waste heat factor for demand
- CF = Peak demand coincidence factor, provided in the Reference Table in Section 4.5.

The difference between WSF_{Base} and WSF_{effic} multiplied by the area equals the reduction in overall wattage.

LED Bulbs and Fixtures

Cadmus categorized occupancy sensors as a lighting measure for the purposes of the evaluation and used the Illinois TRM v13.0 to evaluate savings:

$$\Delta kWh = \frac{(Watts_{BASE} - Watts_{effic})}{1000} * Hours * WHF_e * (1 - Leakage)$$

Where:

- $Watts_{ee}$ = Wattage of the new lighting
- $Watts_{base}$ = Wattage of the lighting being replaced
- $Hours$ = Annual site-specific hours of operation of the lighting equipment collected from the customer. If not available, use building area type as provided in the Reference Table in Section 4.5.
- WHF_E = Waste heat factors for energy
- $Leakage$ = Adjustment to account for the percentage of program bulbs that move out (and in if deemed appropriate).

Occupancy Sensors

Cadmus categorized occupancy sensors as a lighting measure for the purposes of the evaluation and used the Illinois TRM v13.0 to evaluate savings:

$$\Delta kWh = kW_{CONTROLLED} * Hours * (ESF_{EE} - ESF_{Base}) * WHF_e$$

$$\Delta kW = kW_{CONTROLLED} * WHF_d * ((CF_{baseline} * BaseAdj) - CF_{LC})$$

Where:

WHF_E = Waste heat factors for energy

WHF_D = Waste heat factor for demand

$kW_{controlled}$ = Total lighting load connected to the control in kilowatts. The total connected load per control should be collected from the customer or the default values presented below used.

$CF_{baseline}$ = Waste heat factor for demand

$BaseAdj$ = Baseline Summer Peak Coincidence Factor for the lighting system without lighting controls installed selected from the Reference Table in Section 4.5 for each building type

CF_{LC} = Retrofit Summer Peak Coincidence Factor the lighting system with lighting controls installed is 0.15 regardless of building type.

$Hours$ = Annual site-specific hours of operation of the lighting equipment collected from the customer. If not available, use building area type as provided in the Reference Table in Section 4.5.

This year the program also included Exterior Photocell Repair measures in which Cadmus used the Illinois TRM v13.0 to evaluate savings:

$$\Delta kWh = \frac{Watts_{fixture}}{1000} * (HOU_{PRE} - HOU_{POST})$$

$$\Delta kW = \frac{\Delta kWh}{(HOU_{PRE} - HOU_{POST})} * CF$$

Where:

$Watts_{fixture}$ = Input wattage of exterior lighting fixture(s) controlled by photocell

HOU_{PRE} = Fixture Annual Operating Hours before Photocell repair/replacement

HOU_{POST} = Fixture Annual Operating Hours with Photocell repaired / replaced

CF = Summer Peak Coincidence Factor for measure

LED Exit Signs

Cadmus categorized LED exit signs as a lighting measure for the purposes of the evaluation and used the Illinois TRM v13.0 to evaluate savings:

$$\Delta kWh = \frac{(WATTS_{BASE} - WATTS_{EE})}{1000} * Hours * WHF_e$$

$$\Delta kW = \frac{(WATTS_{BASE} - WATTS_{EE})}{1000} * WHF_D * CF$$

Where:

- $WATTS_{ee}$ = Wattage of the new lighting
- $WATTS_{base}$ = Wattage of the lighting being replaced
- $Hours$ = Average hours of use per year are provided in the Reference Table in Section 4.5 for each building type.
- CF = Peak demand coincidence factor, provided in the Reference Table in Section 4.5.
- WHF_E = Waste heat factors for energy
- WHF_D = Waste heat factor for demand

A.10.6. Refrigeration

The predominant measure upgrade for refrigeration was upgrading commercial freezers and/or refrigerators to an ENERGY STAR model. Cadmus based evaluated savings on the 2025 Illinois TRM v13 equations:

$$\Delta kWh = (kWh_{BASE} - kWh_{EE}) * 365.25$$

$$\Delta kW = \frac{\Delta kWh}{HOURS} \times CF$$

Cadmus used the deemed savings based on volume and refrigerator type outlined in the Illinois TRM v13. Hours equal 8,766, and coincidence factor equals 0.937.

Electronically Commutated (EC) Motor – Walk-In Freezers and Refrigerators

For EC Motors serving evaporator fans on walk-in freezers and refrigerators, Cadmus used the following Illinois TRM V13 equations for the measure Electronically Commutated Motors (ECM) for Walk-in and Reach-in Coolers / Freezers:

The Illinois TRM V13 specifies the annual kWh savings for each of the ECM ratings as shown in Table A-80:

**Table A-80. 2025 Commercial and Industrial Prescriptive Program
Annual Kilowatt-hour Savings for Each ECM Rating**

Evaporator Fan Motor Rating (of ECM)	Annual kWh Savings/motor
16W	652
1/15-120 hp	1,586
1/5 hp	2,320
1/3 hp	3,380
1/2 hp	4,481
3/4 hp	5,293

A.10.7. Thermostats

Wifi-Enabled and Programmable Thermostats

The program implementer currently uses an energy modeling tool to determine savings for Wi-Fi and programmable thermostat measures because the 2015 Indiana TRM v2.2 does not provide savings

algorithms for thermostats in commercial applications. In 2023, as in the previous six program years, the implementer used energy savings intensity factors (which estimate energy savings per square foot of building served by the thermostat) based on an eQuest model of a 15,000-square-foot office building. The eQuest model simulates the heating, cooling, and ventilation savings for 360 different thermostat configurations for two different weather locations: Indianapolis and Evansville. Configurations vary by degree heating/cooling setback, hours of setback per day, and days the business was closed per week. Savings are assigned on a project-by-project basis according to the project's reported thermostat setback schedule and facility square footage.

To evaluate savings, Cadmus used the following equations from the Illinois TRM V13 for the measure Small Commercial Thermostats:

$$\Delta kWh = \left(\%ElecHeat * \frac{kBtu}{hr_{heat}} * \frac{1}{HSPF} * EFLH_{heat} * Heating_{Reduction} * BAF \right) + (dTherms * F_e * 29.3) + \left(\frac{kBtu}{hr_{cool}} * \frac{1}{SEER} * EFLH_{cool} * Cooling_{Reduction} * BAF \right)$$

Where:

$\%ElecHeat$ = Percentage of heating savings assumed to be electric.

$\frac{kBtu}{hr_{heat}}$ = capacity of the heating equipment in kBtu per hour

$HSPF$ = Heating Seasonal Performance Factor of the baseline equipment

$EFLH_{heat}$ = heating mode equivalent full load hours in Existing Buildings

$Heating_{Reduction}$ = Assumed percentage reduction in total building heating energy consumption due to thermostat (8.8%)

$dTherms$ = Therm savings in Natural Gas heating system

F_e = Furnace Fan energy consumption as a percentage of annual fuel consumption (7.7%)

29.3 = kWh per therm

$kBtu/hr_{cool}$ = Capacity of the cooling equipment actually installed in kBtu per hour, assumed to 114.5

$EFLH_{cool}$ = Equivalent Full Load Hours for cooling in Existing Buildings

$Cooling_{Reduction}$ = Average percentage reduction in total building cooling energy consumption due to installation of thermostat (17.7%)

A.10.8. Other

Window Film

For window film measures, Cadmus used the following equations from the 2015 Indiana TRM v2.2 to determine savings as it is not included in Illinois TRM:

$$\Delta kWh = \frac{SF}{100} * \Delta kWh_{100sf}$$

$$\Delta kW = \frac{SF}{100} * \Delta kW_{100sf} * CF$$

Where:

- SF = Glazing surface area of installed window film in square feet
- ΔkWh_{100sf} = Unit energy savings per 100 square feet of window film
- ΔkW_{100sf} = Unit demand reduction per 100 square feet of window film
- CF = Summer peak coincident factor (= 0.74)

Electric Steam Trap

Cadmus used the Illinois TRM v13.0 to calculate savings for electric steam traps, as defined below:

$$\Delta Therms = \frac{Sa * (Hv + Hs * (T_1 - T_{source})) * Hours * L}{100,000 * n_B}$$

$$\Delta kWh = \Delta Therms * 29.307107$$

$$\Delta kW = \frac{\Delta kWh}{Hours} * CF$$

Where:

- Sa = Steam loss per leaking trap (lbs/hr). Default values per steam system type/system pressure.
- Hv = Heat of vaporization of steam, (Btu/lbm). Default values per steam system type
- Hs = Specific heat of water (Btu/(lbm * °R)) (=1.001)
- T_{source} = Incoming water temperature (=513.67°R)
- n_B = Boiler efficiency. Custom, if unknown: 80.7%. 64.8% for multifamily low-pressure
- $Hours$ = Annual hours when steam is pressurized. Custom, if unknown use default values.
- L = Leaking & blow-through. L is 1.0 when applied to the replacement of an individual leaking trap, otherwise use default values.
- 29.307107= Convert therms to kWh
- CF = Summer peak coincident factor, deemed (= 0.913)

VFD/Motors

Variable frequency drive (VFD) controls added to HVAC fans, pumps, and cooling towers were the predominant measure type in this measure category. Cadmus evaluated savings using Illinois TRM v13.0.

VFDs for HVAC applications

Cadmus used the following equations to determine savings:

$$kWh_{base} = \left(0.746 * HP * \frac{LF}{n_{motor}} \right) * RHRS_{Base} * \sum_{0\%}^{100\%} (\%FF * PLR_{Base})$$

$$kWh_{retrofit} = \left(0.746 * HP * \frac{LF}{n_{motor}} \right) * RHRS_{Base} * \sum_{0\%}^{100\%} (\%FF * PLR_{Base})$$

$$\Delta kWh_{fan} = kWh_{base} - kWh_{Retrofit}$$

$$\Delta kWh_{total} = kWh_{fan} * (1 + IE_{energy})$$

$$kW_{base} = \left(0.746 * HP * \frac{LF}{n_{motor}} \right) * PLR_{Base,FFpeak}$$

$$kW_{retrofit} = \left(0.746 * HP * \frac{LF}{n_{motor}} \right) * PLR_{retrofit,FFpeak}$$

$$\Delta kW_{fan} = kW_{base} - kW_{Retrofit}$$

$$\Delta kW_{total} = kW_{fan} * (1 + IE_{demand})$$

Where:

kWh_{base} = Baseline annual energy consumption (kWh/yr)

$kWh_{retrofit}$ = Retrofit annual energy consumption (kWh/yr)

kWh_{fan} = Fan-only annual energy savings

kWh_{total} = Total project annual energy savings

0.746 = Conversion factor for HP to kWh

HP = Nominal horsepower of controlled motor

LF = Load Factor; Motor Load at Fan Design CFM (Default = 65%)

n_{motor} = Installed nominal/nameplate motor efficiency. Default motor is a NEMA Premium Efficiency, ODP, 4-pole/1800 RPM fan motor

$RHRS_{base}$ = Annual operating hours for fan motor based on building type. Default hours are provided for HVAC applications which vary by HVAC application and building type. When available, actual hours should be used.

$\%FF$	=	Percentage of run-time spent within a given flow fraction range. Default Fan Duty Cycle Based on 2012 ASHRAE Handbook; HVAC Systems and Equipment, page 45.11, Figure 12.
PLR_{base}	=	Part load ratio for a given flow fraction range based on the baseline flow control type.
$PLR_{retrofit}$	=	Part load ratio for a given flow fraction range based on the baseline flow control type.
IE_{energy}	=	HVAC interactive effects factor for energy (default = 15.7%)
IE_{demand}	=	HVAC interactive effects factor for summer coincident peak demand (default = 15.7%)
$PLR_{base,FFpeak}$	=	The part load ratio for the average flow fraction between the peak daytime hours during the weekday peak time period based on the baseline flow control type (default average flow fraction during peak period = 90%)
$PLR_{retrofit,FFpeak}$	=	The part load ratio for the average flow fraction between the peak daytime hours during the weekday peak time period based on the retrofit flow control type (default average flow fraction during peak period = 90%)

VFDs for HVAC Pumps and Cooling Tower Fans

Cadmus used the following equations to determine savings:

$$\Delta kWh = \frac{BHP}{EFFi} * Hours * ESF$$

$$\Delta kW = \frac{BHP}{EFFi} * DSF$$

Where:

BHP	=	System Brake Horsepower. (Nominal motor HP * Motor load factor). Motors are assumed to have a load factor of 65% for calculating kilowatts if actual values cannot be determined ⁷⁴¹ .
$EFFi$	=	Motor efficiency, installed. Actual motor efficiency shall be used to calculate kilowatts. If not known a default value of 93% shall be used.
$Hours$	=	Default hours are provided for HVAC applications which vary by HVAC application and building type ⁷⁴³ . When available, actual hours should be used.
ESF	=	Energy savings factor varies by VFD application. Units are kW/HP.
DSF	=	Demand savings factor varies by VFD application. Units are kW/HP.

Kitchen Demand Ventilation Controls

Electric savings are deemed values per fan horsepower. Cadmus used the following equations to determine savings:

$$\Delta Therms = \frac{CFM * HP_{fan} * Annual Heating Load}{Eff_{heat} * 100,000}$$

$$\Delta kWh = 4,423 * HP_{fan}$$

$$\Delta kW = 0.551 * HP_{fan}$$

Where:

CFM = the average airflow reduction with ventilation controls per hood (= 430 cfm/HP)

HP_{fan} = actual if known, otherwise assume 9.65 HP

$Annual Heating Load$ = Annual heating energy required to heat fan exhaust make-up air, Btu/cfm dependent on location.

Eff_{heat} = Heating efficiency. Actual if known, otherwise assume 80%

100,000 = conversion from Btu to Therms

A.11. Commercial and Industrial Midstream Program

Cadmus' impact evaluation of the Commercial and Industrial Midstream Program included measures with attributable electric savings:

- Chillers
- HVAC
- Kitchen Equipment
- Refrigeration
- VFD/Motor
- Other

A.11.1. Chillers

For chillers, Cadmus used the following 2025 Illinois TRM v13 equations:

$$\Delta kWh = TONS \times \left(\frac{12}{IPLV_{base}} - \frac{12}{IPLV_{ee}} \right) \times EFLH$$

$$\Delta kW = TONS \times (PE_{base} - PE_{ee}) \times CF$$

Where:

$TONS$ = Chiller installed cooling capacity in tons

$IPLV_{base}$ = Efficiency of baseline equipment as Integrated Part Load Value (EER), obtained from current IECC minimum efficiency requirements

$IPLV_{ee}$ = Efficiency of proposed high efficiency equipment expressed as Integrated Part Load Value (EER)

$EFLH$ = Equivalent Full Load Hours (estimated based on city, building type, and chiller type)

PE_{base} = Peak efficiency of baseline equipment expressed as Full Load (kW/ton)

PE_{ee} = Peak efficiency of high efficiency equipment expressed as Full Load (kW/ton)

CF = Peak coincidence factor for commercial cooling (91.3%)

A.11.2. HVAC

The HVAC category includes air conditioners and air source heat pumps (ASHPs).

Air Conditioners

For unitary or split air conditioning units, Cadmus used the following 2025 Illinois TRM v13 equations:

For units with cooling capacities less than 65 kBtu/hr:

$$\Delta kWh = (kBtu/hr) \times \left(\frac{1}{SEER_{base}} - \frac{1}{SEER_{ee}} \right) \times EFLH$$

For units with cooling capacities equal to or greater than 65 kBtu/hr:

$$\Delta kWh = (kBtu/hr) \times \left(\frac{1}{IEER_{base}} - \frac{1}{IEER_{ee}} \right) \times EFLH$$

For units of all cooling capacities:

$$\Delta kW = (kBtu/hr) \times \left(\frac{1}{EER_{base}} - \frac{1}{EER_{ee}} \right) \times CF$$

Where:

$kBtu/hr$ = Capacity of the cooling equipment actually installed in kBtu per hour (1 ton of cooling equals 12 kBtu/hr)

$SEER_{base}$ = Seasonal Energy Efficiency Ratio of baseline equipment, assumed to be equal to current IECC minimum efficiency requirements

$SEER_{ee}$ = Seasonal Energy Efficiency Ratio of energy efficient equipment

$IEER_{base}$ = Integrated Energy Efficiency Ratio of baseline equipment, assumed to be equal to current IECC minimum efficiency requirements

$IEER_{ee}$ = Integrated Energy Efficiency Ratio of energy efficient equipment

$EFLH$ = Equivalent Full Load Hours for cooling (estimated based on city, building type, and AC type)

EER_{base} = Energy Efficiency Ratio of baseline equipment, assumed to be equal to current IECC minimum efficiency requirements

EER_{ee} = Energy Efficiency Ratio of energy efficient equipment

CF = Peak coincidence factor for commercial cooling (91.3%)

Heat Pumps

For air source heat pumps, Cadmus used the following 2025 Illinois TRM v13 equations:

$$\Delta kWh = ASHP_{SiteCoolingImpact} + ASHP_{SiteHeatingImpact}$$

For units with cooling capacities less than 65 kBtu/hr:

$$ASHPSiteCoolingImpact = \left(\left(\frac{CoolingLoad}{DuctlessSave} \times \frac{1}{SEER2_{base}} \right) - \left(CoolingLoad \times \frac{1}{SEER2_{ee}} \right) \right) \times \frac{1}{1000}$$

$$\begin{aligned} ASHPSiteHeatingImpact &= \left(\left(\frac{HeatLoad_{disp}}{DuctlessSave} \times \frac{1}{HSPF2_{base} \times HSPF2_{ClimateAdj}} \right) \right. \\ &\quad \left. - \left(HeatLoad_{disp} \times \frac{1}{HSPF2_{ee} \times HSPF2_{ClimateAdj}} \right) \right) \times \frac{1}{1000} \end{aligned}$$

For units with cooling capacities equal to or greater than 65 kBtu/hr:

$$ASHPSiteCoolingImpact = \left(\left(CoolingLoad \times \frac{1}{IEER2_{base}} \right) - \left(CoolingLoad \times \frac{1}{IEER2_{ee}} \right) \right) \times \frac{1}{1000}$$

$$ASHPSiteHeatingImpact = \left(\left(\frac{HeatLoad_{disp}}{3,412} \times \frac{1}{COP_{base}} \right) - \left(HeatLoad_{disp} \times \frac{1}{COP_{ee}} \right) \right) \times \frac{1}{1000}$$

For units of all cooling capacities:

$$\Delta kW = \left(\left(\frac{Capacity_{cool}}{DuctlessSave} \times \frac{1}{EER2_{base}} \right) - \left(Capacity_{cool} \times \frac{1}{EER2_{ee}} \right) \right) \times \frac{1}{1000} \times CF$$

Where:

CoolingLoad = Annual cooling load for the building

$= EFLH_{cool} \times Capacity_{cool}$

Capacity_{cool} = Output capacity of the cooling equipment in Btu per hour (actual installed capacity)

SEER2_{base} = Seasonal Energy Efficiency Ratio of baseline equipment (assumed to be equal to current minimum Code requirements)

SEER2_{ee} = Seasonal Energy Efficiency Ratio of energy efficient equipment

EFLH_{cool} = Equivalent Full Load Hours for cooling (estimated based on city, building type, and heat pump type)

DuctlessSave = Factor used to adjust ducted heating or cooling load displaced by ductless systems that are not subject to losses from existing ductwork

= 0.85 for ducted system displaced by ductless system

= 1.00 for ducted system displaced by ducted system or ductless system displaced by ductless system

$HSPF2_{base}$	= Heating Seasonal Performance Factor of baseline equipment (assumed to be equal to current minimum Code requirements)
$HSPF2_{ee}$	= Heating Seasonal Performance Factor of energy efficient equipment
$HSPF_{ClimateAdj}$	= Adjustment factor to account for observed discrepancy between seasonal heating performance relative to rated HSPF (dependent on city)
$IEER_{base}$	= Integrated Energy Efficiency Ratio of baseline equipment, assumed to be equal to current IECC minimum efficiency requirements
$IEER_{ee}$	= Integrated Energy Efficiency Ratio of energy efficient equipment
$HeatLoad_{disp}$	= Annual heat load for building displaced by the heat pump (Btu) $= EFLH_{heat} \times Capacity_{heat} \times HeatLoadFactor$
$EFLH_{heat}$	= Equivalent Full Load Hours for heating (estimated based on city, building type, and heat pump)
$Capacity_{heat}$	= Output capacity of the heat pump equipment in Btu per hour (actual installed capacity)
$HeatLoadFactor$	= Portion of heat load displaced by heat pump in partial displacement applications (dependent on switchover temperature and climate region) = 1.0 if full displacement
3,412	= Btu per kWh
COP_{base}	= Coefficient of performance of baseline equipment (assumed to be equal to current minimum Code requirements)
COP_{ee}	= Coefficient of Performance of energy efficient equipment
CF	= Peak coincidence factor for commercial cooling (91.3%)

A.11.3. Kitchen Equipment

The kitchen equipment measure category includes commercial ice machines and hot food holding cabinets.

Ice Machines

For commercial ice machines, Cadmus used the following 2025 Illinois TRM v13 equations:

$$\Delta kWh = \left(\frac{kWh_{base} - kWh_{ee}}{100} \right) \times DC \times H \times 365.25$$

$$\Delta kW = \frac{\Delta kWh}{HOURS \times DC} \times CF$$

Where:

kWh_{base} = Maximum kWh consumption per 100 pounds of ice for baseline equipment
(calculated based on type and harvest rate of energy efficient equipment)

kWh_{ee} = Maximum kWh consumption per 100 pounds of ice for energy efficient equipment

100 = Conversion factor to convert kWh_{base} and kWh_{ee} into maximum kWh consumption per pound of ice

DC = Duty Cycle of ice machine
= 0.57

H = Harvest rate (pounds of ice made per day)

$HOURS$ = Annual operating hours (assumed continuous operation, i.e., 8,766 hours)

CF = Peak coincidence factor (93.7%)

Hot Food Holding Cabinets

For commercial hot food holding cabinets (HFHCs), Cadmus used the following 2025 Illinois TRM v13 equations:

$$\Delta kWh = (IdleEnergyRateBase - IdleEnergyRateES) \times HOURSday \times Days \times \frac{1}{1000}$$

$$\Delta kW = \frac{\Delta kWh}{Hours} \times CF$$

Where:

$IdleEnergyRateBase$ = Idle energy rate of baseline equipment
= $30 \times V$

V = Volume of HFHC (cubic feet)

$HOURSday$ = Average daily operation time (assume 9 hours)

$Days$ = Annual days of operation (assume 365)

$IdleEnergyRateES$ = Idle energy rate of ENERGY STAR equipment (dependent on cabinet volume; see Table A-81)

$Hours$ = Annual hours of operation
= $HOURSday \times Days$

CF = Peak coincidence factor (90.0%)

Table A-81. Idle Energy Rate Calculation Parameters

Cabinet Volume (cu ft)	Power (W)
$V < 13$	$21.5 \times V$
$13 \leq V < 28$	$2 \times V + 254$
$28 \leq V$	$3.8 \times V + 203.5$

A.11.4. Refrigeration

Freezers and Refrigerators

For commercial reach-in freezers and refrigerators, Cadmus used the following 2025 Illinois TRM v13 equations:

$$\Delta kWh = (kWh_{base} - kWh_{ee}) \times 365.25$$

$$\Delta kW = \frac{\Delta kWh}{HOURS} \times CF$$

Where:

- kWh_{base} = Maximum daily energy consumption of baseline equipment (kWh), calculated using actual chilled or frozen compartment volume (V) of the energy efficient unit (dependent on door type and equipment type; see Table A-82)
- kWh_{ee} = Maximum daily energy consumption of energy efficient equipment (kWh), calculated using actual chilled or frozen compartment volume (V) of the energy efficient unit (dependent on door type and equipment type; see Table A-83)
- V = Chilled or frozen compartment volume (cubic feet)
- $HOURS$ = Annual hours of operation (assumed continuous operation, i.e., 8,766 hours)
- CF = Peak coincidence factor (93.7%)

Table A-82. Baseline Maximum Daily Energy Consumption Calculation

Type	kWh_{base}
Solid Door Refrigerator	$0.05 \times V + 1.36$
Glass Door Refrigerator	$0.1 \times V + 0.86$
Solid Door Freezer	$0.22 \times V + 1.38$
Glass Door Freezer	$0.29 \times V + 2.95$

Table A-83. Energy Efficient Maximum Daily Energy Consumption Calculation

Compartment Volume (cubic feet)	kWh_{ee}	
	Refrigerator	Freezer
Solid Door		
$0 < V < 15$	$\leq 0.0267 \times V + 0.8$	$\leq 0.21 \times V + 0.9$
$15 \leq V < 30$	$\leq 0.05 \times V + 0.45$	$\leq 0.12 \times V + 2.248$
$30 \leq V < 50$	$\leq 0.05 \times V + 0.45$	$\leq 0.2578 \times V - 1.8864$
$V \geq 50$	$\leq 0.025 \times V + 1.6991$	$\leq 0.14 \times V + 4.0$
Glass Door		
$0 < V < 15$	$\leq 0.095 \times V + 0.445$	$\leq 0.232 \times V + 2.36$
$15 \leq V < 30$	$\leq 0.05 \times V + 1.12$	

$30 \leq V < 50$	$\leq 0.076 \times V + 0.34$	
$V \geq 50$	$\leq 0.105 \times V - 1.111$	

A.11.5. VFD/Motor

The VFD/Motor measure category includes HVAC supply and return fan motors, as well as HVAC chilled and hot water pumps.

VFD Drives for HVAC Supply and Return Fans

For VFD drives installed on HVAC supply and return fans, Cadmus used the following 2025 Illinois TRM v13 equations:

For electric energy savings:

$$\Delta kWh_{total} = \Delta kWh_{fan} \times (1 + IE_{energy})$$

$$\Delta kWh_{fan} = kWh_{base} - kWh_{retrofit}$$

$$kWh_{base} = \left(0.746 \times HP \times \frac{LF}{\eta_{motor}}\right) \times RHRS_{base} \times \sum_{0\%}^{100\%} (\%FF \times PLR_{base})$$

$$kWh_{retrofit} = \left(0.746 \times HP \times \frac{LF}{\eta_{motor}}\right) \times RHRS_{base} \times \sum_{0\%}^{100\%} (\%FF \times PLR_{retrofit})$$

For summer coincident peak demand savings:

$$\Delta kW_{total} = \Delta kW_{fan} \times (1 + IE_{demand})$$

$$\Delta kW_{fan} = kW_{base} - kW_{retrofit}$$

$$kW_{base} = \left(0.746 \times HP \times \frac{LF}{\eta_{motor}}\right) \times PLR_{base,FFpeak}$$

$$kW_{retrofit} = \left(0.746 \times HP \times \frac{LF}{\eta_{motor}}\right) \times PLR_{retrofit,FFpeak}$$

Where:

- kWh_{base} = Baseline annual energy consumption (kWh/yr)
- $kWh_{retrofit}$ = Retrofit annual energy consumption (kWh/yr)
- ΔkWh_{fan} = Fan-only annual energy savings
- ΔkWh_{total} = Total project annual energy savings
- 0.746 = Conversion factor for HP to kWh
- HP = Nominal horsepower of controlled motor

LF	= Load factor; motor load at fan design CFM (default value = 65%)
η_{motor}	= Installed nominal/nameplate motor efficiency
$RHRS_{base}$	= Annual operating hours for fan motor based on building type
$\%FF$	= Percentage of runtime spent within a given flow fraction range
PLR_{base}	= Part load ratio for a given flow fraction range based on baseline flow control type
$PLR_{retrofit}$	= Part load ratio for a given flow fraction range based on retrofit flow control type
IE_{energy}	= HVAC interactive effects factor for energy (default value = 15.7%)
kW_{base}	= Baseline summer coincident peak demand (kW)
$kW_{retrofit}$	= Retrofit summer coincident peak demand (kW)
ΔkW_{fan}	= Fan-only summer coincident peak demand impact
ΔkW_{total}	= Total project summer coincident peak demand impact
$PLR_{base,FFpeak}$	= Part load ratio for average flow fraction between peak daytime hours during weekday peak time period based on the baseline flow control type
$PLR_{retrofit,FFpeak}$	= Part load ratio for the average flow fraction between peak daytime hours during weekday peak time period based on the retrofit flow control type
IE_{demand}	= HVAC interactive effects factor for summer coincident peak demand (default value = 15.7%)

The assumed baseline flow control type is no control, and the assumed retrofit flow control type is VFD with duct static pressure controls.

VFD Drives for HVAC Pumps

For VFD drives installed on HVAC pumps, Cadmus used the following 2025 Illinois TRM v13 equations:

$$\Delta kWh = \frac{BHP}{EFFi} \times Hours \times ESF$$

$$\Delta kW = \frac{HBP}{Effi} \times DSF$$

Where:

BHP = System brake horsepower

= *Nominal motor HP* $\times$ *Motor load factor* (assumed to be 65% if actual motor load factor is unknown)

$EFFi$ = Motor efficiency (dependent on motor HP)

$Hours$ = Annual hours of operation

ESF = Energy savings factor (kW/HP); varies by VFD application

DSF = Demand savings factor (kW/HP); varies by VFD application

A.12. Commercial and Industrial Custom Program

Cadmus' impact evaluation of the Commercial and Industrial (C&I) Custom Program included measures with attributable electric savings in three subcomponents:

- New Construction
- Custom Incentives
- Retro-Commissioning

Each customer (or participating contractor) provided initial documentation of the project's energy savings, which the program implementer reviewed and finalized. The implementer then supplied the documentation and project analysis workbook to Cadmus.

Cadmus evaluated the reasonableness of savings calculations by reviewing all project documentation, including invoices, technical specifications, and verification reports (if applicable). Cadmus then performed a desk review of each project's analysis workbook upon which the project's incentives were based to verify these items:

- Calculation assumptions matched equipment specifications and supporting project documentation (including verification reports)
- Reported savings calculations followed accepted engineering methodologies
- All assumed baselines were appropriate for project type (such as new construction or retrofit)
- All calculation assumptions were reasonable, justified, and properly cited
- Reported savings fell within a reasonable range given the project's scope

Cadmus performed desk reviews on measures under 11 C&I Custom Program electric application IDs, accounting for 100% of the program's electric savings. For lighting power density measures, the IECC 2018 baseline was used instead of the ASHRAE 90.1-2007. The Indiana TRM is in effect after January 1, 2025, so the use of the ASHRAE standard was updated to the IECC 2018 lighting power density values. Cadmus made minor savings adjustment to these three application IDs, along with minor adjustments to HVAC efficiency values matching AHRI specification sheets.

A.13. Commercial and Industrial Building Optimization Program

Cadmus' impact evaluation of the Commercial and Industrial (C&I) Building Optimization Program included measures with attributable energy savings. These measures typically involve optimizing HVAC systems controls through changes in programming at the building management system. Most energy savings from projects implemented in 2025 were a result of changes in AHU occupancy schedules.

Cadmus evaluated the reasonableness of savings calculations by reviewing all project documentation, including invoices, technical specifications, and verification reports (if applicable). Cadmus then performed a desk review of each project's analysis workbook upon which the project's incentives were based to verify these items:

- Calculation assumptions matched equipment specifications and supporting project documentation (including verification reports)
- Reported savings calculations followed accepted engineering methodologies
- All assumed baselines were appropriate for project type (such as new construction or retrofit)
- All calculation assumptions were reasonable, justified, and properly cited
- Reported savings fell within a reasonable range given the project's scope

Cadmus performed desk reviews for four projects accounting for 100% of the program's energy savings.

A.14. Small Business Energy Solutions Program

A.14.1. Chillers

Following are equations and assumptions used for each type of chiller measure.

Chiller Replacements

Cadmus used the Illinois TRM v13.0 algorithms for water cooled chiller replacements energy savings:

$$\Delta kWh = TONS \times (IPLV_{base} - IPLV_{ee}) \times EFLH$$

Cadmus used the Illinois TRM v13.0 algorithms for air cooled chiller replacements energy savings:

$$\Delta kWh = TONS \times \left(\frac{12}{IPLV_{base}} - \frac{12}{IPLV_{ee}} \right) \times EFLH$$

Cadmus used the Illinois TRM v13.0 algorithms for air- and water-cooled chiller replacements demand calculation:

$$\Delta kW = TONS \times (PE_{base} - PE_{ee}) \times CF$$

Where:

- $TONS$ = chiller actual installed cooling capacity in tons (note: 1 ton = 12,000 Btu/hr)
- $IPLV_{EE}$ = efficiency of high efficiency equipment expressed as Integrated Part Load Value (kW/ton). Actual installed
- $IPLV_{BASE}$ = efficiency of baseline equipment expressed as Integrated Part Load Value(kW/ton) obtained from current IECC Minimum Efficiency Table – Path (A). Refer to Baseline Efficiency Values by Chiller Type and Capacity in the Reference Tables & Equations section.
- $EFLH$ = Equivalent Full Load Hours for cooling in Existing Buildings or New Construction are provided in section 4.4 HVAC End Use.
- PE_{base} = Peak efficiency of baseline equipment expressed as Full Load (kW/ton)
- PE_{ee} = Peak efficiency of high efficiency equipment expressed as Full Load (kW/ton)

CF = Summer System Peak Coincidence Factor for commercial cooling during system peak hour (= 91.3%)

Values provided in COP must be converted to kW/ton to use the algorithms above.

A.14.2. Controls

Boiler Tune-Up

Cadmus used the energy savings algorithms in the Illinois TRM v13.0 for boiler tune-ups:

$$\Delta Therms = \frac{\left(Capacity * EFLH_H * \left(\frac{Eff_{before} + E_i}{Eff_{before}} \right) - 1 \right)}{100,000}$$

Where:

$Capacity$ = boiler gas input size (Btu/hr)

$EFLH$ = Equivalent Full Load Hours for heating in Existing Buildings are provided in section 4.4 HVAC End Use

Eff_{before} = Efficiency of the boiler before the tune-up. Actual. Default value is 8135%.

E_i = Efficiency improvements of the boiler tune-up measure. Actual. Default value is 2.3%

100,000 = Converts Btu to therms

This measure is for a non-residential boiler that provides space heating. The tune-up will improve boiler efficiency by cleaning and/or inspecting burners, combustion chamber, and burner nozzles.

A.14.3. HVAC

Air Conditioner

Cadmus followed the energy savings algorithms in the Illinois TRM v13.0 for Air Conditioner measures:

$$\Delta kWh = (EFLH * Btu/h * (1/CEER_{base} - 1/CEER_{ee}))/1000$$

Where:

$EFLH_{RoomAC}$ = Full Load Hours of air conditioning unit

= Equivalent Full Load Hours for cooling in Existing Buildings are provided in section 4.4 HVAC End Use

Btu/h = Input capacity of unit

= Actual. If unknown assume 8,500 Btu/hr

CEERbase = Combined Energy Efficiency Ratio of baseline unit

= As provided in tables above

CEERee = Combined Energy Efficiency Ratio of ENERGY STAR or CEE Super Efficient unit
= Actual. If unknown assume minimum qualifying standard as provided in tables above

Heat Pump

Cadmus followed the energy savings algorithms in the Illinois TRM v13.0 for Heat Pump measures:

$$\Delta kWh = [Cooling\ savings] + [Heating\ savings]$$

$$Cooling\ Savings = (Capacity_{cool} * EFLH_{cool} * (1/EER2_{base} - 1/EER2_{GSHP}))/1000$$

$$Heating\ Savings = (Capacity_{Heat} * EFLH_{Heat} * (1/HSPF2_{base} - 1/(COP_{GSHP} * 3.412)))/1000$$

Where:

Capacitycool = Cooling Output Capacity of Ground Source Heat Pump (Btu/hr)
= Actual installed

EFLHcool = Cooling Equivalent Full Load Hours Dependent on building type and Existing Buildings or New Construction, provided in section 4.4 HVAC End Use

EER2Base = Energy Efficiency Ratio (EER2) of existing cooling unit (kBtu/hr / kW). For early replacement, use actual EER2 rating for the remaining useful life of the existing equipment (6 years for ASHP and Central AC, 8 years for GSHP). If EER2 unknown but SEER2 available, convert using the equation: $963\ EER2_{exist} = (-0.02 * SEER2_{exist}^2) + (1.12 * SEER2_{exist})$.

EER2GSHP = Part Load Energy Efficiency Ratio efficiency of efficient GSHP unit964 = Actual installed

CapacityHeat = Heating Output Capacity of Ground Source Heat Pump (Btu/hr)
= Actual installed

EFLHHeat = Heating Equivalent Full Load Hours of heat pump Dependent on building type and Existing Buildings or New Construction, provided in section 4.4 HVAC End Use

HSPF2Base = Heating System Performance Factor of baseline electric heating system

COPGSHP = Part Load Coefficient of Performance of efficient GSHP966 = Actual installed

3.412 = Constant to convert the COP of the unit to the Heating Season Performance Factor (HSPF)

Air Conditioner Tune-Ups

Cadmus followed the energy savings algorithms in the Illinois TRM v13.0 for Air Conditioner Tune-Up measures:

$$\Delta kWh = (kBtu/hr) * [(1/EER_{before}) - (1/EER_{after})] * EFLH$$

Where:

- kBtu/hr = capacity of the cooling equipment actually installed in kBtu per hour (1 ton of cooling capacity equals 12 kBtu/hour).
- = Actual
- EER_{before} = Energy Efficiency Ratio of the baseline equipment prior to tune-up
- = Actual
- EER_{after} = Energy Efficiency Ratio of the baseline equipment after to tune-up
- = Actual
- EFLH = Equivalent Full Load Hours for cooling in Existing Buildings are provided in section 4.4 HVAC End Use

A.14.4. Lighting

Retrofits

Retrofits were the predominant type of lighting measure, and the basic algorithm is the same regardless of the replaced or efficient lighting technology (LED panels, high output T8 fixtures, refrigerated LEDs, and so on). Cadmus evaluated all retrofit lighting measures using these Illinois TRM v13.0 algorithms:

$$\Delta kWh = \frac{(WATTS_{BASE} - WATTS_{EE})}{1000} * Hours * WHF_e * ISR * (1 - Leakage)$$

$$\Delta kW = \frac{(WATTS_{BASE} - WATTS_{EE})}{1000} * ISR * WHF_D * CF$$

Where:

- WATTS_{ee} = Wattage of the new lighting
- WATTS_{base} = Wattage of the lighting being replaced
- Hours = Average hours of use per year are provided in the Reference Table in Section 4.5 for each building type.
- CF = Peak demand coincidence factor, provided in the Reference Table in Section 4.5.
- WHF_E = Waste heat factors for energy
- WHF_D = Waste heat factor for demand
- ISR = In Service Rate -the percentage of units rebated that get installed. 100% if application form completed with sign off that equipment is not placed into storage

Leakage = Adjustment to account for the percentage of program bulbs that move out (and in if deemed appropriate) of the Utility Jurisdiction

Program tracking data reported savings and new and replaced wattages for each lighting project. In accordance with the Illinois TRM v13.0, Cadmus used actual wattages (from the program tracking data) for WATTS_{ee} and WATTS_{base}.

Lighting Controls

Cadmus categorized occupancy sensors as a lighting measure for the purposes of the evaluation and used the Illinois TRM v13.0 to evaluate savings:

$$\Delta kWh = kW_{CONTROLLED} * Hours * (ESF_{EE} - ESF_{Base}) * WHF_e$$

$$\Delta kW = kW_{CONTROLLED} * WHF_d * ((CF_{baseline} * BaseAdj) - CF_{LC})$$

Where:

WHF_E = Waste heat factors for energy

WHF_D = Waste heat factor for demand

$kW_{controlled}$ = Total lighting load connected to the control in kilowatts. The total connected load per control should be collected from the customer or the default values presented below used.

$CF_{baseline}$ = Waste heat factor for demand

$BaseAdj$ = Baseline Summer Peak Coincidence Factor for the lighting system without lighting controls installed selected from the Reference Table in Section 4.5 for each building type

CF_{LC} = Retrofit Summer Peak Coincidence Factor the lighting system with lighting controls installed is 0.15 regardless of building type.

$Hours$ = Annual site-specific hours of operation of the lighting equipment collected from the customer. If not available, use building area type as provided in the Reference Table in Section 4.5.

This year the program also included Exterior Photocell Repair measures in which Cadmus used the Illinois TRM v13.0 to evaluate savings:

$$\Delta kWh = \frac{Watts_{fixture}}{1000} * (HOU_{PRE} - HOU_{POST})$$

$$\Delta kW = \frac{\Delta kWh}{(HOU_{PRE} - HOU_{POST})} * CF$$

Where:

$Watts_{fixture}$ = Input wattage of exterior lighting fixture(s) controlled by photocell

HOU_{PRE} = Fixture Annual Operating Hours before Photocell repair/replacement

HOU_{POST} = Fixture Annual Operating Hours with Photocell repaired / replaced
 CF = Summer Peak Coincidence Factor for measure

LED Exit Signs

Cadmus categorized LED exit signs as a lighting measure for the purposes of the evaluation and used the Illinois TRM v13.0 to evaluate savings:

$$\Delta kWh = \frac{(WATTS_{BASE} - WATTS_{EE})}{1000} * Hours * WHF_e$$

$$\Delta kW = \frac{(WATTS_{BASE} - WATTS_{EE})}{1000} * WHF_D * CF$$

Where:

$WATTS_{ee}$ = Wattage of the new lighting

$WATTS_{base}$ = Wattage of the lighting being replaced

$Hours$ = Average hours of use per year are provided in the Reference Table in Section 4.5 for each building type.

CF = Peak demand coincidence factor, provided in the Reference Table in Section 4.5.

WHF_E = Waste heat factors for energy

WHF_D = Waste heat factor for demand

A.14.5. Thermostats

Wifi-Enabled and Programmable Thermostats

The program implementer currently uses an energy modeling tool to determine savings for Wi-Fi and programmable thermostat measures because the 2015 Indiana TRM v2.2 does not provide savings algorithms for thermostats in commercial applications. In 2023, as in the previous six program years, the implementer used energy savings intensity factors (which estimate energy savings per square foot of building served by the thermostat) based on an eQuest model of a 15,000-square-foot office building. The eQuest model simulates the heating, cooling, and ventilation savings for 360 different thermostat configurations for two different weather locations: Indianapolis and Evansville. Configurations vary by degree heating/cooling setback, hours of setback per day, and days the business was closed per week. Savings are assigned on a project-by-project basis according to the project's reported thermostat setback schedule and facility square footage.

To evaluate savings, Cadmus used the following equations from the Illinois TRM V13 for the measure Small Commercial Thermostats:

$$\Delta kWh = \left(\%ElecHeat * \frac{kBtu}{hr_{heat}} * \frac{1}{HSPF} * EFLH_{heat} * Heating_{Reduction} * BAF \right) + (dTherms * F_e * 29.3) + \left(\frac{kBtu}{hr_{cool}} * \frac{1}{SEER} * EFLH_{cool} * Cooling_{Reduction} * BAF \right)$$

Where:

$\%ElecHeat$	=	Percentage of heating savings assumed to be electric.
$\frac{kBtu}{hr_{heat}}$	=	capacity of the heating equipment in kBtu per hour
$HSPF$	=	Heating Seasonal Performance Factor of the baseline equipment
$EFLH_{heat}$	=	heating mode equivalent full load hours in Existing Buildings
$Heating_{Reduction}$	=	Assumed percentage reduction in total building heating energy consumption due to thermostat (8.8%)
$dTherms$	=	Therm savings in Natural Gas heating system
F_e	=	Furnace Fan energy consumption as a percentage of annual fuel consumption (7.7%)
29.3	=	kWh per therm
$kBtu/hr_{cool}$	=	Capacity of the cooling equipment actually installed in kBtu per hour, assumed to 114.5
$EFLH_{cool}$	=	Equivalent Full Load Hours for cooling in Existing Buildings
$Cooling_{Reduction}$	=	Average percentage reduction in total building cooling energy consumption due to installation of thermostat (17.7%)

VFDs for HVAC applications

Cadmus used the following equations to determine savings:

$$kWh_{base} = \left(0.746 * HP * \frac{LF}{n_{motor}} \right) * RHRS_{Base} * \sum_{0\%}^{100\%} (\%FF * PLR_{Base})$$

$$kWh_{retrofit} = \left(0.746 * HP * \frac{LF}{n_{motor}} \right) * RHRS_{Base} * \sum_{0\%}^{100\%} (\%FF * PLR_{Base})$$

$$\Delta kWh_{fan} = kWh_{base} - kWh_{Retrofit}$$

$$\Delta kWh_{total} = kWh_{fan} * (1 + IE_{energy})$$

$$kW_{base} = \left(0.746 * HP * \frac{LF}{n_{motor}} \right) * PLR_{Base,FFpeak}$$

$$kW_{retrofit} = \left(0.746 * HP * \frac{LF}{n_{motor}} \right) * PLR_{retrofit,FFpeak}$$

$$\Delta kW_{fan} = kW_{base} - kW_{Retrofit}$$

$$\Delta kW_{total} = kW_{fan} * (1 + IE_{demand})$$

Where:

kWh_{base}	=	Baseline annual energy consumption (kWh/yr)
$kWh_{retrofit}$	=	Retrofit annual energy consumption (kWh/yr)
kWh_{fan}	=	Fan-only annual energy savings
kWh_{total}	=	Total project annual energy savings
0.746	=	Conversion factor for HP to kWh
HP	=	Nominal horsepower of controlled motor
LF	=	Load Factor; Motor Load at Fan Design CFM (Default = 65%)
n_{motor}	=	Installed nominal/nameplate motor efficiency. Default motor is a NEMA Premium Efficiency, ODP, 4-pole/1800 RPM fan motor
$RHRS_{base}$	=	Annual operating hours for fan motor based on building type. Default hours are provided for HVAC applications which vary by HVAC application and building type. When available, actual hours should be used.
%FF	=	Percentage of run-time spent within a given flow fraction range. Default Fan Duty Cycle Based on 2012 ASHRAE Handbook; HVAC Systems and Equipment, page 45.11, Figure 12.
PLR_{base}	=	Part load ratio for a given flow fraction range based on the baseline flow control type.
$PLR_{retrofit}$	=	Part load ratio for a given flow fraction range based on the baseline flow control type.
IE_{energy}	=	HVAC interactive effects factor for energy (default = 15.7%)
IE_{demand}	=	HVAC interactive effects factor for summer coincident peak demand (default = 15.7%)
$PLR_{base,FFpeak}$	=	The part load ratio for the average flow fraction between the peak daytime hours during the weekday peak time period based on the baseline flow control type (default average flow fraction during peak period = 90%)
$PLR_{retrofit,FFpeak}$	=	The part load ratio for the average flow fraction between the peak daytime hours during the weekday peak time period based on the retrofit flow control type (default average flow fraction during peak period = 90%)

Appendix B. Net-to-Gross Detailed Findings

Cadmus calculated the savings that were directly attributable to CenterPoint Energy's programs (net savings) by estimating program-specific (or measure-specific where applicable) net-to-gross (NTG) ratios. The NTG ratios were used to adjust the verified gross savings estimates to account for freeridership and spillover.

For CenterPoint Energy's portfolio of programs, Cadmus used four methods for determining NTG ratios:

- **Self-report surveys** use survey results to derive net savings by adjusting *ex post* gross savings to account for an NTG ratio. To mitigate self-report bias, Cadmus used a battery of freeridership questions that collect data on each participant's *intention* and factors that might have had *influence*. The *intention* and *influence* scores contributed equally to the total freeridership score. Cadmus computed a freeridership score for each participant by calculating the arithmetic mean of the intention and influence scores.
 - **Participant spillover** is the program's influence on customers' decisions to invest in additional energy efficiency measures for which they did not receive any CenterPoint Energy incentives. Cadmus gathered the necessary data from the self-report surveys to calculate participant spillover. Cadmus included measures that are program-eligible (known as like spillover) as well as any non-program-eligible measures (known as non-like spillover) for which Cadmus could provide a reasonable savings documentation.
 - **Nonparticipant spillover (NPSO)** is created by CenterPoint Energy's marketing and education efforts among residential customers who did not participate in any program.
- **Deemed NTG** is applied to programs where the participant is unlikely to have taken energy-saving action without program intervention (for example, programs targeting low-income and student households). Cadmus applied NTG ratios from the 2025 CenterPoint Energy Energy Efficiency Store program to the Home Energy Assessments channel within the Home Energy Solutions program due to their not being a participant survey conducted for the HEA program channel in 2025. Cadmus applied NTG ratios from the 2025 CenterPoint Energy C&I Prescriptive program evaluation for the C&I Midstream program because there was not enough primary data collected from interviews with C&I Midstream program distributors to estimate a NTG ratio. Cadmus applied NTG ratios from the 2025 CenterPoint Energy C&I Custom program to the Building Optimization program, as no surveys were conducted with Building Optimization program participants in 2025.
- **Benchmarking** using publicly available historical evaluation results and NTG calculations for similar residential in store discount measures in other jurisdictions to determine an appropriate benchmark for Home Energy Solutions In Store Discounts program channel net savings.
- **Control group** comparison generates inherently net savings. Cadmus used billing/regression analysis to estimate net impacts for the Residential Behavioral Savings Program. In this method, Cadmus calculated net savings by developing a comparison (control) group, which isolates the program impacts from exogenous effects.

Table B-1 lists the NTG approach Cadmus used for each program. This appendix further details the specific methodology Cadmus used to determine each program's NTG ratio.

Table B-1. 2025 Net-to-Gross Method by Program

Program	Self-Report Surveys	Deemed NTG	Benchmarking	Control Group
Residential Programs				
Home Energy Solutions	✓	✓ ^a	✓ ^b	
Energy Efficiency Store	✓			
Income Qualified Weatherization		✓		
Residential New Construction	✓			
Residential Behavioral Savings				✓
Smart Cycle		✓		
Community Connections		✓		
Targeted Income		✓		
Energy Efficient Schools		✓		
Multi-Family Energy Solutions		✓		
Commercial and Industrial Programs				
Commercial and Industrial Prescriptive	✓			
Commercial and Industrial Midstream		✓ ^c		
Commercial and Industrial Custom	✓			
Small Business Energy Services	✓			
Building Optimization		✓ ^d		

^a Cadmus applied NTG ratios from the 2025 CenterPoint Energy Energy Efficiency Store program to the Home Energy Assessments channel within the Home Energy Solutions program.

^b Cadmus applied NTG ratios for similar residential in store discount measures in other jurisdictions to determine an appropriate benchmark for Home Energy Solutions In Store Discounts program channel net savings.

^c Cadmus applied NTG ratios from the 2025 CenterPoint Energy C&I Prescriptive program evaluation for the C&I Midstream program.

^d Cadmus applied NTG ratios from the 2025 CenterPoint Energy C&I Custom program to the Building Optimization program.

B.1. Home Energy Solutions

Cadmus calculated NTG for the Home Energy Solutions Program using findings from surveys conducted with Residential Prescriptive channel program participants, surveys conducted with participating distributor and contractors for the Midstream channel, applying NTG ratios estimated for the 2025 CenterPoint Energy Energy Efficient Store to the Home Energy Assessment channel measure, and by applying benchmarked NTG values from a recent 2025 Ameren Illinois NTG Recommendations report to

the Retail Products channel measures.⁴⁹ Table B-2 summarizes freeridership, spillover, and NTG estimates by program channel. The overall program NTG ratio of 56% is weighted by the combination of electric and natural gas gross evaluated program population savings.

Table B-2. 2025 Home Energy Solutions Program Net-to-Gross Ratio by Program Channel

Program Channel	Freeridership	Spillover	NTG Ratio	Total Program <i>Ex Post</i> MMBTU Savings
Residential Prescriptive	40%	0%	60%	38,458
Midstream	55%	0%	45%	32,195
Home Energy Assessments	12%	0%	88%	1,791
In Store Discounts	21%	0%	79%	4,440
Total Program	44%¹	0%	56%^a	76,884
Electric-Specific NTG			54%	16,388
Demand-Specific NTG			55%	1.06^b
Natural Gas-Specific NTG			56%	60,495

^a Weighted by evaluated *ex post* program population MMBtu savings

^b MMBTU/hour savings

B.1.1. Residential Prescriptive Channel

Cadmus calculated NTG ratios for the Home Energy Solutions Program Residential Prescriptive channel using findings from a survey conducted with 169 program participants. Table B-3 summarizes the freeridership, spillover, and NTG estimates by measure category. The overall program channel NTG ratio of 60% is weighted by the combination of electric and gas gross evaluated program population savings.

The electric-specific NTG ratio of 66% presented in Table B-3 is weighted specifically to electric savings due to the application of measure–category level NTG estimates. The overall NTG ratio is heavily weighted toward the natural gas-specific NTG estimate of 60% because *ex post* gross gas savings account for 97% of the total 2025 energy savings in the Residential Prescriptive channel.

⁴⁹ Ameren Illinois Company (2025). The Illinois Stakeholder Advisory Group (SAG) holds annual meetings to review recommended NTG values prepared by independent evaluators and reach agreement on NTG values for the next program year for Ameren Illinois. www.ilsag.info/wp-content/uploads/AIC-2025-NTGR-Recommendations-for-SAG-FINAL-2024-10-01.xlsx

Table B-3. 2025 Home Energy Solutions Program Residential Prescriptive Channel
Net-to-Gross Ratio

Measure Category	Freeridership	Spillover	NTG Ratio	Total Program Ex Post MMBTU Savings
HVAC (n=107)	42%	0%	58%	29,825
Thermostat (n=44)	35%	0%	65%	5,171
Weatherization (n=7)	33%	0%	67%	1,149
Other (n=11)	32%	0%	68%	2,312
Total Program (n=169)^a	40%^b	0%^b	60%^b	38,458
Electric-Specific NTG			66%	1,192
Demand-Specific NTG			67%	0.10^c
Natural Gas-Specific NTG			60%	37,266

^a Not all respondents surveyed answered the freeridership and spillover questions.

^b Weighted by evaluated *ex post* program population MMBtu savings

^c MMBTU/hour savings

Detailed Freeridership Findings

Cadmus estimated freeridership by combining the standard self-report *intention* method and the *intention/influence* method.⁵⁰ Cadmus calculated the arithmetic mean of the savings-weighted *intention* and *influence* freeridership components to estimate measure category freeridership estimates, as shown in this equation:

$$\text{Final Freeridership \%} = \frac{\text{Intention FR Score}(0\% \text{ to } 100\%) + \text{Influence FR Score}(0\% \text{ to } 100\%)}{2}$$

Intention Freeridership Score

Cadmus estimated *intention* freeridership scores for all participants based on their responses to *intention*-focused freeridership questions. As part of previous CenterPoint Energy evaluations, Cadmus developed a transparent, straightforward matrix approach to assign a single score to each participant based on their objective responses. Determining *intention* freeridership estimates from a series of questions rather than using a single question helps to form a picture of the program's influence on the participant. Use of multiple questions also checks consistency.

Table B-4 illustrates how initial responses are translated into whether the response is "yes," "no," or "partially" indicative of freeridership (in parentheses). The value in brackets is the scoring decrement associated with each response option. Each participant freeridership score starts with 100%, which Cadmus then decrements based on their responses to the questions.

⁵⁰ *Intention* and *influence* freeridership scores both have a maximum of 100%.

Table B-4. 2025 Raw Survey Responses Translation to *Intention* Freeridership Scoring Matrix Terminology and Scoring - Home Energy Solutions Program Residential Prescriptive Channel

Before you heard about the CenterPoint Energy Residential Rebate Program, had you already planned to [If purchase: purchase the/if tune-up: schedule a tune-up or annual check-up of your] [MEASURE_1]?	Before you heard anything about the CenterPoint Energy Residential Rebate Program, had you ALREADY [If purchase: purchased or installed/if tune-up: scheduled the tune-up or annual check-up of] your [MEASURE_1]?	Just to be clear, is it correct that you [If purchase: purchased your new/if tune-up: scheduled a tune-up for your] [MEASURE_1] before you heard anything about the CenterPoint Energy Residential Rebate Program, correct?	[If purchase] Would you most likely have purchased and installed the same type of [MEASURE] without the rebate or discount from CenterPoint Energy? [If tune-up] Would you most likely have scheduled a [MEASURE] tune-up without the rebate or discount from CenterPoint Energy?	[If purchase] Would you most likely have purchased and installed a different type of [MEASURE] without the CenterPoint Energy rebate or discount or would you most likely have decided not to purchase it?	[If purchase] This next question is going to ask you about the efficiency of your [MEASURE]. In this case, efficiency refers to the energy savings associated with your [MEASURE]. More efficient means that the [MEASURE] reduces your energy usage and less efficient means that the [MEASURE] increases your energy usage. Without the rebate or discount from CenterPoint Energy, would you most likely have purchased and installed [If MEASURE≠LED lighting: a] [MEASURE] that was just as energy efficient, less energy efficient or more energy efficient than what you purchased?	Without the rebate or discount from CenterPoint Energy, what kind of thermostat would you most likely have purchased and installed?	[If purchase] Would you most likely have purchased and installed the same quantity of [MEASURE][If MEASURE≠LED lighting:s] without the incentive from CenterPoint Energy?	Thinking about timing, without the CenterPoint Energy rebate or discount, when would you most likely have [If purchase: purchased and installed/if tune-up: scheduled a tune-up for] the [MEASURE]?
Yes (Yes) [-0%]	Yes (Yes) [-0%]	Yes, that is correct (Yes) [100% FR Assigned]	Yes (Yes) [-0%]	I would have installed a different MEASURE (Yes) [-0%]	Just as efficient (Yes) [-0%]	A smart or learning thermostat (Yes) [-0%]	Yes, the same quantity (No) [-0%]	At the same time (No) [-0%]
No (No) [-50%]	No (No) [-0%]	No, that's not correct (No) [-0%]	No (No) [-25%]	I would have decided not to replace it (No) [-100%]	Less efficient (No) [-100%]	A Wi-Fi thermostat (non-learning) (Yes) [-0%]	No, would have installed fewer (Partial2) [-50%]	Within the same year (Partial2) [-50%]
DK/RF (Partial) [-25%]	DK/RF (No) [-0%]	DK/RF (No) [-0%]	DK/RF (Partial) [-0%]	DK/RF (Partial) [-25%]	More efficient (Yes) [-0%]	A programmable	No, would have installed	One to two years out (No) [-100%]

Before you heard about the CenterPoint Energy Residential Rebate Program, had you already planned to [If purchase: purchase the/if tune-up: schedule a tune-up or annual check-up of your] [MEASURE_1]?	Before you heard anything about the CenterPoint Energy Residential Rebate Program, had you ALREADY [If purchase: purchased or installed/if tune-up: scheduled the tune-up or annual check-up of] your [MEASURE_1]?	Just to be clear, is it correct that you [If purchase: purchased your new/if tune-up: scheduled a tune-up for your] [MEASURE_1] before you heard anything about the CenterPoint Energy Residential Rebate Program, correct?	[If purchase] Would you most likely have purchased and installed the same type of [MEASURE] without the rebate or discount from CenterPoint Energy? [If tune-up] Would you most likely have scheduled a [MEASURE] tune-up without the rebate or discount from CenterPoint Energy?	[If purchase] Would you most likely have purchased and installed a different type of [MEASURE] without the CenterPoint Energy rebate or discount or would you most likely have decided not to purchase it?	[If purchase] This next question is going to ask you about the efficiency of your [MEASURE]. In this case, efficiency refers to the energy savings associated with your [MEASURE]. More efficient means that the [MEASURE] reduces your energy usage and less efficient means that the [MEASURE] increases your energy usage. Without the rebate or discount from CenterPoint Energy, would you most likely have purchased and installed [If MEASURE≠LED lighting: a] [MEASURE] that was just as energy efficient, less energy efficient or more energy efficient than what you purchased?	Without the rebate or discount from CenterPoint Energy, what kind of thermostat would you most likely have purchased and installed?	[If purchase] Would you most likely have purchased and installed the same quantity of [MEASURE][If MEASURE≠LED lighting:s] without the incentive from CenterPoint Energy?	Thinking about timing, without the CenterPoint Energy rebate or discount, when would you most likely have [If purchase: purchased and installed/if tune-up: scheduled a tune-up for] the [MEASURE]?
						thermostat (No) [-100%]	more (No) [-0%]	
					DK/RF (Partial) [-25%]	A manual thermostat (Yes) [-100%]	DK/RF (Partial) [-25%]	More than two years out (No) [-100%]
						Would not have installed a new thermostat (Yes) [-100%]		Never (No) [-100%]
						DK/RF (Partial) [-25%]		DK/RF (Partial) [-25%]

After assigning an *intention* freeridership score to every survey respondent, Cadmus weighted individual measure category–level *intention* scores by each participant’s respective *ex post* gross savings associated with the total analysis sample to arrive at savings-weighted average measure category–level *intention* scores shown in Table B-5.

**Table B-5. 2025 Home Energy Solutions Residential Prescriptive Channel
Intention Freeridership Score**

Measure Category	Intention Freeridership Score
HVAC (n=107)	71%
Thermostat (n=44)	54%
Weatherization (n=7)	61%
Other (n=11)	56%

Influence Freeridership Score

Table B-6 shows the distribution of responses to the question: "Please rate the influence of the following program elements on your decision to purchase and install [the product]. Please use a scale from 1, meaning *not at all influential*, to 4, meaning the item was *very influential* to your decisions." Cadmus assessed *influence* freeridership from participants’ ratings to how important various program elements were in their decision to purchase energy-efficient products.

Table B-6. 2025 Home Energy Solutions Program Residential Prescriptive Channel Freeridership
Influence Responses by Measure Category (n=169)

Response Options	Influence Score	Information about the program from your contractor				Rebates for the equipment				Information about energy efficiency that CenterPoint Energy provided				Previous participation in a CenterPoint Energy efficiency program			
		HVAC	Thermostat	Weatherization	Other	HVAC	Thermostat	Weatherization	Other	HVAC	Thermostat	Weatherization	Other	HVAC	Thermostat	Weatherization	Other
1 - Not at all influential	100%	12	0	1	0	13	4	0	0	11	5	1	0	21	6	1	1
2 - Not too influential	75%	6	1	0	1	13	8	0	1	16	9	1	2	11	6	0	1
3 - Somewhat influential	25%	22	6	2	0	37	19	3	4	32	20	3	5	15	8	1	2
4 - Very influential	0%	56	15	4	0	38	13	4	6	37	5	2	3	15	2	2	5
Don't know	50%	3	0	0	0	2	0	0	0	5	2	0	0	12	3	0	0
Not Applicable	50%	4	0	0	1	4	0	0	0	6	3	0	1	33	19	3	2
Average Rating		3.3	3.6	3.3	2.0	3.0	2.9	3.6	3.5	3.0	2.6	2.9	3.1	2.4	2.3	3.0	3.2

Cadmus used the maximum rating given by each participant for any factor in Table B-6 to determine the participant's *influence* score, presented in Table B-7. Cadmus weighted individual *influence* scores by their respective total survey sample *ex post* gross savings to arrive at savings-weighted average *influence* scores by measure category.

Table B-7. 2025 Home Energy Solutions Program Residential Prescriptive Channel
Influence Freeridership Score (n=169)

Maximum <i>Influence</i> Rating	<i>Influence</i> Score	HVAC	Thermostat	Weatherization	Other
1 – Not at all influential	100%	6	2	0	0
2 – Not too influential	75%	3	2	0	0
3 – Somewhat influential	25%	22	13	1	4
4 – Very influential	0%	76	27	6	7
Average Maximum <i>Influence</i> Rating - Simple Average		3.6	3.5	3.9	3.6
Average <i>Influence</i> Score - Weighted by <i>Ex Post</i> Savings		13%	16%	4%	7%

Cadmus then calculated the arithmetic mean of the *intention* and *influence* freeridership components to estimate final freeridership by measure category, weighted by *ex post* gross program savings. The higher the freeridership score, the more savings are deducted from the gross savings estimates. Table B-8 summarizes the *intention*, *influence*, and overall freeridership scores for each measure category.

Table B-8. 2025 Home Energy Solutions Program Residential Prescriptive Channel
Intention, Influence and Overall Freeridership Scores by Measure Category

Measure Category	n	<i>Intention</i> Score	<i>Influence</i> Score	Freeridership Score
Furnace/Boiler	107	71%	13%	42%
Heat Pump/CAC	44	54%	16%	35%
Thermostat	7	61%	4%	33%
Water Heater	11	56%	7%	32%

Detailed Spillover Findings

None of the respondents reported installing high-efficiency measures after participating in the program where they did not receive an incentive and said participation in the program was *very influential* on their decision to install additional measures. Cadmus divided the total survey sample spillover savings for each measure category by the gross program savings from the survey sample to obtain the measure category spillover estimates rounded to the nearest whole percent, shown in Table B-9.

**Table B-9. 2025 Home Energy Solutions Program Residential Prescriptive Channel
Spillover Estimates by Measure Category**

Measure Category	Survey Sample Spillover MMBtu Savings	Survey Sample Program MMBtu Savings	Percentage Spillover Estimate
Furnace/Boiler	0.0	497.0	0%
Heat Pump/CAC	0.0	51.8	0%
Thermostat	0.0	12.7	0%
Water Heater	0.0	6.3	0%

B.1.2. Midstream Channel

For HVAC measure categories incented through the Midstream channel, Cadmus interviewed participating distributors and contractors to estimate NTG ratios. Cadmus calculated NTG for the Midstream channel using findings from a interviews conducted with five participating distributors, five participating ‘hybrid’ contractors that also acted as their own distributor in 2025, and 10 traditional participating contractors who answered the NTG questions. Cadmus used the net-to-gross (NTG) methodology prescribed in the Illinois Technical Reference Manual (TRM) Version 13.0 Attachment A (Illinois Statewide Net-to-Gross Methodologies), modified with a set of deviations approved by the Illinois Stakeholder Advisory Group (SAG).⁵¹ Specifically, we used the Illinois TRM v13.0 Midstream Free Ridership (FR) Protocol. Per this protocol, the NTG estimates Cadmus calculated triangulate freeridership assessed from the distributor perspective and contractor perspective. The estimates do not include the participant (end-use customer) perspective on freeridership or an assessment of participant spillover, as participant end-use customer contact information is not collected as part of the Midstream channel participation process.

Table B-10 summarizes the freeridership, spillover, and NTG estimates by measure category. The overall Midstream program channel NTG ratio of 45% is weighted by the combination of electric and gas gross evaluated program population savings.

The electric-specific NTG ratio of 41% presented in Table B-10 is weighted specifically to electric savings due to the application of measure category-level NTG estimates. The overall NTG ratio is heavily weighted toward the natural gas-specific NTG estimate of 48% because *ex post* gross gas savings account for 64% of the total 2025 energy savings in the Midstream channel.⁵²

⁵¹ www.ilsag.info/wp-content/uploads/IL-TRM_Effective_010125_v13.0_Vol_4_X-Cutting_Measures_and_Attach_09202024_FINAL.pdf
www.ilsag.info/wp-content/uploads/AIC-Midstream-NTG-Deviation-Memo-2023-08-21.docx

⁵² Cadmus applied the electric HVAC equipment and natural gas HVAC equipment NTG ratios to other Midstream channel measures associated with each fuel type.

Table B-10. 2025 Home Energy Solutions Program Midstream Channel Net-to-Gross Ratio

Measure Category	Freeridership	Spillover	NTG Ratio	Total Program Ex Post MMBTU Savings
Electric HVAC Equipment	59%	0%	41%	11,733
Natural Gas HVAC Equipment	52%	0%	48%	20,462
Total Program (n=205)^a	55%^b	0%^b	45%^b	32,195
Electric-Specific NTG			41%	11,733
Demand-Specific NTG			41%	0.74^c
Natural Gas-Specific NTG			48%	20,462

^a Not all respondents surveyed answered the freeridership and spillover questions.

^b Weighted by evaluated *ex post* program population MMBtu savings

^c MMBTU/hour savings

Detailed Freeridership Findings

Cadmus estimated freeridership by combining the standard self-report *intention* method and the *intention/influence* method.⁵³ Cadmus calculated the arithmetic mean of the savings-weighted counterfactual *intention* and *influence* freeridership components to estimate measure category freeridership estimates, as shown in this equation:

$$\text{Final Freeridership \%} = \frac{\text{Counterfactual Intention FR Score}(0\% \text{ to } 100\%) + \text{Program Influence FR Score}(0\% \text{ to } 100\%)}{2}$$

Counterfactual Sales *Intention* Freeridership Score

Cadmus estimated counterfactual sales *intention* freeridership scores for all respondents based on their responses to electric and gas equipment versions of the *intention*-focused freeridership questions:

Thinking about your sales over the past year, if the CenterPoint Energy Midstream program had not been available, what percentage of the program-incentivized [electric/natural gas] HVAC equipment sales would you still have expected to make?

Cadmus weighted individual measure category-level counterfactual sales *intention* scores by each participant's respective *ex post* gross savings associated with the total analysis sample to arrive at savings-weighted average measure category-level counterfactual *intention* scores for distributors and contractors shown in Table B-11. Cadmus then calculated the arithmetic mean of the savings-weighted distributor and contractor estimates to arrive at the measure category-specific combined average counterfactual sales *intention* freeridership scores.

⁵³ *Intention* and *influence* freeridership scores both have a maximum of 100%.

**Table B-11. 2025 Home Energy Solutions Midstream Channel
Counterfactual Sales *Intention* Freeridership Score**

Measure Category	Counterfactual Sales <i>Intention</i> Freeridership Score		
	Distributor	Contractor	Combined Average
Electric HVAC Equipment	100%	68%	84%
Natural Gas HVAC Equipment	91%	60%	76%

Program *Influence* Freeridership Score

Cadmus estimated program *influence* freeridership scores for all respondents based on their ratings of Midstream channel program factors when answering the following questions:

We are interested in how influential CenterPoint Energy Midstream HVAC Program elements were on your sales of program-incentivized equipment in 2025. The primary Midstream Program elements are [IF PHONE READ EACH OF THE PROGRAM FACTORS LISTED BELOW] [IF ONLINE: listed below]. There may also be other Midstream Program elements that you are aware of.

Midstream Program Factors

- The CenterPoint Energy instant discounts for equipment
- The spiff provided by CenterPoint Energy for each piece of equipment submitted through the program
- Training of staff and daily support for the CenterPoint Midstream program
- Promotional materials provided by CenterPoint Energy to support the Midstream program
- Information about the CenterPoint Energy Midstream program from CenterPoint Energy staff or the program implementer
- Information about the CenterPoint Energy Midstream program from your participating distributor

Thinking about your sales over the past year, on a scale of 0 to 10, where 0 means “Not at all influential” and 10 means “Extremely influential”, how influential were CenterPoint Energy Midstream program elements on your sales of program-incentivized [electric/natural gas] HVAC equipment?

Cadmus used the maximum program factor rating given by each participant to determine the participant’s program *influence* freeridership score. Cadmus weighted individual *influence* scores by their respective total survey sample *ex post* gross savings to arrive at savings-weighted average program *influence* scores by measure category. Cadmus then calculated the mean of the savings-weighted distributor and contractor estimates to arrive at the measure category–specific combined average program *influence* freeridership scores, presented in Table B-12.

**Table B-12. 2025 Home Energy Solutions Program Midstream Channel Program
Influence Freeridership Score**

Measure Category	Program Influence Freeridership Score		
	Distributor	Contractor	Combined Average
Electric HVAC Equipment	48%	20%	34%
Natural Gas HVAC Equipment	24%	33%	29%

Cadmus then calculated the arithmetic mean of the counterfactual sales *intention* and program *influence* freeridership components to estimate final freeridership by measure category, weighted by *ex post* gross program savings. The higher the freeridership score, the more savings are deducted from the gross savings estimates. Table B-13 summarizes the counterfactual sales *intention*, program *influence*, and overall freeridership scores for each measure category.

**Table B-13. 2025 Home Energy Solutions Midstream Channel Program Counterfactual Sales
Intention, Program Influence and Overall Freeridership Scores by Measure Category**

Measure Category	Counterfactual Sales Intention Freeridership Score	Program Influence Freeridership Score	Freeridership Score
Electric HVAC Equipment	84%	34%	59%
Natural Gas HVAC Equipment	76% ^a	29%	52%

^a True value is 75.5%.

B.1.3. Home Energy Assessments

Cadmus estimated freeridership and spillover for the Home Energy Assessments (HEA) channel of the 2025 Home Energy Solutions Program by applying NTG ratios estimated from participants surveys for the 2025 CenterPoint Energy Energy Efficiency Store Program, as a survey with HEA channel participants was not conducted in 2025. After including NTG estimates, the HEA channel resulted in an overall 88% NTG ratio. Table B-14 presents the freeridership, spillover, and NTG results for 2025. The overall program channel NTG ratio of 88% is weighted by the combination of electric and gas gross evaluated program population savings. The electric-specific NTG ratio of 89% presented is weighted specifically to electric savings due to the application of measure category level NTG estimates.

Table B-14. 2025 Home Energy Solutions Program HEA Channel Program Net-to-Gross Ratio

Measure Category	Freeridership	Spillover	NTG Ratio	Total Program Ex Post MMBTU Savings
Smart Thermostat	14%	0%	86%	784
Other	10%	0%	90%	5,171
Total Program	12%^a	0%^a	88%^a	5,955
Electric-Specific NTG			89%	784
Demand-Specific NTG			87%	0.11^b
Natural Gas-Specific NTG			87%	5,171

^a Weighted by evaluated *ex post* program population MMBtu savings

^b MMBTU/hour savings

B.1.4. In Store Discounts

Cadmus estimated NTG ratios for the In Store Discounts channel of the 2025 Home Energy Solutions Program by applying benchmarked NTG values from a recent 2025 Ameren Illinois NTG Recommendations report to the In Store Discounts channel measures.⁵⁴ Because of the In Store Discounts channel delivery type for point-of-purchase measures, a self-report survey-based NTG analysis was not possible for this evaluation. Cadmus used NTG values from recent Illinois utility evaluation reports for the In-Store Discount channel measures in 2025, selecting values from the 2025 Ameren Illinois NTG Recommendations document based on how closely the measures and delivery channels aligned with the In Store Discount channel. After including NTG estimates, the In Store Discounts channel resulted in an overall 79% NTG ratio. Table B-15 presents the NTG results for 2025. The overall program channel NTG ratio of 79% is weighted by the combination of electric and gas gross evaluated program population savings. The electric-specific NTG ratio of 78% presented is weighted specifically to electric savings due to the application of measure category level NTG estimates.

Table B-15. 2025 Home Energy Solutions Program In Store Discounts NTG Summary

Measure	NTG Ratio	Source	Ex Post Gross MMBtu Savings
Air Filter	69%	2025 AIC NTG Recommendations	137
Air Purifier	59%	2025 AIC NTG Recommendations	30
Bathroom Vent Fan	65%	2025 AIC NTG Recommendations	5
Dehumidifier	69%	2025 AIC NTG Recommendations	146
Door Sweep	80%	2025 AIC NTG Recommendations	1,839
ENERGY STAR Room AC	71%	2025 AIC NTG Recommendations	24
Pipe Insulation	80%	2025 AIC NTG Recommendations	2,151

⁵⁴ Ameren Illinois Company (2025). The Illinois Stakeholder Advisory Group (SAG) holds annual meetings to review recommended NTG values prepared by independent evaluators and reach agreement on NTG values for the next program year for Ameren Illinois. www.ilsag.info/wp-content/uploads/AIC-2025-NTGR-Recommendations-for-SAG-FINAL-2024-10-01.xlsx

Measure	NTG Ratio	Source	Ex Post Gross MMBtu Savings
Smart Power Strips	80%	2025 AIC NTG Recommendations	66
Spray Foam	80%	2025 AIC NTG Recommendations	25
Weatherstripping	80%	2025 AIC NTG Recommendations	18
Total Program	79%^a		4,440
Electric-Specific NTG	78%		2,618
Demand-Specific NTG	70%		0.10^b
Natural Gas-Specific NTG	80%		1,822

^a Weighted by evaluated *ex post* program population MMBtu savings

^b MMBTU/hour savings

B.2. Energy Efficiency Store Program

Cadmus calculated NTG for the Energy Efficiency Store Program using findings from a survey conducted with 205 program participants who answered the NTG questions. Table B-4 summarizes the freeridership, spillover, and NTG estimates by measure category. The overall program channel NTG ratio of 86% is weighted by the combination of electric and gas gross evaluated program population savings.

The electric-specific NTG ratio of 87% presented in Table B-16 is weighted specifically to electric savings due to the application of measure category-level NTG estimates. The overall NTG ratio is heavily weighted toward the natural gas-specific NTG estimate of 86% because *ex post* gross gas savings account for 88% of the total 2025 energy savings in the Energy Efficiency Store Program.

Table B-16. 2025 Energy Efficiency Store Net-to-Gross Ratio

Measure Category	Freeridership	Spillover	NTG Ratio	Total Program Ex Post MMBTU Savings
Smart Thermostat (n=180)	14%	0%	86%	13,135
Other (n=25)	10%	0%	90%	1,059
Total Program (n=205)^a	14%^b	0%^b	86%^b	14,194
Electric-Specific NTG			87%	1,653
Demand-Specific NTG			86%	0.26^c
Natural Gas-Specific NTG			86%	12,540

^a Not all respondents surveyed answered the freeridership and spillover questions.

^b Weighted by evaluated *ex post* program population MMBtu savings

^c MMBTU/hour savings

B.2.1. Detailed Freeridership Findings

Cadmus estimated freeridership by combining the standard self-report *intention* method and the *intention/influence* method.⁵⁵ Cadmus calculated the arithmetic mean of the savings-weighted *intention* and *influence* freeridership components to estimate measure category freeridership estimates, as shown in this equation:

$$\text{Final Freeridership \%} = \frac{\text{Intention FR Score}(0\% \text{ to } 100\%) + \text{Influence FR Score}(0\% \text{ to } 100\%)}{2}$$

Intention Freeridership Score

Cadmus estimated *intention* freeridership scores for all participants based on their responses to *intention*-focused freeridership questions. As part of previous CenterPoint Energy evaluations, Cadmus developed a transparent, straightforward matrix approach to assign a single score to each participant based on their objective responses. Determining *intention* freeridership estimates from a series of questions rather than using a single question helps to form a picture of the program's influence on the participant. Use of multiple questions also checks consistency.

Table B-17 illustrates how initial responses are translated into whether the response is "yes," "no," or "partially" indicative of freeridership (in parentheses). The value in brackets is the scoring decrement associated with each response option. Each participant freeridership score starts with 100%, which Cadmus then decrements based on their responses to the questions.

⁵⁵ *Intention* and *influence* freeridership scores both have a maximum of 100%.

Table B-17. 2025 Raw Survey Responses Translation to Intention Freeridership Scoring Matrix Terminology
Energy Efficiency Store Program and Scoring

Before you heard about the CenterPoint Energy Energy Efficiency Store, had you already planned to purchase the [MEASURE]?	C2. Would you most likely have purchased and installed the same type of [MEASURE_1] without the rebate or discount from CenterPoint Energy?	Now, try to think about what you would most likely have done if there was no rebate or discount offered by CenterPoint Energy. Would you most likely have chosen not to purchase the [MEASURE_1] or would you most likely have chosen to purchase a different type of [MEASURE_1]?	This next question is going to ask you about the efficiency of your [MEASURE]. In this case, efficiency refers to the energy savings associated with your [MEASURE]. More efficient means that the [MEASURE] reduces your energy usage and less efficient means that the [MEASURE] increases your energy usage. Without the rebate or discount from CenterPoint Energy, would you most likely have purchased and installed [If MEASURE_1≠LED lighting OR insulation: a] [MEASURE] that was just as energy efficient, less energy efficient or more energy efficient than what you purchased?	Without the rebate or discount from CenterPoint Energy, what kind of thermostat would you most likely have purchased and installed?	Would you most likely have purchased and installed the same quantity or a different quantity of [MEASURE]?	Thinking about timing, without the CenterPoint Energy rebate or discount, when would you most likely have purchased and installed the [MEASURE_1]?
Yes (Yes) [-0%]	Yes (Yes) [-0%]	I would have installed a different MEASURE (Yes) [-0%]	Just as efficient (Yes) [-0%]	A smart or learning thermostat (Yes) [-0%]	Yes, the same quantity (No) [-0%]	At the same time (No) [-0%]
No (No) [-50%]	No (No) [-25%]	I would have decided not to replace it (No) [-100%]	Less efficient (No) [-100%]	A Wi-Fi thermostat (non-learning) (Yes) [-0%]	No, would have installed fewer (Partial2) [-50%]	Within the same year (Partial2) [-50%]
DK/RF (Partial) [-25%]	DK/RF (Partial) [-0%]	DK/RF (Partial) [-25%]	More efficient (Yes) [-0%]	A programmable thermostat (No) [-100%]	No, would have installed more (No) [-0%]	One to two years out (No) [-100%]
			DK/RF (Partial) [-25%]	A manual thermostat (Yes) [-100%]	DK/RF (Partial) [-25%]	More than two years out (No) [-100%]
				Would not have installed a new thermostat (Yes) [-100%]		Never (No) [-100%]
				DK/RF (Partial) [-25%]		DK/RF (Partial) [-25%]

After assigning an *intention* freeridership score to every survey respondent, Cadmus weighted individual measure category-level *intention* scores by each participant's respective *ex post* gross savings associated with the total analysis sample to arrive at savings-weighted average measure category-level *intention* scores shown in Table B-18.

Table B-18. 2025 Energy Efficiency Store Program *Intention* Freeridership Score

Measure Category	Intention Freeridership Score
Smart Thermostat (n=180)	20%
Other (n=25)	16%

Influence *Freeridership* Score

Table B-19 shows the distribution of responses to the question: "Please rate the influence of the following program elements on your decision to purchase and install [the product]. Please use a scale from 1, meaning *not at all influential*, to 4, meaning the item was *very influential* to your decisions." Cadmus assessed *influence* freeridership from participants' ratings of how important various program elements were in their decision to purchase energy-efficient products.

**Table B-19. 2025 Energy Efficiency Store Program Freeridership *Influence*
Responses by Measure Category (n=205)**

Response Options	Influence Score	The CenterPoint Energy Program incentives		Information about energy efficient building practices that CenterPoint Energy provided		Previous participation in a CenterPoint Energy efficiency program	
		Smart Thermostat	Other	Smart Thermostat	Other	Smart Thermostat	Other
1 – Not at all influential	100%	3	1	12	2	21	2
2 – Not too influential	75%	2	0	27	0	20	2
3 – Somewhat influential	25%	32	4	72	11	43	28
4 - Very influential	0%	138	20	62	12	37	144
Don't know	50%	3	0	4	0	12	0
Not applicable	50%	2	0	3	0	47	0
Average		3.7	3.7	3.1	3.3	2.8	3.8

Cadmus used the maximum rating given by each participant for any factor in Table B-19 to determine the participant's *influence* score, presented in Table B-20. Cadmus weighted individual *influence* scores by their respective total survey sample *ex post* gross savings to arrive at savings-weighted average *influence* scores by measure category.

Table B-20. 2025 Energy Efficiency Store Program *Influence* Freeridership Score (n=205)

Maximum Influence Rating	Influence Score	Smart Thermostat	Other
1 – Not at all important	100%	2	1
2 – Not too important	75%	2	0
3 – Somewhat important	25%	28	3
4 – Very important	0%	144	21
Don't Know	50%	4	0
Average Maximum Influence Rating - Simple Average		3.8	3.8
Average Influence Score - Weighted by <i>Ex Post</i> Savings		7%	3%

Cadmus then calculated the arithmetic mean of the *intention* and *influence* freeridership components to estimate final freeridership by measure category, weighted by *ex post* gross program savings. The higher the freeridership score, the more savings are deducted from the gross savings estimates. Table B-21 summarizes the *intention*, *influence*, and overall freeridership scores for each measure category.

Table B-21. 2025 Energy Efficiency Store Program *Intention*, *Influence* and Overall Freeridership Scores by Measure Category

Measure Category	n	<i>Intention</i> Score	<i>Influence</i> Score	Freeridership Score
Smart Thermostat	180	20%	7%	14%
Other	25	16%	3%	10%

B.2.2. Detailed Spillover Findings

Two participants reported installing a total of three high-efficiency measures after participating in the program. These respondents did not receive an incentive and said participation in the program was *very influential* to their decision to install additional measures. Cadmus attributed spillover savings to measures including a high-efficiency ENERGY STAR clothes washer, ENERGY STAR refrigerator, and a high-efficiency air purifier.

Cadmus used *ex post* savings estimated for the 2025 Home Energy Solutions Program evaluation in combination with the Indiana TRM v1.0 and Illinois TRM v13.0 to estimate savings for all spillover measures attributed to the program. Cadmus divided the total survey sample spillover savings for each measure category by the gross program savings from the survey sample to obtain the measure category spillover estimates rounded to the nearest whole percent, shown in Table B-22.

Table B-22. 2025 Energy Efficiency Store Program Spillover Estimates by Measure Category

Measure Category	Survey Sample Spillover MMBtu Savings	Survey Sample Program MMBtu Savings	Percentage Spillover Estimate
Smart Thermostat	1.4	1,072.6	0%
Other	0.0	13.7	0%

B.3. Residential New Construction Program

Cadmus calculated freeridership and spillover for the 2025 Residential New Construction Program as a whole using findings from a survey conducted with 12 program builder participants who answered the NTG questions. After including spillover, the program resulted in a 62% NTG ratio. Table B-23 presents the freeridership, spillover, and NTG results for the 2025 Residential New Construction Program.

Table B-23. 2025 Residential New Construction Program Net-to-Gross Ratio

Measure	Freeridership	Spillover	NTG Ratio
Total Program	38% ^a	0%	62%

^a Weighted by evaluated *ex post* program MMBtu savings

B.3.1. Detailed Freeridership Findings

Intention Freeridership Score

Cadmus estimated *intention* freeridership scores for all participants based on their responses to the *intention*-focused freeridership questions. Table B-24 illustrates how responses are translated into *intention* freeridership scores. The *intention* freeridership question response options are shown in bold text, and the value in brackets is the *intention* scoring treatment associated with each response option. Each measure-level *intention* freeridership score starts at 100%, which Cadmus reduces based on responses to the questions.

Table B-24. 2025 Raw Survey Responses Translation to *Intention* Freeridership Scoring Matrix Terminology - Residential New Construction Program and Scoring

E7. Which program qualifying equipment would you still have purchased and installed even if incentives and assistance from CenterPoint Energy had not existed?	E8. [SHOW IF E7= YES FOR ANY OF 1-6] Of the program homes that received the program qualifying equipment, what percentage of the program homes would you have installed the same equipment if the incentives and assistance from CenterPoint Energy had not existed?
1. Central AC (14 SEER/13.4 SEER2) – Yes [No scoring treatment, ask E7] / No [0% <i>Intention</i> FR assigned]	Central AC (14 SEER/13.4 SEER2) – [Recorded % = <i>Intention</i> FR score]
2. Heat Pump (13 SEER or higher/12.4 SEER2 or higher – Yes [No scoring treatment, ask E7] / No [0% <i>Intention</i> FR assigned]	Heat Pump (13 SEER or higher/12.4 SEER2 or higher – [Recorded % = <i>Intention</i> FR score]
3. Gas Furnace (95% or higher) – Yes [No scoring treatment, ask E7] / No [0% <i>Intention</i> FR assigned]	Gas Furnace (95% or higher) – [Recorded % = <i>Intention</i> FR score]
4. Gas Water Heater – Storage $\geq$ 0.64 UEF – Yes [No scoring treatment, ask E7] / No [0% <i>Intention</i> FR assigned]	Gas Water Heater – Storage $\geq$ 0.64 UEF – [Recorded % = <i>Intention</i> FR score]
5. Gas Tankless Water Heater – Yes [No scoring treatment, ask E7] / No [0% <i>Intention</i> FR assigned]	Gas Tankless Water Heater – [Recorded % = <i>Intention</i> FR score]
6. Smart Thermostat – Yes [No scoring treatment, ask E7] / No [0% <i>Intention</i> FR assigned]	Smart Thermostat – [Recorded % = <i>Intention</i> FR score]
7. We would not have purchased any of the qualifying equipment if the incentives and assistance from CenterPoint Energy had not existed – No [0% <i>Intention</i> FR assigned to all equipment]	

After assigning an *intention* freeridership score to every survey respondents' measures, Cadmus weighted individual measure-level *intention* scores by each participant's respective *ex post* gross savings associated with the total analysis sample to arrive at savings-weighted average measure-level *intention* scores shown in Table B-25 for Residential New Construction Program builder participants. Cadmus weighted the measure-level *intention* scores by *ex post* gross population savings to arrive at a total program *intention* score of 76% for the Residential New Construction Program.

Table B-25. 2025 Residential New Construction Program *Intention* Freeridership Score

Measure	Measure Specific Responses / Scores (n)	<i>Influence</i> Freeridership Score	<i>Ex Post</i> Gross Population MMBtu Savings
Central AC (14 SEER/13.4 SEER2)	3	100%	62.7
Gas Furnace (95% or higher)	7	92%	22,147.2
Gas Water Heater – Storage 0.64 UEF	3	52%	552.4
Gas Tankless Water Heater	6	100%	407.4
Smart Thermostat	4	100%	8,205.0
Builder Option Package (BOP) incentive	7	26%	10,686.2
Total Program	30	76%	42,060.8

Influence Freeridership Score

Table B-26 shows the distribution of responses to the *influence* question: "Please rate each item on how influential it was on your decision to build homes with equipment that meets the CenterPoint Residential New Construction program standards during 2025. Please use a scale from 1, meaning "not at all influential", to 4, meaning the item was "very influential" to your decisions." Cadmus assessed *influence* freeridership from builder participants' ratings of the relative importance of various program elements in their purchasing decisions.

Table B-26. 2025 Residential New Construction Program Freeridership *Influence* Responses (n=12)

Question F9 Response Options	<i>Influence Score</i>	The CenterPoint Energy program incentives	CenterPoint Energy's program marketing	Information about energy efficient building practices that CenterPoint Energy provided	Obtaining information from HERS rater who rate homes	Previous participation in a CenterPoint Energy efficiency program
1 – Not at all influential	100%	0	2	1	2	0
2 – Not too influential	75%	1	4	3	0	0
3 – Somewhat influential	25%	4	4	5	3	4
4 - Very influential	0%	7	1	2	6	7
Don't know	50%	0	1	1	1	1
Average		3.5	2.4	2.7	3.2	3.6

Cadmus used the maximum rating given by each participant for any factor in Table B-26 to determine the participant's influence score presented in Table B-27.

Table B-27. 2025 Residential New Construction Program Max *Influence* Ratings (n=12)

Maximum <i>Influence</i> Rating	<i>Influence Score</i>	Count ^a
1 – Not at all important	100%	0
2 – Not too important	75%	0
3 – Somewhat important	25%	0
4 - Very important	0%	12
Average Maximum <i>Influence</i> Rating - Simple Average		4.0

^a Refers to the number of responses for each factor/*influence* score response option.

Cadmus weighted individual *influence* scores by each participant's respective *ex post* gross savings associated with the total survey sample to arrive at a savings-weighted average measure-level *influence* scores shown in Table B-28 for Residential New Construction Program builder participants. Cadmus weighted the measure-level *influence* scores by *ex post* gross population savings to arrive at a total program *influence* score of 0%.

Table B-28. 2025 Residential New Construction Program *Influence* Freeridership Score

Measure	<i>Influence</i> Freeridership Score	<i>Ex Post</i> Gross Population MMBtu Savings
Central AC (14 SEER/13.4 SEER2)	0%	62.7
Gas Furnace (95% or higher)	0%	22,147.2
Gas Water Heater – Storage 0.64 UEF	0%	552.4
Gas Tankless Water Heater	0%	407.4
Smart Thermostat	0%	8,205.0
Builder Option Package (BOP) incentive	0%	10,686.2
Total Program	0%	42,060.8

Final Freeridership Score

Cadmus calculated the arithmetic mean of the gross population MMBtu savings-weighted measure-level *intention* and *influence* freeridership components to estimate a final freeridership value of 38%, weighted by *ex post* gross program savings.⁵⁶ The higher the freeridership score, the more savings are deducted from the gross savings estimates. Table B-29 presents the *intention*, *influence*, and freeridership scores for the Residential New Construction Program.

Table B-29. 2025 Residential New Construction Program *Intention/Influence* Freeridership Score

Measure	Measure Specific Responses (n)	<i>Intention</i> Freeridership Score	<i>Influence</i> Freeridership Score	Final Freeridership Ratio	Gross Population MMBtu Savings
Central AC (14 SEER/13.4 SEER2)	3	100%	0%	50%	62.7
Gas Furnace (95% or higher)	7	92%	0%	46%	22,147.2
Gas Water Heater – Storage 0.64 UEF	3	52%	0%	26%	552.4
Gas Tankless Water Heater	6	100%	0%	50%	407.4
Smart Thermostat	4	100%	0%	50%	8,205.0
Builder Option Package (BOP) incentive	7	26%	0%	13%	10,686.2
Total Program	30	76%	0%	38%	42,060.8

B.3.2. Detailed Spillover Findings

None of the surveyed builder participants reported that, after participating in the program, they had installed additional high-efficiency equipment for which they did not receive an incentive and that

⁵⁶ None of the surveyed builders completed heat pump measures through the program. Heat pump measures represented 0.10% of the 2025 evaluated gross population MMBtu saving.

participation in the program was very important in their decision. Therefore, no spillover is attributed to the program.

B.4. Commercial and Industrial Prescriptive Program

Cadmus calculated freeridership and spillover for the C&I Prescriptive Program using findings from a survey conducted with 20 program participants. After including spillover, the program's NTG ratio was 21%. Table B-30 presents the freeridership, spillover, and NTG results for the 2025 C&I Prescriptive Program.

Table B-30. 2025 Commercial and Industrial Prescriptive Program Net-to-Gross Ratio

Measure	Freeridership	Spillover	NTG Ratio
Total Program	21% ^a	0%	79%

^a Weighted by evaluated *ex post* program MMBtu savings.

B.4.1. Detailed Freeridership Findings

Intention Freeridership Score

Cadmus estimated *intention* freeridership scores for all participants based on their responses to the intention-focused freeridership questions. Table B-31 illustrates how initial responses were translated into "yes," "no," or "partially" to indicate freeridership (in parentheses). The value in brackets is the scoring decrement associated with each response option. Each participant's freeridership score starts at 100%, which Cadmus then decrements based on the responses to the questions. After assigning an *intention* freeridership score to every survey respondent, Cadmus calculated a savings-weighted average *intention* freeridership score of 40% for the program.

Table B-31. 2025 Raw Survey Responses Translation to *Intention* Freeridership Scoring Matrix Terminology - Commercial and Industrial Prescriptive Program and Scoring

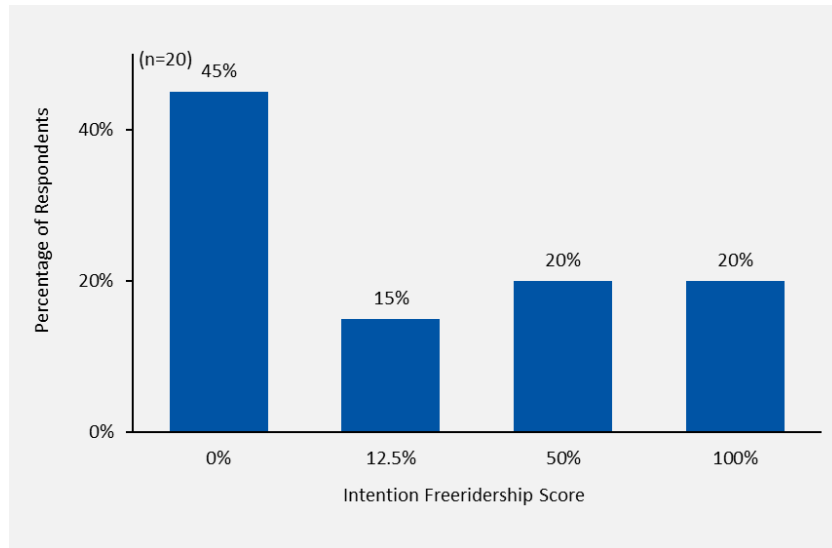
[IF SERVICE=0] BEFORE learning about CenterPoint Energy's Commercial Prescriptive Program, did your organization plan on installing the energy efficient [MEASURE_FINAL] over a less energy efficient option? [IF SERVICE=1] Did your organization have specific plans to have the [MEASURE_FINAL] performed BEFORE learning about the CenterPoint Energy's Commercial Prescriptive Program?	[IF SERVICE=0] Had you already purchased or installed the new [MEASURE_FINAL] before you learned about the program? [IF SERVICE=1] Had your organization ALREADY ordered or completed the [MEASURE_FINAL] services BEFORE your organization heard about the CenterPoint Energy's Commercial Prescriptive Program?	[IF SERVICE=0] Just to be clear, is it correct that you installed the [MEASURE_FINAL] BEFORE you heard anything about the CenterPoint Energy program? [IF SERVICE=1] Just to be clear, is it correct that the [MEASURE_FINAL] was completed before you heard anything about the CenterPoint Energy program?	[IF SERVICE=0] Without the rebate and information or education from CenterPoint Energy, would you most likely have installed a [MEASURE_FINAL] that (was/were) just as energy-efficient, less energy efficient, or more energy efficient than what you purchased?? [IF SERVICE=1] Without the rebate and information or education from CenterPoint Energy, would you most likely have purchased services that produced as much energy efficiency as the [MEASURE_FINAL] that you did purchase?	Without the rebate and information or education from CenterPoint Energy, would you most likely have [IF SERVICE=0, "installed", ELSE "completed"] the same amount of [MEASURE_FINAL] as what you purchased?	[IF SERVICE=0] Without the rebate and information or education from CenterPoint Energy, when would you most likely have installed the [MEASURE_FINAL]? [IF SERVICE=1] Without the incentive for the [MEASURE_FINAL] and information or education from CenterPoint Energy, when would you most likely have had the [MEASURE_FINAL] performed?	Did the rebate from CenterPoint Energy help the [MEASURE_FINAL] project receive implementation approval from your organization?	[IF SERVICE=0] Prior to learning about the Commercial Prescriptive Program, was the purchase and installation of the [MEASURE_FINAL] included in your organization's capital budget? [IF SERVICE=1] Prior to learning about the Commercial Prescriptive Program, was the purchase of [MEASURE_FINAL] services included in your organization's capital budget?
Yes (Yes) [-0%]	Yes (Yes) [-0%]	Yes, that is correct (Yes) [100% Intention FR Assigned]	Yes, just as energy-efficient (Yes) [-0%]	Yes, same amount (Yes) [-0%]	Within the same year (Yes) [-0%]	Yes (No) [-50%]	Yes (Yes) [-0%]
No (No) [-50%]	No (No) [-0%]	No, that's not correct (No) [-0%]	No, less energy efficient (No) [-100%]	No, lower amount (Partial2) [-50%]	Within one to two years (Partial2) [-50%]	No (Yes) [-0%]	No (No) [-50%]
DK/RF (Partial) [-25%]	DK/RF (No) [-0%]	DK/RF (No) [-0%]	No, more energy efficient (Yes) [-0%]	No, higher amount (Yes) [-0%]	Within three to five years (No) [-100%]	DK/RF (Partial) [-25%]	DK/RF (Partial) [-25%]
			DK/RF (Partial) [-25%]	Would not have installed/complete	In more than five years (No) [-100%]		

[IF SERVICE=0] BEFORE learning about CenterPoint Energy's Commercial Prescriptive Program, did your organization plan on installing the energy efficient [MEASURE_FINAL] over a less energy efficient option? [IF SERVICE=1] Did your organization have specific plans to have the [MEASURE_FINAL] performed BEFORE learning about the CenterPoint Energy's Commercial Prescriptive Program?	[IF SERVICE=0] Had you already purchased or installed the new [MEASURE_FINAL] before you learned about the program? [IF SERVICE=1] Had your organization ALREADY ordered or completed the [MEASURE_FINAL] services BEFORE your organization heard about the CenterPoint Energy's Commercial Prescriptive Program?	[IF SERVICE=0] Just to be clear, is it correct that you installed the [MEASURE_FINAL] BEFORE you heard anything about the CenterPoint Energy program? [IF SERVICE=1] Just to be clear, is it correct that the [MEASURE_FINAL] was completed before you heard anything about the CenterPoint Energy program?	[IF SERVICE=0] Without the rebate and information or education from CenterPoint Energy, would you most likely have installed a [MEASURE_FINAL] that (was/were) just as energy-efficient, less energy efficient, or more energy efficient than what you purchased?? [IF SERVICE=1] Without the rebate and information or education from CenterPoint Energy, would you most likely have purchased services that produced as much energy efficiency as the [MEASURE_FINAL] that you did purchase?	Without the rebate and information or education from CenterPoint Energy, would you most likely have [IF SERVICE=0, "installed", ELSE "completed"] the same amount of [MEASURE_FINAL] as what you purchased?	[IF SERVICE=0] Without the rebate and information or education from CenterPoint Energy, when would you most likely have installed the [MEASURE_FINAL]? [IF SERVICE=1] Without the incentive for the [MEASURE_FINAL] and information or education from CenterPoint Energy, when would you most likely have had the [MEASURE_FINAL] performed?	Did the rebate from CenterPoint Energy help the [MEASURE_FINAL] project receive implementation approval from your organization?	[IF SERVICE=0] Prior to learning about the Commercial Prescriptive Program, was the purchase and installation of the [MEASURE_FINAL] included in your organization's capital budget? [IF SERVICE=1] Prior to learning about the Commercial Prescriptive Program, was the purchase of [MEASURE_FINAL] services included in your organization's capital budget?
				d anything at all (No) [-100%]			
				DK/RF (Partial) [-25%]	Never (No) [-100%]		
					DK/RF (Partial) [-25%]		

DK = don't know; RF = refused

Figure B-1 shows the distribution of *intention* freeridership estimates Cadmus assigned to participant responses to the pure intention-based freeridership method.

Figure B-1. 2025 Commercial and Industrial Prescriptive Program Self-Report
Intention Freeridership Distribution by Estimate



Influence Freeridership Score

Table B-32 shows the distribution of responses to the *influence* question: "Please rate each item on how important it was to your decision to complete the [MEASURE] project the way it was done. Please use a scale from 1, meaning *not at all important*, to 4, meaning the item was *very important* to your decisions." Cadmus assessed *influence* freeridership from participants' ratings to the relative importance of various program elements in their purchasing decisions, as shown in Table B-32.

**Table B-32. 2025 Commercial and Industrial Prescriptive Program
Freeridership *Influence* Responses (n=20)**

Response Options	<i>Influence</i> Score	CenterPoint Energy or Implementer staff	Rebates for the equipment	Information about energy efficiency provided by CenterPoint Energy	Information about energy efficiency from my contractor	Previous participation in a CenterPoint Energy efficiency program
1 – Not at all important	100%	4	1	3	3	3
2 – Not too important	75%	2	2	3	3	0
3 – Somewhat important	25%	1	4	4	4	3
4 - Very important	0%	6	12	5	6	5
Don't Know	50%	6	1	5	4	9
Not Applicable	50%	1	0	0	0	0
Average		2.7	3.4	2.7	2.8	2.9

Cadmus used the maximum rating given by each participant for any factor in Table B-32 to determine the participant's *influence* score presented in Table B-33. Cadmus weighted individual *influence* scores by each participant's respective total survey sample *ex post* gross savings to arrive at a savings-weighted average *influence* score of 2% for C&I Prescriptive Program participants.

**Table B-33. 2025 Commercial and Industrial Prescriptive Program
Influence Freeridership Score (n=20)**

Maximum <i>Influence</i> Rating	<i>Influence</i> Score	Count ^a	Total Survey Sample <i>Ex Post</i> MMBtu Savings	<i>Influence</i> Score MMBtu Savings
1 – Not at all important	100%	0	0	0
2 – Not too important	75%	1	14	10
3 – Somewhat important	25%	2	59	15
4 - Very important	0%	16	3,076	0
Don't Know	50%	1	48	24
Average Maximum <i>Influence</i> Rating - Simple Average		3.8		
Average <i>Influence</i> Score - Weighted by <i>Ex Post</i> Savings		2%		

^a Refers to the number of responses for each factor/*influence* score response option.

Final Freeridership Score

Cadmus calculated the arithmetic mean of the *intention* and *influence* freeridership components to estimate a final freeridership value of 21%, weighted by *ex post* gross program savings. The higher the freeridership score, the more savings are deducted from the gross savings estimates. Table B-34 presents the *intention*, *influence*, and freeridership scores for the C&I Prescriptive Program.

**Table B-34. 2025 Commercial and Industrial Prescriptive Program
Intention/Influence Freeridership Score**

n	Intention Score	Influence Score	Freeridership Score
20	40%	2%	21%

B.4.2. Detailed Spillover Findings

None of the interviewed participants reported that, after participating in the program, they had installed additional high-efficiency equipment for which they did not receive an incentive and that participation in the program was very important in their decision. Therefore, no spillover is attributed to the program.

B.5. Commercial and Industrial Custom Program

Cadmus calculated freeridership and spillover for the C&I Custom Program as a whole using findings from a survey conducted with 10 program participants. After including spillover, the program achieved a 82% NTG ratio.

Table B-35 presents the freeridership, spillover, and NTG results for the 2025 C&I Custom Program.

Table B-35. 2025 Commercial and Industrial Custom Program Net-to-Gross Ratio

Measure	Freeridership	Spillover	NTG Ratio
Total Program	18% ^a	0%	82%

^a Weighted by evaluated *ex post* program MMBtu savings

B.5.1. Detailed Freeridership Findings

Intention Freeridership Score

Cadmus estimated *intention* freeridership scores for the program based on surveyed participants' responses to the *intention*-focused freeridership questions. Table B-36 illustrates how initial responses are translated into "yes," "no," or "partially" indicative of freeridership (in parentheses). The value in brackets is the scoring decrement associated with each response option. Each participant freeridership score starts with 100%, which Cadmus then decrements based on responses to the questions. After assigning an *intention* freeridership score to every survey respondent, Cadmus calculated a savings-weighted average *intention* freeridership score of 35% for the program.

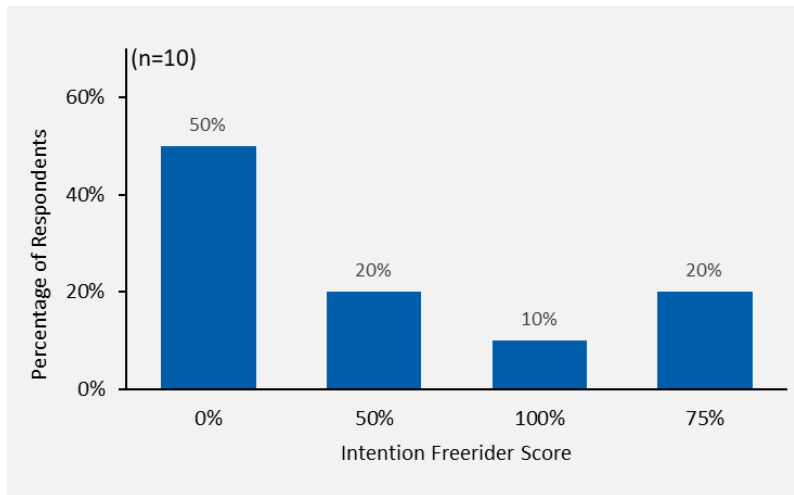
Table B-36. 2025 Raw Survey Responses Translation to Intention Freeridership Scoring Matrix Terminology - C&I Custom Program and Scoring

BEFORE learning about CenterPoint Energy's Commercial Custom Program, did your organization plan on installing the energy efficient [MEASURE] over a less energy-efficient option?	Had you already purchased or installed the new [MEASURE_FINAL] before you learned about the program?	Just to be clear, you installed the [MEASURE_FINAL] BEFORE you heard anything about the CenterPoint Energy program, correct?	Without the rebate and information or education from CenterPoint Energy, would you most likely have installed a [MEASURE_FINAL] that (was/were) just as energy-efficient, less energy efficient, or more energy efficient than what you purchased?	Without the rebate and information or education from CenterPoint Energy, would you most likely have installed the same quantity of [MEASURE_FINAL] as what you purchased?	Without the CenterPoint Energy program and rebates, would you have installed the [MEASURE_FINAL]	Did the incentive help the [MEASURE_FINAL] project receive implementation approval from your organization?	Prior to learning about the Commercial Custom Program, was the purchase and installation of the [MEASURE_FINAL] included in your organization's capital budget?
Yes (Yes) [-0%]	Yes (Yes) [-0%]	Yes, that is correct (Yes) [100% Intention FR Assigned]	Just as energy-efficient (Yes) [-0%]	Yes, same quantity (Yes) [-0%]	Within the same year? (Yes) [-0%]	Yes (No) [-50%]	Yes (Yes) [-0%]
No (No) [-50%]	No (No) [-0%]	No, that's not correct (No) [-0%]	Less energy efficient (No) [-100%]	No, I would have installed less (Partial2) [-50%]	Within one to two years? (Partial2) [-50%]	No (Yes) [-0%]	No (No) [-50%]
DK/NA (Partial) [-25%]	DK/NA (No) [-0%]	DK/NA (No) [-0%]	More energy efficient (Yes) [-0%]	No, I would have installed more (Yes) [-0%]	Within three to five years? (No) [-100%]	DK/NA (Partial) [-25%]	DK/NA (Partial) [-25%]
			DK/NA (Partial) [-25%]	Would not have installed anything at all (no) [-100%]	In more than five years? (No) [-100%]		
				DK/NA (Partial) [-25%]	DK/NA (Partial) [-25%]		

DK = don't know; RF = refused

Figure B-2 shows the distribution of *intention* freeridership estimates Cadmus assigned to participant responses using the pure *intention*-based freeridership method.

**Figure B-2. 2025 C&I Custom Program Self-Report
Intention Freeridership Distribution by Estimate**



Influence Freeridership Score

Table B-37 shows the distribution of responses to the *influence* question: "Please rate each item on how influential it was to your decision to complete the project the way it was done. Please use a scale from 1, meaning *not at all influential*, to 4, meaning the item was *very influential* to your decisions." Cadmus assessed *influence* freeridership from participants' ratings of the relative importance of various program elements in their purchasing decisions.

Table B-37. 2025 C&I Custom Program Freeridership *Influence* Responses (n=10)

Question F9 Response Options	Influence Score	CenterPoint Energy or implementer staff	Rebates for the equipment	Information about energy efficiency provided by CenterPoint Energy	Information about energy efficiency from program staff or my contractor	Previous participation in a CenterPoint Energy energy efficiency program
1 – Not at all influential	100%	1	0	0	1	0
2 – Not too influential	75%	1	0	1	1	0
3 – Somewhat influential	25%	1	4	2	4	1
4 - Very influential	0%	5	6	5	4	7
Don't Know	50%	0	0	0	0	0
Not Applicable	50%	2	0	2	0	2
Average		3.3	3.6	3.5	3.1	3.9

Cadmus used the maximum rating given by each participant for any factor in Table B-37 to determine the participant's *influence* score presented in Table B-38. Cadmus weighted individual *influence* scores by each participant's respective *ex post* gross savings associated with the total survey sample to arrive at a savings-weighted average *influence* score of 0% for C&I Custom Program participants.

Table B-38. 2025 C&I Custom Program *Influence* Freeridership Score (n=10)

Maximum <i>Influence</i> Rating	<i>Influence</i> Score	Count ^a	Total Survey Sample <i>Ex Post</i> MMBtu Savings	<i>Influence</i> Score MMBtu Savings
1 – Not at all influential	100%	0	0	0
2 – Not too influential	75%	0	0	0
3 – Somewhat influential	25%	1	227	57
4 – Very influential	0%	9	17,878	0
Average Maximum <i>Influence</i> Rating - Simple Average		3.9		
Average <i>Influence</i> Score - Weighted by <i>Ex Post</i> Savings			0%	

^a Refers to the number of responses for each factor/*influence* score response option.

Final Freeridership Score

Cadmus calculated the arithmetic mean of the *intention* and *influence* freeridership components to estimate a final freeridership value of 18%, weighted by *ex post* gross program savings. The higher the freeridership score, the more savings are deducted from the gross savings estimates. Table B-39 presents the *intention*, *influence*, and freeridership scores for the C&I Custom Program.

Table B-39. 2025 C&I Custom Program *Intention/Influence* Freeridership Score

n	<i>Intention</i> Score	<i>Influence</i> Score	Freeridership Score
10	35%	0%	18%

B.5.2. Detailed Spillover Findings

None of the surveyed participants reported that after participating in the program they had installed additional high-efficiency equipment for which they did not receive an incentive and that participation in the program was very important in their decision. Therefore, no spillover is attributed to the program.

B.6. Small Business Energy Solutions Program

Cadmus calculated freeridership and spillover for the Small Business Energy Solutions (SBES) Program using findings from a survey conducted with nine program participants. Table B-40 presents the NTG results for the program.

Table B-40. 2025 Small Business Energy Solutions Net-to-Gross Ratio

Measure	Freeridership	Spillover	NTG Ratio
Total Program	4%	0%	96%

B.6.1. Detailed Freeridership Findings

Cadmus estimated freeridership by combining two methods used in prior evaluations—the standard self-report *intention* method and the *intention/influence* method.⁵⁷ Cadmus calculated the arithmetic mean of the savings-weighted *intention* and *influence* freeridership components to estimate measure category freeridership,⁵⁸ as shown in this equation:

$$\text{Final Freeridership \%} = \frac{\text{Intention FR Score(0\% to 100\%)} + \text{Influence FR Score(0\% to 100\%)}}{2}$$

Intention Freeridership Score

Cadmus estimated *intention* freeridership scores for all participants based on their responses to *intention*-focused freeridership questions. Table B-41 illustrates how initial responses are translated into “yes,” “no,” or “partially” responses indicative of freeridership (in parentheses). The value in brackets is the scoring decrement associated with each response option. Each participant’s freeridership score starts with 100%, which Cadmus decrements based on the participant’s response to the questions. After assigning an *intention* freeridership score to every survey respondent, Cadmus calculated a savings-weighted average *intention* freeridership score of 7% for the program.

⁵⁷ *Intention* and *influence* freeridership scores both have a maximum of 100%.

⁵⁸ *Ex post* gross program savings.

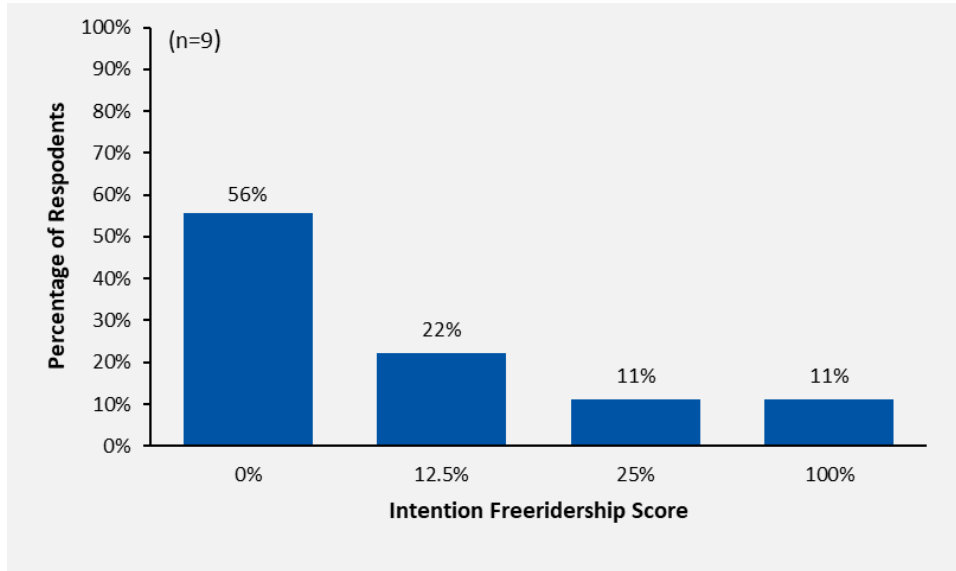
Table B-41. 2025 Raw Survey Responses Translation to *Intention* Freeridership Scoring Matrix Terminology - Small Business Energy Solutions Program and Scoring

[IF SERVICE=0] BEFORE learning about the Small Business Energy Solutions program, did your organization plan on installing the energy efficient [MEASURE] over a less efficient option? [IF SERVICE=1] Did your organization have specific plans to have the [MEASURE_FINAL] performed BEFORE learning about the CenterPoint Energy's Business Rebate Program?	Would you most likely have [IF SERVICE=0, "installed", ELSE "performed"] the same [MEASURE] if [IF SERVICE=0, "the equipment", ELSE "it"] had not been recommended to you in the Small Business Energy Solutions assessment report?	Would you most likely have [IF SERVICE=0, "installed", ELSE "performed"] the same [MEASURE] without the instant discount?	[IF SERVICE=0] Without the instant discount and information or education from CenterPoint Energy, would you most likely have installed a [MEASURE_FINAL] that (was/were) just as energy-efficient, less energy efficient, or more energy efficient than what you purchased? [IF SERVICE=1] Without the instant discount and information or education from CenterPoint Energy, would you most likely have purchased services that produced as much energy efficiency as the [MEASURE_FINAL] that you did purchase?	Without the Small Business Energy Solutions program, would you most likely have [IF SERVICE=0, "installed", ELSE "completed"] the same amount of [MEASURE_FINAL](s)?	Without the Small Business Energy Solutions program, when would you most likely have [IF SERVICE=0, "installed", ELSE "completed"] the [MEASURE]?	Prior to learning about the Small Business Energy Solutions program, was the purchase and [IF SERVICE=0, "installation", ELSE "completion"] of the [MEASURE] included in your organization's most recent capital budget?
Yes (Yes) [-0%]	Yes (Yes) [-0%]	Yes (Yes) [-0%]	Just as energy efficient (Yes) [-0%]	Yes, same quantity (Yes) [-0%]	At the same time (Yes) [-0%]	Yes (Yes) [-0%]
No (No) [-50%]	No (No) [-25%]	No (No) [-25%]	Less energy efficient (No) [-100%]	No, I would have installed less (Partial2) [-50%]	Later but within the same year (Partial2) [-50%]	No (No) [-50%]
DK/RF (Partial) [-25%]	DK/RF (No) [-0%]	DK/RF (No) [-0%]	No, more energy efficient (Yes) [-0%]	No, I would have installed more (Yes) [-0%]	Within one to two years (No) [-100%]	DK/RF (Partial) [-25%]
			DK/RF (Partial) [-25%]	DK/RF (Partial) [-25%]	Within three to five years (No) [-100%]	
					In more than five years (No) [-100%]	
					DK/RF (Partial) [-25%]	

DK = don't know; RF = refused

Figure B-3 shows the distribution of *intention* freeridership estimates Cadmus assigned to participant responses to the pure *intention*-based freeridership method.

**Figure B-3. 2025 Small Business Energy Solutions Program Self-Report
Intention Freeridership Distribution by Estimate**



Influence Freeridership Score

Table B-42 shows the distribution of responses to the *influence* freeridership question: "Please rate each item on how influential it was to your decision to complete the project the way it was done. Please use a scale from 1, meaning *not at all influential*, to 4, meaning the item was *very influential* to your decisions." Cadmus assessed *influence* freeridership from participants' ratings of the relative importance of various program elements in their purchasing decisions.

**Table B-42. 2025 Small Business Energy Solutions Program Freeridership
Influence Responses (n=9)**

Response Options	Influence Score	CenterPoint Energy staff or contractor	Instant discounts for the equipment or service	Information about energy efficiency that CenterPoint Energy provided	The recommendations or information provided during the no cost energy assessment	Previous participation in a CenterPoint Energy energy efficiency program
1 – Not at all influential	100%	0	0	0	0	0
2 – Not too influential	75%	1	0	0	1	0
3 – Somewhat influential	25%	0	1	1	2	1
4 – Very influential	0%	6	8	6	4	6
Don't Know	50%	1	0	1	1	0
Not Applicable	50%	1	0	1	1	2
Average		3.7	3.9	3.9	3.4	3.9

Cadmus used the maximum rating given by each participant for any factor in Table B-42 to determine their *influence* freeridership score presented in Table B-43. The counts refer to the number of responses for each factor/*influence* freeridership score response option. Cadmus weighted individual *influence* freeridership scores by their respective total survey sample *ex post* gross savings to arrive at a savings-weighted average *influence* freeridership score of 0% for SBES Program participants.

Table B-43. 2025 Small Business Energy Solutions Program Influence Freeridership Score (n=9)

Maximum Influence Rating	Influence Score	Count	Total Survey Sample Ex Post MMBtu Savings	Influence Score MMBtu Savings
1 – Not at all influential	100%	0	0	0
2 – Not too influential	75%	0	0	0
3 – Somewhat influential	25%	0	0	0
4 – Very influential	0%	9	545	0
Not Applicable	50%	0	0	0
Average Maximum Influence Rating - Simple Average	4.0			
Average Influence Score - Weighted by Ex Post Savings			0%	

Final Freeridership Score

Cadmus calculated the arithmetic mean of the *intention* and *influence* freeridership components to estimate a final freeridership value of 4%, weighted by *ex post* gross program savings. The higher the freeridership score, the more savings are deducted from the gross savings estimates. Table B-44 summarizes the *intention*, *influence*, and freeridership scores for the SBES Program.

Table B-44. 2025 Small Business Energy Solutions Program *Intention/Influence* Freeridership Score

n	<i>Intention</i> Score	<i>Influence</i> Score	Freeridership Score
9	7%	0%	4%

B.6.2. Detailed Spillover Findings

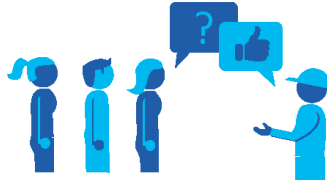
None of the interviewed participants reported that, after participating in the program, they had installed additional high-efficiency equipment for which they did not receive an incentive and that participation in the program was very important in their decision. Therefore, no spillover is attributed to the program.

Appendix C. Market Performance Indicators

The primary objective of the market performance indicators was to assess changes in the activities and key performance indicators (KPIs) for the demand-side management (DSM) programs in CenterPoint Energy's Indiana territory. During interviews and surveys, Cadmus asked program staff, trade allies, and participants about fundamental shifts in the energy marketplace (market transformation) and current market practices. Their responses to the market performance indicator questions informed updates to program logic models.

The main objective of updating the logic models was to develop an understanding of each program and define its underlying theory and assumptions. The logic models include market actors, market barriers uncovered by the evaluation, current and expected intervention strategies and activities, and the expected outcomes if current program intervention strategies were implemented.

C.1. Home Energy Solutions Program

HOME ENERGY SOLUTIONS PROGRAM RESIDENTIAL PRESCRIPTIVE HOME ENERGY ASSESSMENTS AND IN-STORE DISCOUNTS CHANNELS			
Market Actor	End-Use Customer	Residential Customers	
Market Barriers	<ul style="list-style-type: none"> Higher upfront costs for efficient equipment Energy-efficiency home upgrades are low priority Customer perception of application process as a hassle 	<ul style="list-style-type: none"> Lack of customer knowledge about efficiency of existing equipment Lack of awareness about monetary and other benefits of high-efficiency equipment Lack of program awareness Customer uncertainty about which energy efficiency claims to trust 	
Intervention Strategies / Activities	<ul style="list-style-type: none"> Program information, eligibility requirements, and educational content available on CenterPoint Energy's website and provided to retailers Program marketing (mailings and digital) 	<ul style="list-style-type: none"> Rebates for energy-efficient products Incentives for equipment tune-up provide a low-cost option to increase efficiency and receive expert assessment of existing equipment In-home assessments offer direct installation and customer education 	<ul style="list-style-type: none"> Multiple methods available for rebate submission, including mail, online, and in-store applications Marketing campaigns coordinated with trade allies Clear equipment and eligibility criteria
Outcomes	<ul style="list-style-type: none"> Increased program awareness Increased participation Increased installations of high-efficiency equipment 	<ul style="list-style-type: none"> Increased availability of high-efficiency equipment through distribution and retail channels Increased knowledge of benefits of high-efficiency equipment 	<ul style="list-style-type: none"> Increased customer satisfaction Reduced energy use 
Key Indicators		<ul style="list-style-type: none"> Likelihood to recommend rating Achievement of program participation and savings goals 	<ul style="list-style-type: none"> Customer familiarity with marketing materials Program satisfaction rating
Market Actor	Trade Allies	Retailers and Installation Contractors	
Market Barriers	<ul style="list-style-type: none"> Trade ally perception of application process as a hassle Perceived risk of carrying upfront cost of instant discount 	<ul style="list-style-type: none"> Perceived difficulty selling high-efficiency equipment with higher upfront cost 	<ul style="list-style-type: none"> Perceived difficulty with staying competitive during the bid process when promoting more expensive equipment
Intervention Strategies / Activities	<ul style="list-style-type: none"> Multiple methods available for rebate submission through program implementer or dedicated portal Rebates used as a sales tool Experienced program implementer who continually works with trade allies to promote program's success 	<ul style="list-style-type: none"> Trade ally portal that verifies program eligibility Dedicated implementation team that maintains trade ally network Program support with rebate applications 	<ul style="list-style-type: none"> Reliable and timely rebate payment Pre-designed marketing material and messages for contractors to use with customers
Outcomes	<ul style="list-style-type: none"> Increased sales of high-efficiency equipment Increased number of trade allies participating in program 		<ul style="list-style-type: none"> Increased trade ally satisfaction with program
Key Indicators	<ul style="list-style-type: none"> Percentage of participants learning about the program through a contractor or retailer Achievement of program participation and savings goals 		<ul style="list-style-type: none"> Number of trade allies participating in program Trade ally satisfaction with program

C.2. Residential New Construction Program

RESIDENTIAL NEW CONSTRUCTION PROGRAM				
Market Actor	Market Barriers	Intervention Strategies / Activities	Outcomes	Key Indicators
<p>End-Use Customer</p> <p>Homebuyers</p> 	<ul style="list-style-type: none"> Lack of program awareness Up-front cost of high-efficiency construction and equipment Low prioritization of energy efficiency when buying a home Difficulty locating participating builders Long lead times for construction due to shortage of high-efficiency equipment and qualified labor Low demand for high efficiency (including HERS rated) homes particularly with overall increased demand for new construction homes Lack of program access among income-qualified homebuyers Lack of understanding about benefits of energy-efficient home construction 	<ul style="list-style-type: none"> Incentives offered directly to builders to construct and market efficient homes Outreach events to increase awareness of Residential New Construction program among customers Trainings to builders on energy-efficient homes (e.g., building practices and marketing strategies) Incentives to help offset increased costs passed on to homebuyer CenterPoint Energy outreach to local builders and HERS raters 	<ul style="list-style-type: none"> Increased awareness of energy-efficient building practices Increased demand for energy-efficient homes Increased availability of energy-efficient homes Increased program participation Increased energy savings Increased engagement with income-qualified homeowners 	<ul style="list-style-type: none"> Achievement of participation and savings goals Percentage of homebuyers seeking energy-efficient homes Saturation of homes more efficient than Indiana residential energy code Average HERS rating of homes built through the program 
<p>Trade Allies</p> <p>Builders and HERS Raters</p> 	<ul style="list-style-type: none"> Lack of program awareness Increasing construction costs Lack of understanding of energy-efficient building practices Time constraints; perceived lengthy paperwork and application process, which might delay rebate delivery and home going to market High up-front costs for builders who pursue HERS certification Low demand for HERS-rated and energy efficient homes, particularly with an overall increased demand for new construction homes Low customer awareness of home efficiency and HERS ratings Project delays due to shortage of high-efficiency equipment and qualified labor 	<ul style="list-style-type: none"> Measure-level incentives for builders to offset higher equipment costs and up-front costs for HERS ratings. Incentive bundle options to increase the number of high-efficiency measures installed in a home Program promotion through homebuilders' association and other industry groups Program information and material readily available on CenterPoint Energy website Required in-depth training for builders on energy-efficient building practices and marketing strategies Encouragement for builders to use high-efficiency equipment and/or low HERS ratings as selling points Program staff assistance with paperwork; streamlined application for multiple submissions Yearly kickoff meeting with builders to review program changes Quarterly updates to all participating builders and HERS raters regarding savings incentives and year-to-date progress 	<ul style="list-style-type: none"> Increased program awareness Increased program satisfaction Increased energy efficiency within homes Increased program participation and uptake (lower HERS rating, additional high-efficiency measures installed, etc.) per builder Increased energy savings Increased builder participation Increased familiarity with energy-efficient equipment Increased number of high-efficiency measures used in new builds 	<ul style="list-style-type: none"> Number of builders participating Number of builders constructing homes with high-efficiency equipment and/or <= 60 HERS ratings Higher market saturation of homes with high-efficiency measures Home builder attendance at outreach events Builder program satisfaction ratings Achievement of participation and savings goals Average number of homes per builder

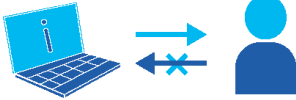
C.3. Community Connections Program

COMMUNITY CONNECTIONS PROGRAM			
Market Actor	End-Use Customer	Kit Recipients	
Market Barriers	<ul style="list-style-type: none"> Lack of program awareness Higher cost of efficient measures 	<ul style="list-style-type: none"> Lack of energy efficiency education Low brand awareness of CenterPoint Energy 	<ul style="list-style-type: none"> Skepticism of no-cost measures and true energy savings Negative associations with energy-efficient measures
Intervention Strategies / Activities	<ul style="list-style-type: none"> Diversification of measures in kits over time 	<ul style="list-style-type: none"> CenterPoint Energy logo, website, and program information on measure kit box 	<ul style="list-style-type: none"> Specialty energy efficiency measures offered to customers at no cost Prominent program signage at giveaway location
Outcomes	<ul style="list-style-type: none"> Increased participation Increased customer satisfaction Increased awareness 	<ul style="list-style-type: none"> Increased energy savings Improved customer perception of energy-efficient technologies Continuation of program services 	<ul style="list-style-type: none"> Increased saturation of energy efficient technologies Increased awareness of CenterPoint Energy energy efficiency programs
Key Indicators	<ul style="list-style-type: none"> Achievement of program participation and savings goals Installation rate Persistence of measures 		<ul style="list-style-type: none"> Efficient measure saturation in CenterPoint Energy territory Conversion to other CenterPoint Energy energy efficiency programs Measure satisfaction ratings
Market Actor	Trade Allies	Food Bank and Trustee Office Staff	
Market Barriers	<ul style="list-style-type: none"> Lack of program understanding Redundant measure distribution due to repeat customers 	<ul style="list-style-type: none"> Inability to encourage survey participation Labor constraints and supply-chain delays 	<ul style="list-style-type: none"> Lack of understanding of benefits of energy efficiency measures 
Intervention Strategies / Activities	<ul style="list-style-type: none"> Training for event staff by program implementer on how to deliver program Diversifying distribution network of food banks and trustee offices 		<ul style="list-style-type: none"> Incentive for survey participation Program signage prominent at giveaway event locations
Outcomes	<ul style="list-style-type: none"> Measures effectively distributed to customers Ability to confirm product installations 	<ul style="list-style-type: none"> Increased saturation of energy-efficient technologies Continuation of program services 	<ul style="list-style-type: none"> Increased program understanding Expanded reach to customers in CenterPoint Energy territory
Key Indicators	<ul style="list-style-type: none"> Achievement of program participation and savings goals Number of measures distributed Installation rate 	<ul style="list-style-type: none"> Efficient measure saturation in CenterPoint Energy territory Survey response rate 	

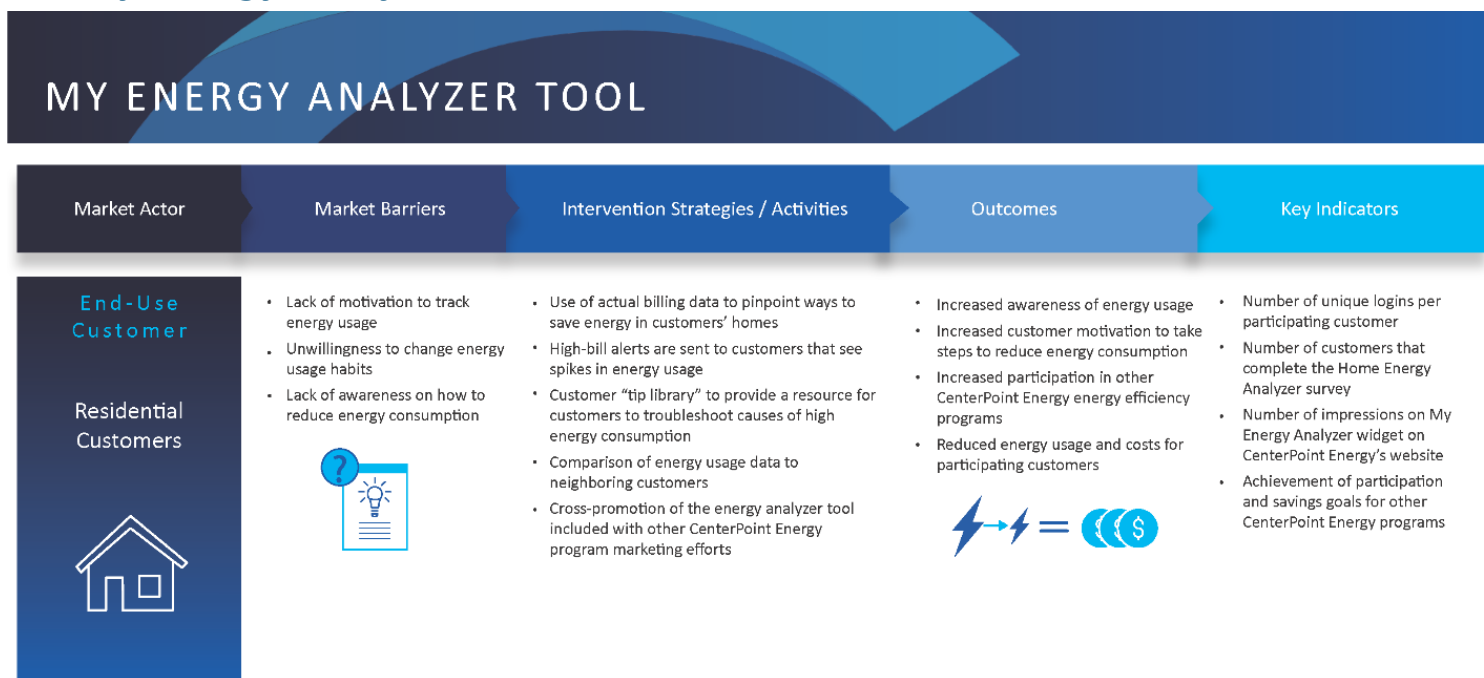
C.4. Income Qualified Weatherization Program

INCOME QUALIFIED WEATHERIZATION PROGRAM				
Market Actor	Market Barriers	Intervention Strategies / Activities	Outcomes	Key Indicators
End-Use Customer Income-Qualified Customers 	<ul style="list-style-type: none"> Lack of program awareness Lack of disposable income to make home improvements Lack of energy efficiency awareness Health and safety issues that prevent efficient product installation Skepticism of no-cost products and true energy savings Lack of time for assessments and installation process 	<ul style="list-style-type: none"> Program marketing (direct mail, bill inserts, email, events, door-to-door canvassing, leave-behind referral materials) Addition of full-time Market Outreach Specialist Information on CenterPoint Energy website Direct installation of products at no cost to the customer Energy education provided during in-home assessment Budget for health and safety improvements Turnkey installation services Easy-to-use online scheduling tool Customer appointment reminders Expanded appointment time offerings 	<ul style="list-style-type: none"> Increased awareness Increased participation Increased customer satisfaction Improved customer perception of energy efficiency Increased energy savings Increased adoption of energy efficiency measures Increased adoption of energy-saving behaviors Increased health and safety of the home Increased savings per home Fewer appointment cancellations 	<ul style="list-style-type: none"> Achievement of program participation and savings goals Number of participating homes Number of measures installed Persistence of measures Measure satisfaction ratings Program satisfaction ratings Number of participant-adopted energy-saving behaviors Ease of participation rating Average kWh per household 
Program Implementer Assessors 	<ul style="list-style-type: none"> Inability to reach eligible customers Health and safety issues that prevent product installation 	<ul style="list-style-type: none"> Open communication with participants to address concerns Budget for health and safety improvements, including the Healthy Homes Initiative Partnership with nonprofit organization for support with weatherization upgrades 	<ul style="list-style-type: none"> Increased program awareness Increased participation Assurance of quality work Increased customer satisfaction Increased savings per home Continuation of program services 	<ul style="list-style-type: none"> Achievement of program participation and savings goals Number of participating homes Program satisfaction ratings Average kWh per household 
Trade Allies Installers 	<ul style="list-style-type: none"> Participant uncertainty about installer qualifications 	<ul style="list-style-type: none"> Interviews to hire qualified pool of installers Open communication with participants to address concerns 	<ul style="list-style-type: none"> Assurance of quality work Increased customer satisfaction Continuation of program services 	<ul style="list-style-type: none"> Program satisfaction ratings Achievement of program participation and savings goals 

C.5. Residential Behavioral Savings Program

RESIDENTIAL BEHAVIORAL SAVINGS PROGRAM			
Market Actor	End-Use Customer	Residential Home Energy Report Recipients (Treatment Group Customers)	
Market Barriers		<ul style="list-style-type: none"> Lack of engagement with home energy reports Lack of engagement with online energy efficiency resources Lack of awareness of home energy use benchmarks Lack of understanding of how one's home uses energy Lack of awareness of energy efficiency options Lack of energy education among hard-to-reach customers (e.g., income qualified) 	
Intervention Strategies / Activities	<ul style="list-style-type: none"> Print reports mailed at least five times a year and emails sent 12 times per year (monthly) Home energy use comparison to a group of similar homes included in report High bill alerts and weekly opt-in bill forecasting reports that customers can receive via email or SMS text messages 	<ul style="list-style-type: none"> Embed energy usage widget within customers' CenterPoint Energy online account Historical energy use data shown in the reports and available in online widget Incorporation of income-qualified customers in treatment wave Targeted energy-saving tips for low-income customers included in reports and online widget Cross-promotion of other CenterPoint Energy DSM programs (e.g., Community Connections) 	
Outcomes	<ul style="list-style-type: none"> Increased adoption of energy-saving behaviors Increased participation in other CenterPoint Energy DSM programs Reduced per-customer energy use and demand 	<ul style="list-style-type: none"> Increased readership of reports Increased customer understanding of energy efficiency actions Increased engagement with online energy efficiency resources Increased energy education among income-qualified customers 	
Key Indicators	<ul style="list-style-type: none"> Percentage of customers who report reading the reports Annual logins to the online widget Program uplift 	<ul style="list-style-type: none"> Average energy savings per treatment home Achievement of program participation and savings goal Percentage of customers adopting energy-saving behaviors Percentage of income-qualified customers adopting energy-saving behaviors 	
Market Actor	Program Implementer	Home Energy Reports Distributor	
Market Barriers	<ul style="list-style-type: none"> Monthly reports lack variety  	<ul style="list-style-type: none"> Difficulty delivering accurate, disaggregated reports due to lack of detailed energy use data Difficulty incorporating personalized tips due to lack of customer information 	
Intervention Strategies / Activities	<ul style="list-style-type: none"> Periodic home analyzer customer survey to track satisfaction over time  	<ul style="list-style-type: none"> Integrated AMI weekly data and home energy analysis survey data for more accurate, detailed, and personalized reports Targeted messages and content to segments of treatment customers Periodic updates of content and look of the reports / widget Regular reviews and updates of tips library with CenterPoint Energy Cross-promotion of other CenterPoint Energy programs through report modules 	
Outcomes	<ul style="list-style-type: none"> An effective, well-designed report / widget that delivers strong and reliable energy savings  	<ul style="list-style-type: none"> Increased customer satisfaction with home energy reports 	
Key Indicators	<ul style="list-style-type: none"> Achievement of program participation and savings goals Realization rate 	<ul style="list-style-type: none"> Percentage of customers who read the reports 	

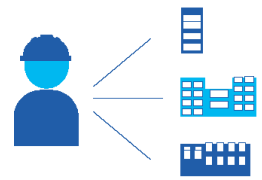
C.6. My Energy Analyzer Tool



C.7. Energy Efficiency Store Program



C.8. Commercial and Industrial Prescriptive Program

C&I PRESCRIPTIVE PROGRAM			
Market Actor	End-Use Customer	C&I Customers	
Market Barriers	<ul style="list-style-type: none"> Lack of program awareness or knowledge of energy conservation benefits Lack of time to participate in the program and/or apply for rebates 	<ul style="list-style-type: none"> Large out-of-pocket expenses External market conditions (e.g., supply-chain delays, high interest rates) delay or constrain project implementation 	<ul style="list-style-type: none"> Perception that project is not cost-effective for business Perception that business does not need energy efficiency improvements
Intervention Strategies / Activities	<ul style="list-style-type: none"> Participation in industry associations and events, program handouts, and ongoing communication with customers Word-of-mouth and one-on-one marketing Implementation staff support for studies and projects 	<ul style="list-style-type: none"> Targeted incentive bonuses and relationship-based, one-on-one outreach (e.g., energy manager engagement) for large, opt-out-eligible customers Energy manager dedicated to large customers 	<ul style="list-style-type: none"> Program incentives for efficient technologies to offset initial up-front cost Participating trade ally base to make installation timely and convenient
Outcomes	<ul style="list-style-type: none"> Increased program awareness and participation Improved customer perception of energy efficiency programs 	<ul style="list-style-type: none"> Increased market saturation of energy-efficient measures Increased energy savings 	
Key Indicators		<ul style="list-style-type: none"> Likelihood to recommend program Achievement of program participation and savings goals 	<ul style="list-style-type: none"> Participant satisfaction with the program
Market Actor	Trade Allies	Installation Contractors and Distributors	
Market Barriers	<ul style="list-style-type: none"> Distinct trade ally types with varying engagement needs and delivery roles Lack of program awareness 	<ul style="list-style-type: none"> Administrative burdens such as determining program eligibility and paperwork requirements Large customers opting out of programs 	<ul style="list-style-type: none"> Rising equipment costs, tariffs, and inflation limit trade allies' ability to promote energy-efficient options
Intervention Strategies / Activities	<ul style="list-style-type: none"> Easy access to marketing materials on the Contractor Network Portal to promote the program Cross-promotion by program outreach staff of prescriptive and custom projects for coordinated project assistance 	<ul style="list-style-type: none"> Midstream intervention at the contractor and distributor level with rebates for energy efficient lighting, HVAC, and kitchen equipment Mobile, field-based assessment tools for lighting contractors 	<ul style="list-style-type: none"> Provide project-level assistance to encourage trade ally engagement and adoption Training and communication about program offerings
Outcomes	<ul style="list-style-type: none"> Increased trade ally awareness of program offerings Increased and sustained trade ally participation with the program 	<ul style="list-style-type: none"> Streamlined program participation for customers Increased number of participating contractors 	<ul style="list-style-type: none"> Increased number of contractors promoting multiple C&I programs Increased number of projects per contractor
Key Indicators	<ul style="list-style-type: none"> Trade ally satisfaction with the program Number of contractors and distributors participating in the program Achievement of program participation and savings goals 	<ul style="list-style-type: none"> Number of trade allies participating for multiple years Number of actively participating trade allies Average number of projects per contractor 	

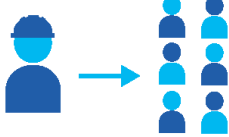
C.9.Commercial and Industrial Midstream Program

C&I MIDSTREAM PROGRAM			
Market Actor	End-Use Customer	C&I Customers	
Market Barriers	<ul style="list-style-type: none"> Lack of program awareness Lack of understanding of benefits of energy-efficient HVAC equipment 	<ul style="list-style-type: none"> Upfront cost of energy-efficient HVAC equipment Lack of available, energy-efficient HVAC equipment 	<ul style="list-style-type: none"> Lack of time to participate in the program and/or apply for rebates 
Intervention Strategies / Activities	<ul style="list-style-type: none"> Program promotion via participating contractors and distributors Incentives provided directly to distributors/contractors to sell energy-efficient HVAC equipment 	<ul style="list-style-type: none"> Implementer managed call center Incentives to help offset increased costs passed on to customers 	<ul style="list-style-type: none"> Direct incentives to the distributor/contractor allow for seamless participation that does not require applications from businesses
Outcomes	<ul style="list-style-type: none"> Increased knowledge of the benefits of energy-efficient HVAC equipment Increased awareness of energy-efficient HVAC equipment 	<ul style="list-style-type: none"> Increased demand for energy-efficient HVAC equipment Increased energy savings 	<ul style="list-style-type: none"> Increased overall participation in the C&I Midstream program Increased clarity and streamlined troubleshooting for customers
Key Indicators	<ul style="list-style-type: none"> Achievement of program participation and savings goals 	<ul style="list-style-type: none"> Number of participating businesses 	<ul style="list-style-type: none"> Customer satisfaction with the program 
Market Actor	Trade Allies	Distributors & Contractors	
Market Barriers	<ul style="list-style-type: none"> Lack of program awareness Lack of understanding of benefits of energy-efficient HVAC equipment Low demand for high-efficiency HVAC equipment 	<ul style="list-style-type: none"> Lack of understanding of how to use program portal Lack of available, energy-efficient HVAC equipment 	<ul style="list-style-type: none"> Perceived administrative burden of participation Lack of ability to provide needed customer information for contractors
Intervention Strategies / Activities	<ul style="list-style-type: none"> Outreach to qualified distributors and contractors including those in the Residential Midstream channel to encourage program enrollment Program information and materials that highlight energy-efficient equipment and program benefits 	<ul style="list-style-type: none"> Trainings on how to use the program portal Distributors encourage contractors to promote instant rebate and benefits of energy-efficient HVAC equipment 	<ul style="list-style-type: none"> Program promotion via CenterPoint Energy website Program staff assist with rebate processing issues Program materials provided by program staff
Outcomes	<ul style="list-style-type: none"> Increased program awareness Increased program satisfaction Increased program participation and uptake per distributor 	<ul style="list-style-type: none"> Increased stocking and sales of energy-efficient HVAC equipment Increased energy savings 	<ul style="list-style-type: none"> Increased consistency and satisfaction with rebate application processing Reduced administrative burden from simplified rebate applications
Key Indicators	<ul style="list-style-type: none"> Achievement of program participation and savings goals Number of participating distributors and contractors 	<ul style="list-style-type: none"> Percentage of stocked program-qualified HVAC equipment Market share of program-qualified equipment 	<ul style="list-style-type: none"> Percentage of program-qualified HVAC equipment sales Trade ally satisfaction with program

C.10. Commercial and Industrial Custom Program

C&I CUSTOM PROGRAM			
Market Actor	End-Use Customer	C&I Customers	
Market Barriers	<ul style="list-style-type: none"> Customers with diverse and niche needs require customized interventions and considerations Lack of knowledge of energy conservation benefits Lack of knowledge of energy audit benefits 	<ul style="list-style-type: none"> External market conditions and project delays (e.g., tariffs, inflation, interest rates, and equipment lead times) can reduce project viability and slow custom projects Lack of knowledge about project eligibility 	<ul style="list-style-type: none"> Perception that project is not cost-effective for business or that business does not need improvements Concern with the complexity of project and time taken from business operations
Intervention Strategies / Activities	<ul style="list-style-type: none"> Five intervention pathways that capture the diverse and niche needs of customers: Custom Incentives, Commercial New Construction, Building Tune Up, Strategic Energy Management (SEM), and Refrigeration Tune-up Provide savings values, sample applications, and rebate process charts 	<ul style="list-style-type: none"> Participation in industry associations and events, targeted incentive promotions, and relationship-based, one-on-one outreach (e.g., energy manager engagement) Established trade ally network to make installation timely and convenient 	<ul style="list-style-type: none"> Incentives up to 50% of qualified projects and cost shares on facility energy assessments that will cover up to 100% of assessment costs Explanation of customer's payment responsibility and calculation of payback period
Outcomes	<ul style="list-style-type: none"> Increased program awareness Increased participation Increased market saturation of energy-efficient measures 	<ul style="list-style-type: none"> Increased project viability for C&I customers to customize energy efficiency through the incentive contribution 	<ul style="list-style-type: none"> Increased energy savings Improved customer perception of energy efficiency programs
Key Indicators		<ul style="list-style-type: none"> Program satisfaction ratings Average kWh per project 	<ul style="list-style-type: none"> Likelihood to recommend ratings Achievement of participation, savings, and program expenditures goals
Market Actor	Trade Allies	Installation Contractors	
Market Barriers	<ul style="list-style-type: none"> Lack of trade ally program awareness Inability to communicate directly with customer decision-maker who can approve projects 	<ul style="list-style-type: none"> Lack of customer awareness Contractor perception that design team engagement will slow down new construction project schedule 	<ul style="list-style-type: none"> Perception that time spent promoting program and helping customer with application is burdensome Large customers opt out of programs
Intervention Strategies / Activities	<ul style="list-style-type: none"> Advertisement through trade associations and events Facilitate introductions and joint pipeline reviews with utility account managers and the energy manager to connect trade allies with customer decision-makers 	<ul style="list-style-type: none"> Outreach representatives dedicated to new construction and HVAC participation, recruiting trade allies, and promoting the Contractor Network 	<ul style="list-style-type: none"> Individual and group training sessions detailing program operations and requirements, application forms, and invoicing Contractor Network portal simplifies access to marketing materials to promote program to customers
Outcomes	<ul style="list-style-type: none"> Increased program awareness Increased energy savings Increased engagement with new construction design firms and architects 	<ul style="list-style-type: none"> Streamlined project communication and implementation Faster application processing times due to reduced errors New customer relationships 	<ul style="list-style-type: none"> Increased overall revenue due to growing number of potential customers Increased quality of existing customer relationships
Key Indicators	<ul style="list-style-type: none"> Number of contractors participating in multiple years Number of actively participating contractors 	<ul style="list-style-type: none"> Number of new construction projects 	<ul style="list-style-type: none"> Application processing time Contractor satisfaction ratings 

C.11. Small Business Energy Solutions Program

SMALL BUSINESS ENERGY SOLUTIONS PROGRAM			
Market Actor	End-Use Customer	Small Business Customers	
Market Barriers	<ul style="list-style-type: none"> Time constraints, difficulty dedicating time to an energy efficiency project 	<ul style="list-style-type: none"> Lack of program awareness Up-front costs affiliated with purchase and installation of efficient measures 	<ul style="list-style-type: none"> Lack of understanding of benefits of program-recommended energy-efficient products Saturation of lighting measures and projects in the program mix 
Intervention Strategies / Activities	<ul style="list-style-type: none"> Information on CenterPoint Energy website Discounts for lighting, refrigeration, air conditioner and furnace tune-ups, steam trap replacements, thermostats, weatherstripping, and water-saving devices 	<ul style="list-style-type: none"> Direct installation of products at no cost to the business Energy education provided during in-business energy assessment Launched HVAC check-ups focused on low cost, preventative maintenance measures, and/or quick install of applicable energy efficiency measures 	<ul style="list-style-type: none"> Efficient product discounts at point of purchase Contractor Network promoting benefits of energy-efficient products through energy assessments Direct outreach to small businesses via targeted emails
Outcomes	<ul style="list-style-type: none"> Increased awareness Increased program participation Increased customer satisfaction 	<ul style="list-style-type: none"> Improved customer perception of efficient products Increased electric and gas energy savings 	<ul style="list-style-type: none"> Increased penetration of efficient technologies
Key Indicators	<ul style="list-style-type: none"> Achievement of program participation and savings goals Number of participating small businesses 	<ul style="list-style-type: none"> Program and measure satisfaction ratings 	
Market Actor	Trade Allies	Installation Contractors	
Market Barriers		<ul style="list-style-type: none"> Lack of program understanding Lack of contractor engagement 	<ul style="list-style-type: none"> Concern that the program is not profitable enough to offset the time involved in delivering it
Intervention Strategies / Activities	<ul style="list-style-type: none"> Group and individual training sessions detailing program operations and requirements, application forms, invoicing requirements, and sales strategies Increased implementer staff focused on outreach to trade allies 	<ul style="list-style-type: none"> Requirement for trade allies to complete a minimum number of assessments per year Referrals to potential customers who are interested in participating in the program Bonus distribution to contractors to encourage participation 	<ul style="list-style-type: none"> Program incentives and detailed energy assessment reports that entice customers to install low-cost measures Online Contractor Network portal providing program resources and simplifying program adoption
Outcomes	<ul style="list-style-type: none"> Increased program awareness Increased program participation Deeper savings per project 	<ul style="list-style-type: none"> Increased energy savings Increased market penetration of energy-efficient measures 	<ul style="list-style-type: none"> Increased sales volume per trade ally Increased program satisfaction
Key Indicators	<ul style="list-style-type: none"> Achievement of program participation and savings goals Number of participating trade allies Average number of recruited participants per trade ally Average kWh per project 		<ul style="list-style-type: none"> Trade ally reported impact of program on sales Conversion rate of energy assessments to low-cost measure installations Program satisfaction ratings

C.12. Building Optimization Program

BUILDING OPTIMIZATION PROGRAM			
Market Actor	End-Use Customer	C&I Customers	
Market Barriers	<ul style="list-style-type: none"> Limited program awareness Limited understanding of optimization, retro-commissioning, and controls-based savings 	<ul style="list-style-type: none"> Uncertainty about savings potential and return on investment High upfront cost of the optimization study 	<ul style="list-style-type: none"> Technical eligibility requirements (BAS sophistication) limit customer reach Competing priorities and timing constraints
Intervention Strategies / Activities	<ul style="list-style-type: none"> Targeted outreach to large C&I customers via program implementer and CenterPoint Energy key account managers Opportunity validation including site walkthroughs, BAS screen shares, and benchmarking 	<ul style="list-style-type: none"> Partially incentivized optimization study (covering up to 75% of study costs) that identifies quantified, actionable savings estimates 	<ul style="list-style-type: none"> Front-end eligibility screening, ongoing coordination with study participants, and redirection to other C&I programs when appropriate Requirement to commit to implementation within 90 days of study completion
Outcomes	<ul style="list-style-type: none"> Increased awareness of building optimization and retro-commissioning Improved building performance 	<ul style="list-style-type: none"> Improved understanding of operational and energy benefits Reduced financial risk of participation and increased willingness to engage Increased confidence in identified savings opportunities 	<ul style="list-style-type: none"> Improved alignment between program requirements and participant capabilities Timely decision-making and implementation of recommended measures
Key Indicators	<ul style="list-style-type: none"> Number of customers contacted and screened Achievement of program participation and savings goals 	<ul style="list-style-type: none"> Study acceptance rate Percentage of customers proceeding past study 	<ul style="list-style-type: none"> Share of screened customers that enroll Time from study completion to implementation
Market Actor	Trade Allies	Contractors	
Market Barriers	<ul style="list-style-type: none"> Lack of program awareness Limited pool of contractors with advanced BAS, analytics, and optimization expertise 	<ul style="list-style-type: none"> High technical and reporting requirements Perceived administrative burden of participation 	<ul style="list-style-type: none"> Uncertainty about customer readiness or demand 
Intervention Strategies / Activities	<ul style="list-style-type: none"> Targeted outreach to qualified contractors through HEAPY and CenterPoint Energy networks Formal contractor qualification process requiring demonstrated technical capability 	<ul style="list-style-type: none"> Standardized study templates and clear technical expectations Ongoing program staff support, coordination, and quality control 	<ul style="list-style-type: none"> Contractor involvement in opportunity validation and customer education 
Outcomes	<ul style="list-style-type: none"> Increased contractor awareness of the program and participation opportunities 	<ul style="list-style-type: none"> Expanded pool of qualified contractors able to deliver high-quality projects More consistent, complete, and high-quality study deliverables 	<ul style="list-style-type: none"> Reduced friction for participating contractors Improved alignment between customer needs and contractor services
Key Indicators	<ul style="list-style-type: none"> Number of contractors approved for program participation 	<ul style="list-style-type: none"> Contractor retention rate Number of contractor-supported enrollments 	<ul style="list-style-type: none"> Proportion of contractor studies approved with minimal revisions

Appendix D. Process Evaluation

For the process evaluation of the 2025 CenterPoint Energy demand-side management (DSM) portfolio, Cadmus assessed program strengths, areas for improvement, and best practices to optimize the customer experience.

Table D-1 lists the process evaluation research topics by data collection activity. In addition to interviews and surveys, Cadmus reviewed status reports and other program materials to obtain a complete understanding of all activities conducted to reach program goals.

Table D-1. 2025 Process Evaluation Topics by Research Activity

Data Collection Activity	Research Topics	
Program Staff Interviews	<ul style="list-style-type: none"> • Evaluation goals and research questions • Program goals and objectives • Implemented and proposed program changes • Program design, delivery, and administration • Quality control 	<ul style="list-style-type: none"> • Marketing strategies and effectiveness • Program tracking and key performance indicators (KPIs) • Market barriers and reasons for nonparticipation • Target audiences and program participation
Trade Ally and Market Actor Interviews	<ul style="list-style-type: none"> • Program awareness and motivations • Freeridership and spillover, if applicable • Aspects of program delivery and effectiveness • Interactions with program staff • Market barriers and reasons for nonparticipation (among trade allies and customers) 	<ul style="list-style-type: none"> • Program satisfaction and value • Effectiveness of marketing materials/channels • Changes in business practices or performance as a result of program participation • Program strengths and suggestions for improvement
Participant Surveys	<ul style="list-style-type: none"> • Program awareness • Reasons for participation and installation of specific measures • Customer experience including program satisfaction and likelihood to recommend 	<ul style="list-style-type: none"> • Trade ally experience • Freeridership and spillover, if applicable • Verification of measure installation • Program strengths and suggestions for improvement

Table D-2 shows the number of interviews and surveys Cadmus completed for the 2023 CenterPoint Energy DSM portfolio evaluation. Cadmus conducted telephone surveys and interviews with the Home Energy Solutions program’s midstream trade allies, Residential New Construction’s builders, C&I Prescriptive program’s midstream trade allies, C&I Custom’s participants, and C&I Small Business Energy Solutions’ participants. All other programs’ surveys were conducted online.

Table D-2. 2025 Interviews and Surveys by Program

Respondent Group	Population ^a	Included in Sample Frame ^b	Target Completes	Achieved Completes
Residential Programs				
Home Energy Solutions – Residential Prescriptive and Marketplace				
CenterPoint Energy Staff	1	1	1	1
CLEAResult Staff	1	1	1	1
Participating Customers (Quarterly Freeridership and Customer Experience Surveys)	6,508	6,508	1,000 (70 per measure category)	697
Participating Customers (Annual Spillover Surveys)	9,436	9,436	300 (50 per measure category)	388
Home Energy Solutions - Midstream				
CenterPoint Energy Staff	1	1	1	1
CLEAResult Staff	1	1	1	1
Participating Distributors	25	11	11	4
Participating Contractors	59	52	15	13
Residential New Construction				
CenterPoint Energy Staff	1	1	1	1
CLEAResult Staff	1	1	1	1
Participating Builders	31	26	15	8
Income Qualified Weatherization				
CenterPoint Energy Staff	1	1	1	1
CLEAResult Staff	1	1	1	1
Participating Customers	1,783	502	70+	78
Residential Behavioral Savings				
CenterPoint Energy Staff	1	1	1	1
Oracle Staff	1	1	1	1
Smart Cycle				
CenterPoint Energy Staff	1	1	1	1
Community Connections				
CenterPoint Energy Staff	1	1	1	1
CLEAResult Staff	1	1	1	1
Participating Customers	6,500	91	70+	31
Commercial and Industrial Programs				
C&I Prescriptive				
CenterPoint Energy Staff	1	1	1	1
Resource Innovations Staff	1	1	1	1
Participating Customers	368	103	20+	22
C&I Prescriptive – Midstream				
Participating Distributors	5	5	5	2
C&I Custom				
CenterPoint Energy Staff	1	1	1	1

Respondent Group	Population ^a	Included in Sample Frame ^b	Target Completes	Achieved Completes
Resource Innovations Staff	1	1	1	1
Participating Customers	66	17	10+	7
Small Business Energy Solutions				
CenterPoint Energy Staff	1	1	1	1
Resource Innovations Staff	1	1	1	1
Participating Customers	199	79	35+	21

^a Population includes both electric and gas participants.

^b Cadmus removed customers from the sample frames if they were contacted about their participation in another program, they had been recently surveyed through another evaluation effort, or they had missing contact information.

D.1. Home Energy Solutions Program

C&I PRESCRIPTIVE PROGRAM

2025 Process Analysis Activities

-  1  staff interview
-  1  staff interview

20 participant customer surveys (out of 99, 20% response rate)

12 phone surveys



8 online surveys



2025 Program Changes

Removal of low- or no-uptake electric measures (window AC units, agricultural rebates, clothes washers, pellet dryers) to simplify applications and align with TRM updates



2026 Planned Program Changes

Consolidation of programmable and Wi-Fi thermostats into a single Prescriptive measure



Key Process Evaluation Findings

Participant Survey Results:

Top avenues of awareness for the C&I Prescriptive program: (n=19)

-  • Contact through trade ally/contractor/vendor – 4/19
-  • Contact through a trade association or professional organization – 4/19
-  • Word of mouth (family, friend, or business colleague) – 4/19

16/16

program respondents reported being **very satisfied** with their contractor or vendor

15/18

program respondents said they were **very satisfied** with the Commercial Prescriptive program overall

- 3/18 were somewhat satisfied with the Commercial Prescriptive program overall

Most important factors in decision to make energy efficient upgrades (n=20)



- Saving money and/or reducing energy costs – 7/20



- Replacing old but functioning equipment – 5/20



- Obtaining a CenterPoint incentive or bonus – 4/20

15/23

respondents said CenterPoint Energy's incentive helped the project receive implementation approval from their organization

Insights from CNP Staff and Implementer Interviews

- Participation growth is driven by targeted outreach to large customers. CenterPoint account managers and implementers play a key role in identifying and engaging high-impact opportunities.
- Economic conditions (inflation, high interest rates, supply-chain delays, and tariffs) can delay project timelines and cause some customers to defer equipment upgrades.
- Contractor relationships remain central to program delivery. Implementers and CenterPoint staff coordinate closely with contractors to identify projects and support participation.

D.2. Residential New Construction Program

RESIDENTIAL NEW CONSTRUCTION PROGRAM

2025 Process Analysis Activities

-  **1**  staff interview
-  **1**  staff interview

13 Mixed mode participant builder interviews



2025 Program Changes

No program changes

2026 Planned Program Changes

No program changes

Key Process Evaluation Findings

Builder Interview Results:



How builders learned about the program:

- 5/13** from program staff via phone, email, or in-person meeting
- 3/13** from the SIBA (Southwest Indiana Builders Association)
- 3/13** from the CenterPoint Energy website



Challenges faced by builders while participating in the program:

- 4/13** cited lack of program awareness
- 3/13** cited high up-front costs and increasing construction costs
- 3/13** cited lengthy process and paperwork



Motivation for participating:

- 12/13** financial incentive
- 10/13** the desire to build an energy-efficient home



Incentive Paths:

- 7/12** use the Builder Option Packages path more often
- 5/12** use the A La Carte path more often



Ease of participation

- 11/13** said that it was easy to participate in the program
- 12/13** said the onboarding process was easy



Satisfaction:

- 11/12** were satisfied with the program overall
- 11/12** were satisfied with the application process
- 11/12** were satisfied with the incentive structure
- 12/12** said they were likely to recommend the program to another builder

D.3. Income Qualified Weatherization Program

INCOME QUALIFIED WEATHERIZATION PROGRAM

2025 Process Analysis Activities

-  **1**  **CenterPoint Energy** staff interview
-  **1**  **CLEAResult** staff interview

127 online participant surveys 

2025 Program Changes

No program changes

Key Process Evaluation Findings

PARTICIPANT SURVEY RESULTS:

82% (n=124)

satisfied with the IQW program overall

- 7/20 dissatisfied participants didn't hear or receive any follow up
- 4/20 said they did not see any money-saving advantage
- 4/20 were dissatisfied with the work that they received

73% (n=124)

said the main reason they participated in the program was to save money on energy bills/reduce energy costs

72% (n=124)

took action on recommended energy-saving behaviors/tips

89% (n=121)

said they were likely to recommend the IQW program to a friend or neighbor

41% (n=120)

learned about the IQW program through CenterPoint Energy (via email, mail, or information included in their bill)

23% (n=120)

learned about the program from a friend, family member, neighbor, or colleague



Two participants dissatisfied with the LED night light(s) said they were not bright enough



Two participants dissatisfied with the air conditioner tune up said that they were told someone would come back to fix it, and no one did

Participants satisfied with program measures:

100% (n=25)	Bathroom faucet aerator(s)
100% (n=5)	HVAC/furnace tune up
100% (n=4)	Attic/wall insulation
100% (n=2)	Duct sealing
100% (n=2)	Furnace
100% (n=1)	Refrigerator
100% (n=1)	Central air conditioner
98% (n=43)	Smart thermostat
93% (n=27)	Kitchen faucet aerator(s)
93% (n=15)	Outlet gasket(s)
93% (n=15)	Door sweep(s)
92% (n=95)	Smart strip
91% (n=11)	High-efficiency showerhead(s)
89% (n=90)	LED night light(s)
84% (n=37)	Furnace tune up
83% (n=6)	Water heater setback
71% (n=17)	Air conditioner tune up
60% (n=5)	Pipe wrap
50% (n=2)	Air Sealing

D.4. Community Connections Program

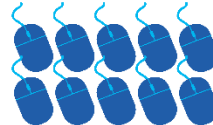
COMMUNITY CONNECTIONS PROGRAM

2025 Process Analysis Activities

 **1**  staff interview

 **1**  staff interview

10 kit recipient online surveys



2025 Program Changes

Night lights **removed** from measure kits



2026 Planned Program Changes

Pipe wrap and spray foam will be added to measure kits



Key Process Evaluation Findings

Participant Survey Results:

7/7 satisfied with the program overall and **9/9** want to see it continued

 **9/10** satisfied with weatherstripping

 **8/10** satisfied with door sweep

 **7/7** satisfied with outlet gaskets

4/10 were aware that CenterPoint Energy sponsored the program

3/10 said they were interested in weatherizing their homes through CenterPoint Energy's Neighborhood Weatherization Program

★ Trend Shift:

in 2024, 13/31 were interested in the NWP/IQW program, and in 2023, 17/30 were interested

Participant Housing (n=10)

6  Single-Family Home

3  Multifamily Home

1  Manufactured Home

4/10 were renters

 **1/10** participated in another CenterPoint Energy program as a result of this program; this person participated in the Home Energy Assessments program.

 **7/10** satisfied with CenterPoint's efforts to help them manage their monthly usage

 **4/4** satisfied with variety of programs offered by CenterPoint Energy

D.5. Residential Behavioral Savings Program

RESIDENTIAL BEHAVIORAL SAVINGS PROGRAM

2025 Process Analysis Activities



Program Overview

CenterPoint Energy sends home energy reports to educate customers about their energy usage and provide information and tips to encourage adoption of energy-saving behaviors



The program is designed as a randomized control trial wherein customers are randomly assigned to either

a **treatment group**
(recipients of home energy reports)

OR

a **control group**
(nonrecipients)



CenterPoint Energy operated the 2025 program with the following waves:



2025 Program Changes



Shifted high bill alerts from cycle data (non-AMI) to AMI data



Implemented optional weekly AMI reports showing trends in usage and targeted tips

2026 Planned Program Changes



Annual report allowing customers to view energy usage patterns over the past year



Survey of participating customers to monitor satisfaction and involvement with weekly reports

Key Process Evaluation Findings



Marketing modules included in home energy reports change each month to promote different programs and topics to boost savings and engagement across the portfolio. Offerings promoted in 2025 included insulation and water heater rebates, Energy Efficiency Store program, sign-up for high bill alerts, and Home Energy Assessment program



While gas savings fell just short of the target (**93%**), electric savings exceeded the target (**102%**), and the addition of annual reports and changes to the online portal (such as widget enhancement and preference management) are expected to **increase savings** and customer satisfaction in 2026.

Energy Efficiency Store Program

D.6. My Energy Analyzer Tool

MY ENERGY ANALYZER TOOL

2025 Process Analysis Activities



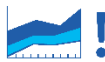
Program Overview



Customers are exposed to the My Energy Analyzer tool through cross-promotion within Home Energy Reports and other CenterPoint Indiana marketing channels



Customers complete the Home Energy Analyzer survey/self-audit on CenterPoint Energy's website



My Energy Analyzer uses survey responses and customer billing data to pinpoint ways to conserve energy in customers' homes



Customers are provided with customized energy saving tips, education, and opportunities to engage with other CenterPoint Energy programs

2025 Program Changes

No changes in 2025

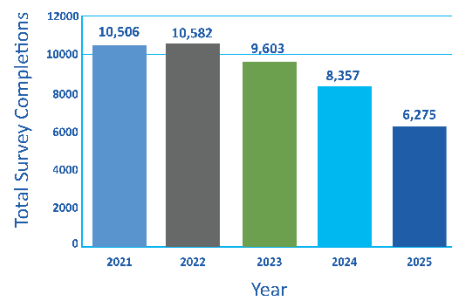
2026 Planned Program Changes

Enhance look and feel of tool and widget on CenterPoint Energy website to boost tool visibility and improve customer experience



Key Process Evaluation Findings

Although the number of new customers completing the Home Energy Analyzer survey has been decreasing over the last several years, program staff are hopeful that improving the user experience and functionality will increase participation in 2026.



D.7. Commercial and Industrial Prescriptive Program

C&I PRESCRIPTIVE PROGRAM

2025 Process Analysis Activities

- 1  staff interview
- 1  staff interview

20 participant customer surveys (out of 99, 20% response rate)

12 phone surveys



8 online surveys



2025 Program Changes

Removal of low- or no-uptake electric measures (window AC units, agricultural rebates, clothes washers, pellet dryers) to simplify applications and align with TRM updates



2026 Planned Program Changes

Consolidation of programmable and Wi-Fi thermostats into a single Prescriptive measure



Key Process Evaluation Findings

Participant Survey Results:

Top avenues of awareness for the C&I Prescriptive program: (n=19)

-  • Contact through trade ally/contractor/vendor – 4/19
-  • Contact through a trade association or professional organization – 4/19
-  • Word of mouth (family, friend, or business colleague) – 4/19

16/16

program respondents reported being **very satisfied** with their contractor or vendor

15/18

program respondents said they were **very satisfied** with the Commercial Prescriptive program overall

- 3/18 were somewhat satisfied with the Commercial Prescriptive program overall

Most important factors in decision to make energy efficient upgrades (n=20)



- Saving money and/or reducing energy costs – 7/20



- Replacing old but functioning equipment – 5/20



- Obtaining a CenterPoint incentive or bonus – 4/20

15/23

respondents said CenterPoint Energy's incentive helped the project receive implementation approval from their organization

Insights from CNP Staff and Implementer Interviews

- Participation growth is driven by targeted outreach to large customers. CenterPoint account managers and implementers play a key role in identifying and engaging high-impact opportunities.
- Economic conditions (inflation, high interest rates, supply-chain delays, and tariffs) can delay project timelines and cause some customers to defer equipment upgrades.
- Contractor relationships remain central to program delivery. Implementers and CenterPoint staff coordinate closely with contractors to identify projects and support participation.

D.8. Commercial and Industrial Midstream Program

C&I Midstream PROGRAM

2025 Process Analysis Activities



2025 Program Changes

C&I Midstream established as a stand-alone program after existing as a channel within C&I Prescriptive

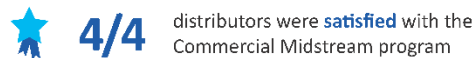
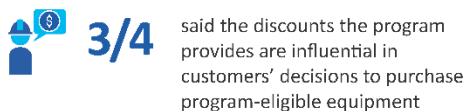


2026 Planned Program Changes

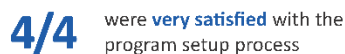
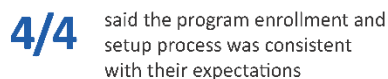
No planned changes

Key Process Evaluation Findings

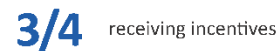
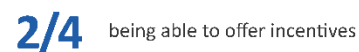
MIDSTREAM DISTRIBUTOR INTERVIEW FINDINGS



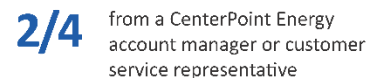
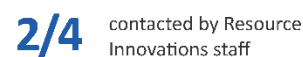
Program setup satisfaction



Reasons for participating in the program



How distributors learned about the program



D.9. Commercial and Industrial Custom Program

C&I CUSTOM PROGRAM

2025 Process Analysis Activities



online surveys with participating customers
(n=15, 67% response rate)



Program Overview

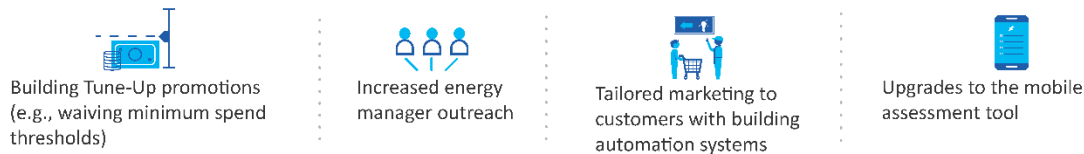
Main offerings include:



2025 Program Changes

No Changes

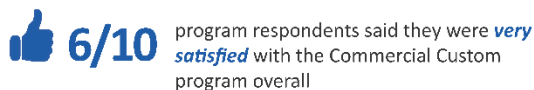
2026 Planned Program Changes



Key Process Evaluation Findings

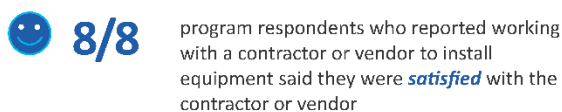
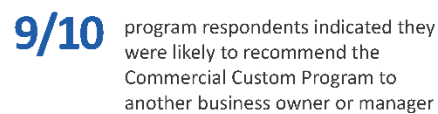
Inflation, tariffs, high interest rates, and HVAC supply-chain constraints contributed to longer project timelines and delayed customer decisions.

PARTICIPANT SURVEY RESULTS:



3/10 were **somewhat satisfied**

1/10 was **not at all satisfied**



Most important factor in decision to make energy efficient upgrades (n=10)

- Saving money and/or reducing energy costs (3/10)
- Reducing energy consumption or meeting company environmental goals (2/10)
- Replacing old but functioning equipment (2/10)

D.10. Small Business Energy Solutions Program

SMALL BUSINESS ENERGY SOLUTIONS PROGRAM

2025 Process Analysis Activities



9 mixed mode participant customer surveys

6 phone



3 online



2025 Program Changes

No program changes

2026 Planned Program Changes

No planned changes

Key Process Evaluation Findings

PARTICIPANT SURVEY RESULTS:

8/9 participants said they would be very likely to recommend the program

The primary way participants first heard about the program in 2025:

4/9 heard from a CenterPoint Energy employee, account representative, or customer service representative



Trend Shift:

in 2024, 11/23 were contacted by a contractor who informed them, compared to only 1/9 in 2025.



Two participants did not recall receiving an Energy Assessment Report.

Satisfaction:

9/9 participants are satisfied with the program overall

Measure	Very Satisfied	Somewhat Satisfied
Satisfaction with contractor	9/9	N/A
Satisfaction with Equipment	9/9	N/A
Satisfaction with Energy Assessment Report	2/9	5/9

Areas for improvement:

3/9 participants had suggestions of areas for improvement



2/9 provide more information



2/9 include additional types of equipment

D.11. Building Optimization Program

BUILDING OPTIMIZATION PROGRAM

2025 Process Analysis Activities



staff interview



staff interview

Program Overview



The Building Optimization Program provides solutions for improving building performance to commercial and industrial customers with building automation controls via a partially incentivized study conducted by qualified trade allies.



HEAPY Engineering, the program implementer, verifies measure implementation, enabling participants to receive additional custom and/or prescriptive incentives, and works with CenterPoint Energy to connect participants to other C&I programs.



Participants can receive additional custom and/or prescriptive incentives.



In exchange for the study incentive, participants agree to implement energy measures within 90 days.

2026 Planned Program Changes

Possible expansion to gas customers



Key Process Evaluation Findings



The program is gaining traction after its 2024 launch and a slow rollout in 2025.



Consistent communication between CenterPoint Energy, HEAPY, and account managers helped identify customers and advance projects.



Although 2025 participation was below target (4 out of 10 projects completed), completed projects achieved high savings and were cost-effective. Recruiting additional qualified trade partners may help increase customer reach and project volume.

Appendix E. Memorandum

To: Nathan Forshey, Chad Wallis, and Nick Kessler; CenterPoint Energy

From: Matthew Wisnepske, Jane Marsh, Abby Georgetta, and David Oluyitan; Cadmus

Subject: CenterPoint Energy Energy Efficiency Store IT Security Review

Date: April 15, 2026

The following memo provides a summary of the research activities, findings, and recommendations produced as part of Cadmus' review of CenterPoint Energy's IT security policies and practices related to its Energy Efficiency Store Program.

Introduction

In August of 2025, CenterPoint Energy contracted with Cadmus to review the IT security processes and procedures related to its Energy Efficiency Store Program, previously the Online Marketplace channel in the Residential Prescriptive Program. Specifically, Cadmus was tasked with providing consulting on the adequacy and clarity of any and all technical agreements between CenterPoint Energy and its Energy Efficiency Store implementation firm, including any language about the secure transfer of Personally Identifiable Information (PII) between IT resources or teams. This would also include policies that inform CenterPoint Energy if a data breach occurs, outline how those breaches would be prevented by Franklin Energy, and specify the liability coverage the contracted firms must carry. Cadmus also reviewed the data transfer process and procedures between CenterPoint Energy and its Energy Efficiency Store implementation firm(s) regarding secure file transfer access, file security, file structure, data retention locations, and data field anonymization.

This request came after a change in implementation which was, in part, driven by dissatisfaction with the data transfer and security processes related to the previous implementation firm, EFI. CenterPoint Energy has since contracted with Franklin Energy to provide a revised set of Energy Efficiency products through its online store.⁵⁹ Through this program, customers can receive an instant discount for online purchases of products including specialty LEDs, smart thermostats, advanced power strips, and air purifiers. Until 2025, the program was structured as a channel within the Residential Prescriptive Program. Franklin Energy took over as the program implementer in October 2024, which contributed to the Energy Efficiency Store becoming a standalone program. As part of this research effort, Cadmus conducted interviews with both CenterPoint Energy and Franklin Energy staff, and reviewed applicable contract language regarding data transfer, security, storage, and retention.

⁵⁹ CenterPoint Energy's online store can be accessed through the website: centerpointenergyinshop.com.

Energy Efficiency Store - Data Management Structure

Cadmus reviewed the data transfer processes between participating customers and all parties involved in the purchase, shipment, recording, and evaluation of Energy Efficiency Store Program products. Figure E-1 summarizes the data transfer process between all parties involved in the Energy Efficiency Store Program.

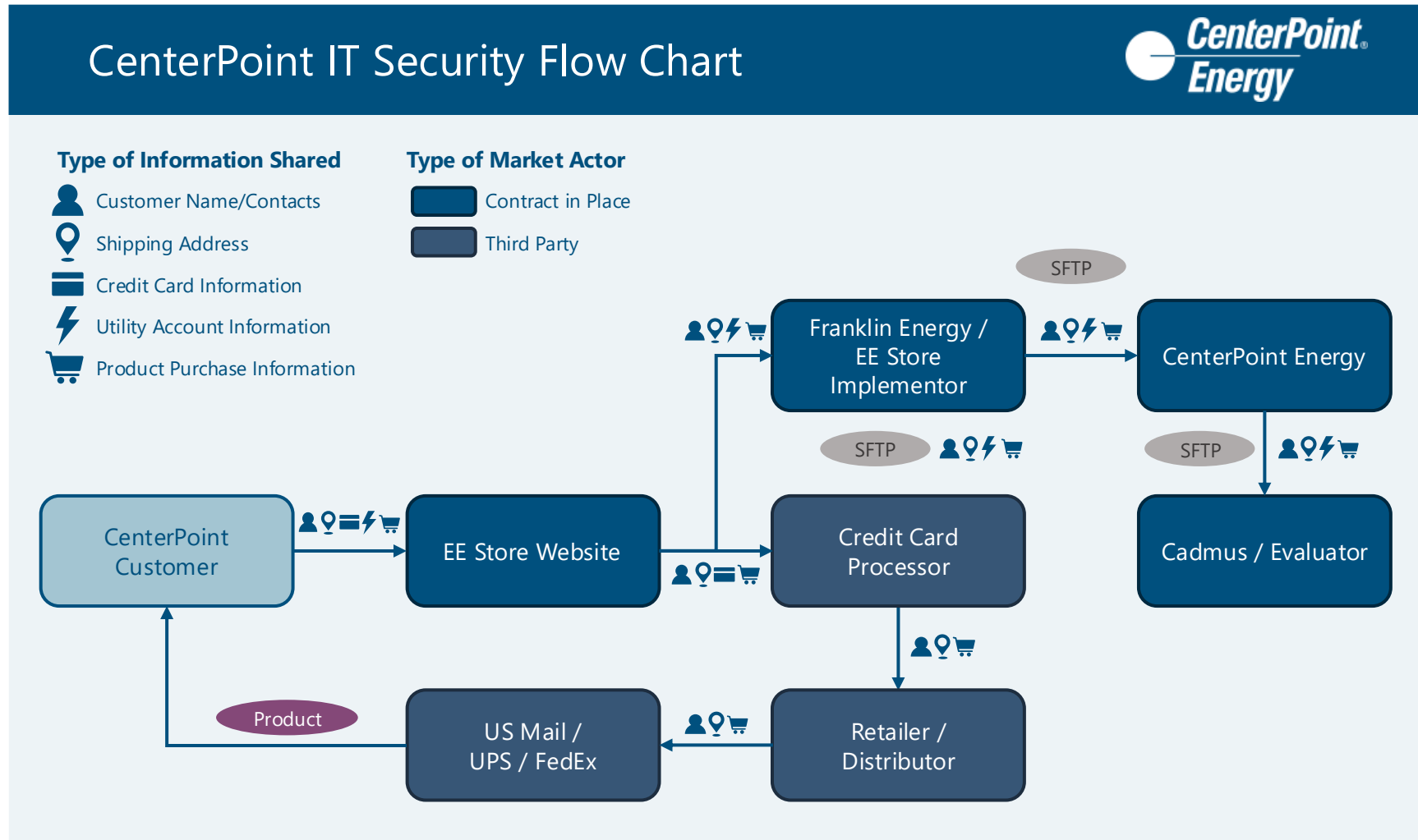
Verified⁶⁰ CenterPoint Energy Indiana customers purchase discounted equipment from a variety of qualifying products on the Energy Efficiency Store website. This website collects a range of sensitive information from participating customers, including their name, credit card information, contact information and shipping address. Electric or natural gas account verification information is also required to ensure that discounts are only given to eligible customers. All these pieces of information are then shared with either Franklin Energy, the customer's credit card processing company, or both. The credit card authorization is then shared with participating retailer partners, who ship purchased products via the US Mail, UPS, and/or FedEx for delivery.

Customer credit card information is not directly shared with Franklin Energy, but information regarding account eligibility, customer name and contract terms, as well as product details are shared with Franklin Energy, who then share the data back with CenterPoint Energy for program and invoice tracking, as well as for recognition in CenterPoint Energy's Scorecard.⁶¹ CenterPoint then shares customer name, as well as customer account information, and product information with Cadmus during annual program evaluation activities. Secure File Transfer Protocols are used to transfer this information between all parties on the implementation, utility, and evaluation teams. Franklin Energy and Cadmus both retain contractual obligations to transfer, store, and retain customer data in a secure manner. No other parties have access to any of these pieces of information without the express permission of CenterPoint Energy.

⁶⁰ The Energy Efficiency Store website only allows current CenterPoint Energy customers to purchase discounted products via account verification.

⁶¹ CenterPoint Energy is required to publish quarterly and annual performance scorecards for regulatory filings in the state of Indiana documenting how DSM management programs are spending budgets and achieving savings.

Figure E-1. Data Transfer Process for Energy Efficiency Store Program



Staff Interviews

Cadmus conducted interviews with CenterPoint Energy and Franklin Energy staff responsible for the secure transfer of program data to understand each firm's data access, transfer, and retention policies, data breach risk and mitigation strategies, communication processes, issues that arose during the previous program cycle, and steps taken to mitigate the risk of future data issues.

Franklin Energy replaced EFI as the Energy Efficiency Store program implementer in October 2024. CenterPoint Energy chose to replace the program implementer primarily due to performance and data integrity issues. As the program implementer, Franklin Energy operates the Energy Efficiency Store website, validates customer eligibility to purchase products through the marketplace, and fulfills customer orders.

Data collected through the Energy Efficiency Store program includes customer contact information (name, phone number, email address, shipping address), utility account number and fuel type, and order fulfillment data (customer billing address and credit card information). Franklin Energy stores customer data on an ecommerce platform (Big Commerce). Customer data is transferred between CenterPoint Energy and Franklin Energy via Secure File Transfer Protocol (SFTP) for the purposes of verifying eligibility. Franklin Energy uses SharePoint to transfer monthly data reporting to CenterPoint Energy to validate invoices that do not contain PII. Neither firm reported challenges or issues related to data access, transfer, and retention processes.

Franklin Energy experienced a breach of customer shipping addresses associated with a third-party contractor; however, CenterPoint Energy reported that Franklin Energy followed the requirements stipulated in its contract for reporting data breaches and the issue was resolved without challenges. Franklin Energy staff noted that the firm is consistently working to improve and fine-tune its data security practices and reported currently using data breach risk mitigation strategies including firewalls, threat detection systems, data encryption, role-based access controls, daily data backups, and vulnerability checks, as well as having a robust disaster recovery plan in place.

To ensure data integrity, Franklin Energy maintains data validation processes within its ecommerce platform that verify customer eligibility and the quality of customer data supplied during participation in the program. The firms also maintain consistent communication via meetings and emails to discuss data integrity and confirm that processes are carried out as planned. Both CenterPoint Energy and Franklin Energy reported satisfaction with the relationship between the two firms, current communication processes, and Franklin Energy's performance as the Energy Efficiency Store program implementer.

Policy and Procedure Review

In addition to staff interviews, Cadmus conducted a thorough review of the contractual documentation between CenterPoint Energy and Franklin Energy, with an emphasis on any and all terms related to the accessibility, transfer, storage, anonymization, and retention policies related to customer data.

CenterPoint Energy provided Cadmus with two documents which control the data transfer process between Franklin Energy and CenterPoint Energy: "CNP_x_Franklin_Energy_DPSA_Fully_Signed.docx.pdf" and "2024 Franklin Energy Group SOC 2 Type 2 Report – CONFIDENTIAL.pdf." The first document is the

Data Privacy and Security Addendum between CenterPoint Energy and Franklin Energy signed August 29, 2024. This document outlines the “secure and appropriate use, handling and disposal of Company information.”⁶² Cadmus compared this document to similar documents that Cadmus has executed with other clients, to ensure that no standard procedural requirements or common terms were omitted or were not fully defined. Cadmus found that there were no systemic missing requirements in the currently executed contract that warranted immediate notification. However, Cadmus staff noted several pieces of contractual language that could be seen as ambiguous or unclear. Cadmus provided suggestions where revisions to current text, or additional definitions of specific terms, could improve clarity on intended requirements and procedures. These are described in the findings and recommendations section below in more detail.

The second document is the official independent service auditors report from Baker Tilley regarding Franklin Energy’s energy savings management systems.⁶³ Cadmus contract staff reviewed this audit in detail, focusing on the review and audit results of data transfer, storage, and security requirements. Cadmus noted that Franklin Energy passed their most recent SOC 2 audit, with only one exception. It noted that a terminated employee retained some access to secure data more than 24 hours after termination. Franklin Energy had taken steps to mitigate the risk associated with employee termination, and the report’s final summary confirms that the concern is no longer ongoing. Cadmus staff considers Franklin Energy’s SOC 2 contractual requirements as met per this audit.

Findings and Recommendations

The current data transfer and security processes and policies between CenterPoint Energy and Franklin Energy appear to be satisfactory. Both parties report that current practices are sufficient to guarantee the secure transfer, storage, and retention of customer and utility data, and that the Energy Efficiency Store program is operating as intended. Cadmus found no contractual, procedural, or technical flaws in either the currently described relationship between CenterPoint Energy and Franklin Energy staff, nor in the contractual documents between them.

Cadmus has limited recommendations regarding the potential improvement of contractual language that it offers to CenterPoint Energy for consideration, but does not find any current risks that need immediate resolution.

- **Recommendation:** Maintain all current best practices and regular communication between Franklin Energy and CenterPoint Energy to ensure that any potential data integrity or delivery challenges are mitigated safely and quickly.
- **Recommendation:** Specify that all CenterPoint Energy data should not only be maintained in the U.S. but also “located” in the U.S. (A small edit to this effect has been flagged on Section 2 (Info

⁶² Data Privacy and Security Addendum, Page 1, “CNP_x_Franklin_Energy_DPSPA_Fully_Signed.docx.pdf”

⁶³ 2024 Franklin Energy Group SOC 2 Type 2 Report – CONFIDENTIAL.pdf

Privacy & Security - Data Privacy Compliance), subsection 2.1.2, fourth bullet on page 4 of CNP_x_Franklin_Energy_DPSA_Fully_Signed.docx.pdf)

- **Recommendation:** Change reference from ISO 27002 to use ISO 27001 and/or ISO 27002 for broader coverage. (A comment to this effect has been flagged on Section 2 (Info Privacy & Security - Data Privacy Compliance), subsection 2.1.2, first paragraph under the bulleted list on page 4 of CNP_x_Franklin_Energy_DPSA_Fully_Signed.docx.pdf)
- **Recommendation:** Conduct additional quality control of general formatting (such as section numbering) and section references to ensure consistency and accurateness throughout the Data Privacy and Security Addendum