



Focus on Energy

Calendar Year 2016 Evaluation Report

Volume I
May 19, 2017

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List of Acronyms

Acronym	Term
AVERT	AVoided Emissions and geneRation Tool (from U.S. Environmental Protection Agency)
CB&I	Chicago Bridge & Iron Company
CFL	Compact Fluorescent Lamp
CY	Calendar Year
EIA	Energy Information Administration
EM&V	Evaluation, Measurement, and Verification
EUL	Effective Useful Life
HVAC	Heating, Ventilation, and Air Conditioning
kW	Kilowatt
kWh	Kilowatt Hour
LED	Light-Emitting Diode
LMP	Locational Marginal Pricing
MISO	Midcontinent Independent Transmission System Operator, Inc.
MMBtu	Million British Thermal Units
MThm	Megatherm
MWh	Megawatt Hour
NPS	Net Promotor Score
NTG	Net-to-Gross
PSC	Public Service Commission of Wisconsin
SEERA	Statewide Energy Efficiency and Renewable Administration
SPECTRUM	Statewide Program for Energy Customer Tracking, Resource Utilization, and Data Management
TRC	Total Resource Cost (test)
TRM	Technical Reference Manual
UAT	Utility Administrator Test

Executive Summary

This report, presented in three volumes, describes the evaluation findings and impacts achieved by Focus on Energy for calendar year (CY) 2016. Volume I summarizes findings across all programs and measure categories in the portfolio. Volume II provides detailed findings for each Focus on Energy program, including pilot programs. The appendices contain additional detail on evaluation methodologies and include supporting data and evaluation materials. The Wisconsin Focus on Energy Online Reporting Tool allows users to review savings by year, program, customer sector, and measure category and offers other useful data by county, political district, and utility territory.¹

All four resources (Volume I, Volume II, the appendices, and the online reporting tool) should be read together to gain a comprehensive perspective on the Focus on Energy portfolio.

Overall, the CY 2016 programs were cost-effective and achieved high participant satisfaction. Altogether, the programs made significant progress toward the four-year savings goals established for the Focus on Energy CY 2015–CY 2018 quadrennial.

SUMMARY OF METHODS

The Evaluation Team defined these key evaluation terms, briefly presented here and described in more detail in the Glossary of Terms in Appendix B:

- **Gross savings:** Program reported change in energy consumption and/or demand resulting from an efficiency program
- **Verified gross savings:** Energy savings verified by an independent evaluation team
- **Net savings:** Savings directly attributable to program efforts (i.e., net of what would have occurred in its absence)

To determine verified gross savings, the Evaluation Team reviewed and assessed the technical assumptions that Focus on Energy used to calculate savings, participation levels, and measure installation and retention rates.²

To determine net savings, the Evaluation Team conducted primary research in CY 2016 and applied CY 2015 results.

¹The Wisconsin Focus on Energy Online Reporting Tool can be found at: <http://evaluations.focusonenergy.com>

²The Evaluation Team comprises Cadmus, Apex Analytics, and St. Norbert College Strategic Research Institute.

KEY ACHIEVEMENTS

The Public Service Commission of Wisconsin (PSC) adopted four-year (CY 2015 through CY 2018) net annual savings goals of 15,407,384 MMBtu, 2,261,492,068 kWh, 319,838 kW, and 76,911,727 therms.³

Table 1 lists CY 2016 annual gross claimed savings, verified gross savings, and verified net savings for residential and nonresidential programs.

Table 1. CY 2016 First-Year Annual Savings by Segment*

SAVINGS TYPE	UNIT	RESIDENTIAL	NONRESIDENTIAL	TOTAL
Gross	MMBtu	1,176,587	3,608,184	4,784,771
	kWh	201,446,657	416,249,330	617,695,987
	kW	27,382	56,492	83,874
	therms	4,892,509	21,879,413	26,771,922
Verified Gross	MMBtu	1,118,979	3,623,150	4,742,130
	kWh	199,522,620	417,196,172	616,718,792
	kW	29,612	59,101	88,712
	therms	4,382,082	21,996,771	26,378,853
Verified Net	MMBtu	808,349	2,658,146	3,466,495
	kWh	148,369,600	293,179,447	441,549,046
	kW	21,746	41,663	63,409
	therms	3,021,116	16,578,176	19,599,292

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

Table 2 lists the verified net savings achieved in the first two years of the CY 2015–CY 2018 quadrennial.

Table 2. CY 2015 and CY 2016 First-Year Annual Verified Net Savings by Segment*

CALENDAR YEAR	UNIT	RESIDENTIAL	NONRESIDENTIAL	TOTAL
2015	MMBtu	927,346	3,869,846	4,797,192
	kWh	206,530,139	351,708,289	558,238,428
	kW	24,312	48,869	73,180
	therms	2,226,649	26,698,171	28,924,820
2016	MMBtu	808,349	2,658,146	3,466,495
	kWh	148,369,600	293,179,447	441,549,046
	kW	21,746	41,663	63,409
	therms	3,021,116	16,578,176	19,599,292
Total	MMBtu	1,735,694	6,527,992	8,263,686
	kWh	354,899,739	644,887,735	999,787,474
	kW	46,058	90,532	136,590
	therms	5,247,765	43,276,348	48,524,112

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

³ Public Service Commission of Wisconsin. "Amendment 2 to the Contract for Services Between The Statewide Energy Efficiency and Renewables Administration and CB&I Government Solutions, Inc." PSC REF#: 283917, Contract Number 9501-FE-120, Amendment 2. Available online: http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=283917

As shown in Figure 1, Focus on Energy achieved 54% of the MMBtu savings goal, 44% of the electric energy savings goal, 43% of the electric demand savings goal, and 63% of the gas net annual quadrennial savings goal.

Figure 1. Focus on Energy's Achievements-to-Date of Four-Year (CY 2015–CY 2018) Net Annual Savings Goal*



*100% reflects PSC's established net annual goals of 15,407,384 MMBtu, 2,261,492,068 kWh, 319,838 kW, and 76,911,727 therms.

Additionally, the PSC ordered that the Focus on Energy Program Administrator track quadrennial savings goals compared to verified gross lifecycle savings targets. Lifecycle savings represent the savings programs can realize through measures over their expected useful lives. These targets are 268,659,142 MMBtu, 28,977,379,862 kWh, 1,429,224,074 therms, and 422,264 kW.⁴ Table 3 shows the lifecycle savings achieved by Focus on Energy in CY 2016.

Table 3. CY 2016 Lifecycle Savings by Segment*

SAVINGS TYPE	UNIT	RESIDENTIAL	NONRESIDENTIAL	TOTAL
Gross	MMBtu	21,788,582	51,264,565	73,053,147
	kWh	3,648,524,512	6,268,916,395	9,917,440,907
	kW	27,382	56,492	83,874
	therms	93,398,162	298,750,220	392,148,382
Verified Gross	MMBtu	19,728,652	52,365,600	72,094,252
	kWh	3,199,626,956	6,291,666,334	9,491,293,290
	kW	29,612	59,101	88,712
	therms	88,115,245	308,984,348	397,099,593
Verified Net	MMBtu	13,008,748	38,841,766	51,850,514
	kWh	2,287,784,993	4,450,767,897	6,738,552,890
	kW	21,746	41,663	63,409
	therms	52,028,254	236,557,459	288,585,713

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

Table 4 lists verified gross lifecycle savings achieved in the first two years of the CY 2015–CY 2018 quadrennial.

⁴Public Service Commission of Wisconsin. "Amendment 2 to the Contract for Services Between The Statewide Energy Efficiency and Renewables Administration and CB&I Government Solutions, Inc." PSC REF#: 283917, Contract Number 9501-FE-120, Amendment 2. Available online: http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=283917

Table 4. CY 2015 and CY 2016 Verified Gross Lifecycle Savings by Segment*

CALENDAR YEAR	UNIT	RESIDENTIAL	NONRESIDENTIAL	TOTAL
2015	MMBtu	15,832,924	61,140,436	76,973,360
	kWh	2,223,095,841	6,583,672,339	8,806,768,180
	kW	28,896	62,608	91,504
	therms	82,477,213	386,769,461	469,246,674
2016	MMBtu	19,728,652	52,365,600	72,094,252
	kWh	3,199,626,956	6,291,666,334	9,491,293,290
	kW	29,612	59,101	88,712
	therms	88,115,245	308,984,348	397,099,593
Total	MMBtu	35,561,576	113,506,036	149,067,612
	kWh	5,422,722,797	12,875,338,673	18,298,061,470
	kW	58,507	121,709	180,216
	therms	170,592,458	695,753,809	866,346,267

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

As shown in Figure 2, Focus on Energy achieved 55% of its MMBtu savings goal, 63% of the electric energy savings goal, 43% of the electric demand savings goal, and 61% of the gas verified gross lifecycle quadrennial savings goal.

Figure 2. Program Administrator's Achievements-to-Date of Four-Year (CY 2015–CY 2018) Verified Gross Lifecycle Savings Goal*



*100% reflects Program Administrator established verified gross lifecycle goals of 268,659,142 MMBtu, 28,977,379,862 kWh, 1,429,224,074 therms and 422,264 kW.

The Program Administrator also has a contractual goal to maximize participant satisfaction. Participant surveys in CY 2016 identified average customer satisfaction as 8.9 on a 10-point scale, where 10 meant extremely satisfied and 0 meant extremely dissatisfied. The CY 2016 average customer satisfaction rating is statistically equivalent to the CY 2015 average rating of 8.8, which was established as the portfolio baseline against which improvement will be measured for the CY 2015–CY 2018 quadrennial.

Table 5 lists the findings from the Evaluation Team's benefit/cost analysis of the CY 2016 portfolio. The residential and nonresidential segments and overall portfolio were cost-effective.

Table 5. CY 2016 Cost-Effectiveness Results

UNIT	SEGMENTS INCLUSIVE OF RENEWABLES	SEGMENTS AND RENEWABLES SEPARATE
Residential Segment	2.75	2.93
Nonresidential Segment	3.13	3.36
Renewables	N/A	1.09
Total	3.00	3.00

Introduction

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

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

In December 2014, the PSC contracted with a team of energy consulting and market research firms to verify Focus on Energy savings and evaluate its programs during the CY 2015–CY 2018 quadrennial. These firms, collectively referred to as the Evaluation Team, are Cadmus, Apex Analytics, and St. Norbert College Strategic Research Institute.

The state's investor-owned utilities, with PSC approval, contracted with CB&I (Chicago Bridge & Iron Company, formerly Shaw Environmental & Infrastructure, Inc.) to serve as the Program Administrator for the CY 2015–CY 2018 quadrennial. CB&I is responsible for designing all of Focus on Energy's programs and the overall performance of these programs to meet Wisconsin's energy-savings goals. CB&I is also responsible for managing and coordinating individual program offerings, supporting customers and Trade Allies through a customer service center, coordinating with participating utilities, guiding marketing and communication activities, and reporting to the Statewide Energy Efficiency and Renewable Administration (SEERA) and to the PSC. SEERA, formed by the state's investor-owned utilities, is responsible for collecting utility funding for Focus on Energy and contracting with the Program Administrator.

In CY 2016, Focus on Energy maintained two separate portfolios of programs:

- The residential portfolio, servicing single-family and multifamily homes
- The nonresidential portfolio, servicing commercial, industrial, school, government, and agricultural customers

CY 2016 Evaluation

The Evaluation Team investigated the performance of 14 programs that delivered energy savings during CY 2016. Table 6 lists the programs evaluated by the residential and nonresidential portfolios.

Appendix C provides detailed descriptions of these programs.

Table 6. Residential and Nonresidential Programs

Residential Portfolio	Nonresidential Portfolio
Multifamily Direct Install	Agriculture, Schools and Government
Multifamily Energy Savings	Business Incentive
Home Performance with ENERGY STAR®	Chain Stores and Franchises
New Homes	Design Assistance
Retailer Lighting and Appliance Program	Large Energy Users
Simple Energy Efficiency	Small Business
	Renewable Energy Competitive Incentive
	Renewable Loan Fund

In addition to the standard programs, Focus on Energy introduced six pilot programs during CY 2015 and CY 2016 (Table 7). Appendix C provides detailed descriptions of these pilots.

Table 7. Residential and Nonresidential Pilot Programs

Residential Pilot Programs	Nonresidential Pilot Programs
Manufactured Homes	On Demand Savings
Retail Products Platform (RPP)	Strategic Energy Management
Seasonal Savings	
Smart Thermostats	

Summary of Measures by Segment

The Evaluation Team assessed the electric and gas savings achieved by each measure installed in CY 2016 during its first year of operation as well as any impacts that each measure can incur during its effective useful life (EUL). Reporting on both first-year annual and lifecycle savings provides a full picture of each program's performance.

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

Table 8. CY 2016 Residential and Nonresidential Program Measure Categories

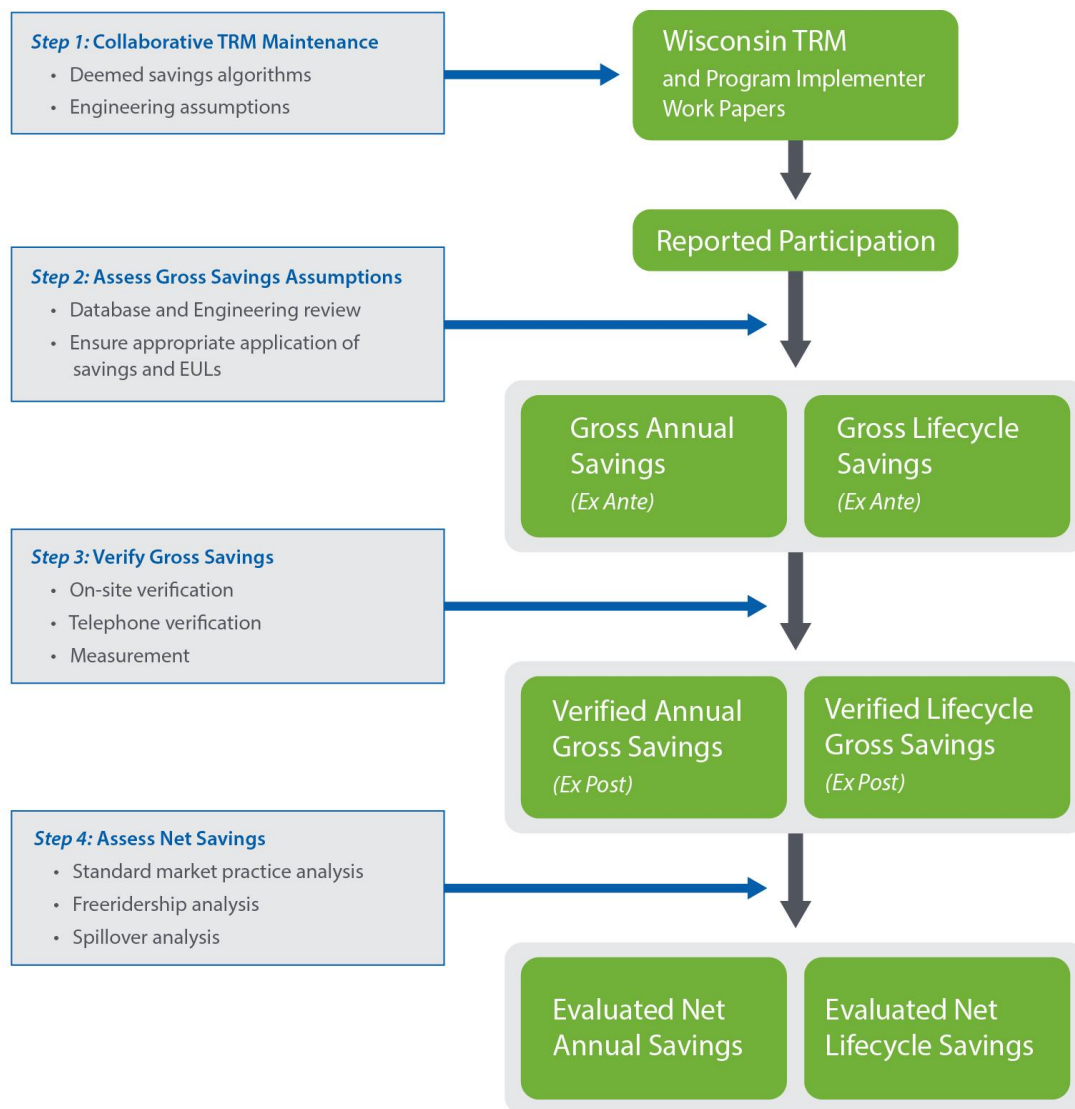
Residential Only	Residential and Nonresidential Segments	Nonresidential Only
<ul style="list-style-type: none"> Dishwasher, Residential Domestic Hot Water Controls Motor Refrigerator / Freezer - Residential 	<ul style="list-style-type: none"> Aeration Air Sealing Boiler Bonus Chiller 	<ul style="list-style-type: none"> Aeration Biogas Bonus Commercial Compressor

Residential Only	Residential and Nonresidential Segments	Nonresidential Only
<ul style="list-style-type: none"> Whole Building New Construction 	<ul style="list-style-type: none"> Clothes Washer Controls Delamping Design Energy Recovery Fluorescent, Compact (CFL) Fluorescent, Linear Furnace Geothermal Insulation Light Emitting Diode (LED) Other Packaged Terminal Unit (PTAC, PTHP) Photovoltaics Pre-Rinse Sprayer Rooftop Unit / Split System AC Scheduling Showerhead Steam Trap Variable Speed Drive Water Heater Window 	<ul style="list-style-type: none"> Computer Management Controls Dishwasher, Commercial Door Dryer Economizer Energy Recovery Fan Filtration Fryer Furnace Grain Dryer Greenhouse Griddle Heat Exchanger High Intensity Discharge (HID) Hot Holding Cabinet Ice Machine Infrared Heater Light Emitting Diode (LED) Livestock Waterer Motor Nozzle Other Oven Process Heat Pump Reconfigure Equipment Refrigerated Case Door Residential Scholarship Specialty Pulp & Paper Steam Trap Steamer Strip Curtain Study Supporting Equipment Tune-Up / Repair / Commissioning Unit Heater Variable Speed Drive

Overview of Evaluation Activities

Figure 3 depicts the four-step process the Evaluation Team is conducting throughout the CY 2015–CY 2018 quadrennial (further explained after the figure).

Figure 3. Evaluation Steps to Determine Net Savings



The Evaluation Team conducted the following steps:

- Step 1. Collaborative Technical Reference Manual (TRM) Maintenance.** The Evaluation Team collaborated with the PSC and key Focus on Energy program actors to ensure that the programs' deemed savings, algorithms, and input assumptions are appropriate. Specific activities in this step included developing measure-specific work papers, preparing deemed savings reports, and updating the TRM.

- **Step 2. Assess Gross Savings Assumptions.** The Evaluation Team reviewed the implementation database to check for entry errors, inconsistencies, ineligible equipment, and any other possible errors. The Evaluation Team reconciled this information with data from the Program Administrator and Program Implementer. This process produced the *ex ante* gross annual and lifecycle savings.
- **Step 3. Verify Gross Savings.** The Evaluation Team verified—either through site visits or phone surveys—the installation of measures and assessed gross savings, which included revisiting baseline assumptions and engineering inputs. It also recalculated or measured the actual performance of installed measures, particularly for hybrid and custom projects. The Evaluation Team applied the data collection and analysis methods appropriate for the specific program and installed measures.
- **Step 4. Assess Net Savings.** The Evaluation Team estimated net-to-gross (NTG) ratios that identified the proportion of gross savings directly attributable to the influence of the programs. In deriving these ratios, the Evaluation Team accounted for, and deducted, reported savings that were associated with *freeriders* (participants who would have undertaken the same action and achieved the same savings in the absence of a program) and accounted for, and added, *spillover savings* (savings that were the result of a program’s influence but for which no incentive was paid and for which no program had recorded savings). The Evaluation Team applied NTG ratios to the *ex post* gross savings from step three. The Evaluation Team determined net savings through billing analysis (using a control group), self-reported information (conducted via surveys), or using a standard market practice approach. The standard market practice method uses program data collected through the evaluation process to define the average market baseline and average program-installed energy consumption of specific measure categories.

Table 9 lists the specific data collection activity and sample size used in the residential and nonresidential segments for the CY 2016 evaluation.

Table 9. CY 2016 Evaluation Activities

Evaluation Activity	Residential	Nonresidential	Total
On-Site Evaluation Measurement and Verification (EM&V) ¹	180	135	315
Engineering Desk Reviews	155	305	460
Project Audit and Verification Surveys ²	70	431	501
Participant Survey Completes	503	494	997
Ongoing Participant Satisfaction Survey Completes ³	2,195	1,403	3,598
Partial and Nonparticipant Survey Completes	12	0	12
Stakeholder Interviews	10	21	31
Trade Ally and Market Actor Surveys/Interviews ⁴	173	82	255

¹All projects included in on-site EM&V also received an engineering desk review.

²Exclusive of project audits conducted for on-site EM&V.

³Does not include all Simple Energy Efficiency Program ongoing participant satisfaction survey responses; this number includes the 12% sample from the Simple Energy Efficiency Program population.

⁴Values represent number of interviews conducted. Includes Retailer Lighting and Appliance Program retailer and manufacturer surveys.

Evaluation Findings

Table 10 lists the overall net annual MMBtu, electricity, demand, and gas savings for Focus on Energy's portfolio in CY 2015 and CY 2016.

Table 10. Overall Portfolio Net Annual Savings by Calendar Year

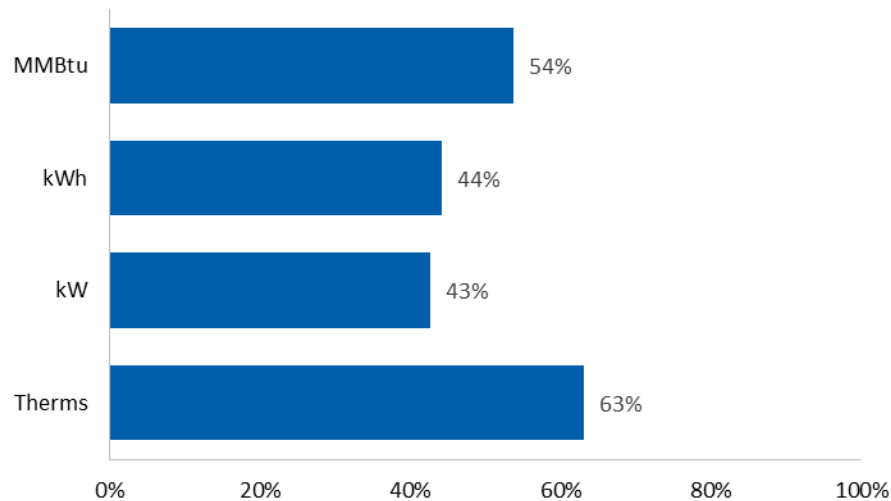
Calendar Year	MMBtu Savings	Electric Savings (kWh)	Demand Savings (kW)	Gas Savings (therms)
2015	4,797,192	558,238,428	73,180	28,924,820
2016	3,466,495	441,549,046	63,409	19,599,292
Total	8,263,686	999,787,474	136,590	48,524,112

The PSC Order, docket 5-FE-120 (PSC REF#:283917), set four-year net annual savings goals of 15,407,384 MMBtu, 2,088,768,000,261,492,068 kWh, 385,342,319,838 kW, and 83,996,000,76,911,727 therms.⁵ According to the order, the PSC must meet the MMBtu goal, which is calculated from the kWh and therms goals. To provide flexibility in the changing markets, the Program Administrator is required to meet only 90% of the kWh and therms goals. Remaining MMBtu savings above the 90% threshold can be met with either fuel.

Relative to these goals, the Focus on Energy programs reached 54% of the MMBtu goal, 44% of the kWh savings goal, 43% of the kW savings goal, and 63% of the therms quadrennial savings goal to-date. Figure 4 compares Focus on Energy's actual quadrennial savings with the PSC's quadrennial goals. Note that the PSC's established goals and verified gross targets are for the full four-year cycle.

⁵ Public Service Commission of Wisconsin. "Amendment 2 to the Contract for Services Between The Statewide Energy Efficiency and Renewables Administration and CB&I Government Solutions, Inc." PSC REF#: 283917, Contract Number 9501-FE-120, Amendment 2. Available online: http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=283917

Figure 4. Focus on Energy's Achievements-to-Date of Four-Year (CY 2015–CY 2018) Net Annual Savings Goal¹



¹100% reflects PSC's established net annual goals of 15,407,384 MMBtu, 2,261,492,068 kWh, 319,838 kW, and 76,911,727 therms.

Table 11 lists the overall verified gross lifecycle electricity, demand, and gas savings for the portfolio in CY 2015 and CY 2016.

Table 11. Overall Portfolio Verified Gross Lifecycle Savings by Calendar Year

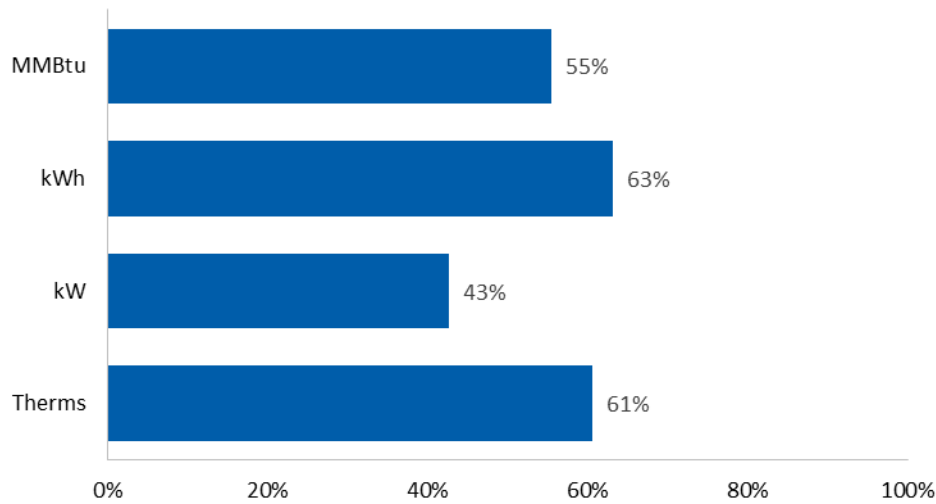
Calendar Year	MMBtu Savings	Electric Savings (kWh)	Demand Savings (kW)	Gas Savings (therms)
2015	76,973,360	8,806,768,180	91,504	469,246,674
2016	72,094,252	9,491,293,290	88,712	397,099,593
Total	149,067,612	18,298,061,470	180,216	866,346,267

The PSC has ordered that the Focus on Energy Program Administrator track quadrennial savings goals compared to verified gross lifecycle savings targets: 268,659,142 MMBtu, 28,977,379,862 kWh, 1,429,224,074 therms and 422,264 kW.⁶ Of the quadrennial goals, the Program Administrator reached 55% of the MMBtu savings goal, 63% of the kWh savings goal, 43% of the kW goal, and 61% of the therms.

Figure 5 compares the actual quadrennial savings totals to the Programs Administrator's quadrennial savings goals.

⁶ Public Service Commission of Wisconsin. "Amendment 2 to the Contract for Services Between The Statewide Energy Efficiency and Renewables Administration and CB&I Government Solutions, Inc." PSC Docket 5-FE-120, REF#:283917, Amendment 2. Available online: http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=283917

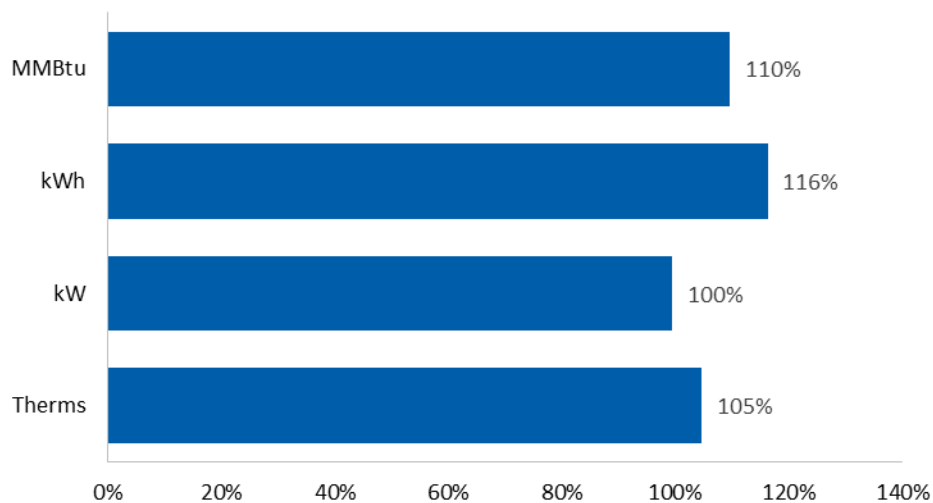
Figure 5. Program Administrator's Achievements-to-Date of Four-Year (CY 2015–CY 2018) Verified Gross Lifecycle Savings Goal¹



¹100% reflects Program Administrator established verified gross lifecycle goals of 268,659,142 MMBtu, 28,977,379,862 kWh, 1,429,224,074 therms and 422,264 kW.

The Program Administrator also tracks interim annual verified gross lifecycle targets, defined as approximately one fourth of the overall CY 2015–CY 2018 savings goals. In CY 2016, these targets represented 65,729,923 MMBtu, 8,153,893,532 kWh, 89,117 kW and 379,088,386 therms. The Program Administrator reached 110% of the MMBtu savings goal, 116% of the kWh savings goal, 100% of the kW goal, and 105% of the therms verified gross lifecycle savings goal. Figure 6 shows the CY 2016 actual savings totals compared to the Programs Administrator's CY 2016 savings goals.

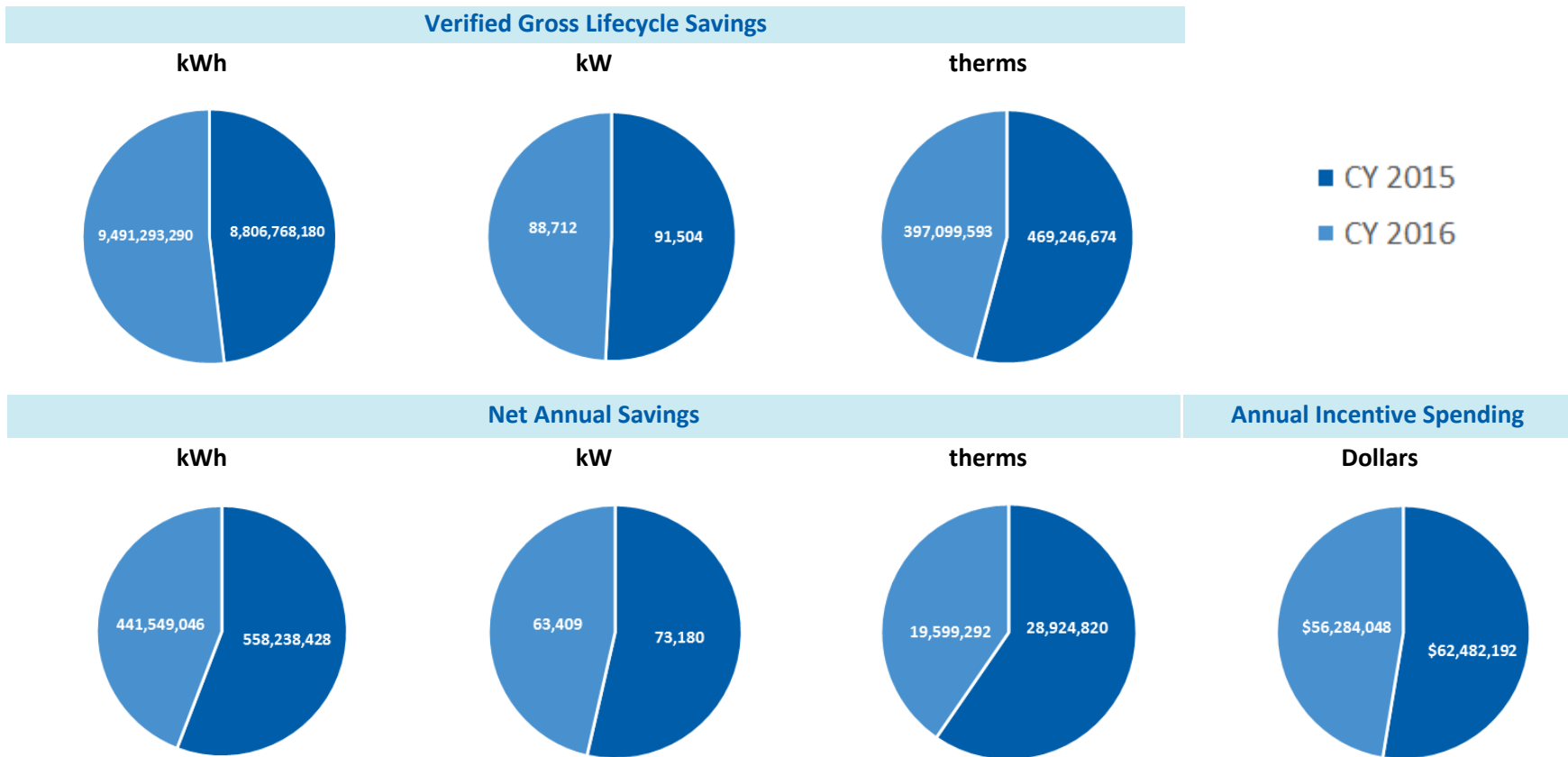
Figure 6. Program Administrator's Achievement of CY 2016 Verified Gross Lifecycle Savings Goal¹



¹100% reflects Program Administrator CY 2016 verified gross lifecycle goals of 65,729,923 MMBtu, 8,153,893,532 kWh, 89,117 kW and 379,088,386 therms.

Figure 7 presents a summary of verified gross lifecycle savings, net annual savings, and annual incentive spending for CY 2015 and CY 2016.

Figure 7. Focus on Energy CY 2015 and CY 2016 Savings and Spending Progress



Summary of Findings by Program

This section summarizes the savings and participation for each program in the Focus on Energy portfolio in CY 2016. Volume II discusses savings for each program and the approaches used for calculating the savings values. The Evaluation Team varied its approach and activities by program, depending upon the level of participation, the savings achieved, and the information available.

Across all programs, the Evaluation Team applied the following standard methods when calculating verified and evaluated savings:

Equation for Verified Gross Lifecycle Savings:

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

Equation for Net Annual Savings:

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

Equation for Net Lifecycle Savings:

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

Table 12 lists the total participation in CY 2016 (measured as number of participating customers) in each program and segment.

Table 12. Total Participation by Program in CY 2016

Segment	Program	Participation
Residential	Multifamily Direct Install	129
Residential	Multifamily Energy Savings	341
Residential	Home Performance with ENERGY STAR®	19,849
Residential	New Homes	2,400
Residential	Retailer Lighting and Appliance ¹	688,204
Residential	Simple Energy Efficiency	70,978
Residential	Renewable Rewards	514
Residential	Design Assistance – Residential	13
Residential Subtotal^{2, 3}		94,224
Nonresidential	Agriculture, Schools and Government	1,172
Nonresidential	Business Incentive	2,298
Nonresidential	Chain Stores and Franchises	264
Nonresidential	Design Assistance	64
Nonresidential	Large Energy Users	368
Nonresidential	Small Business	1,608
Nonresidential	Renewable Energy Competitive Incentive	13
Nonresidential	Renewable Loan Fund	25
Nonresidential	Renewable Rewards – Business	32
Nonresidential Subtotal		5,844
Residential Pilot	Manufactured Homes	79
Residential Pilot	Seasonal Savings	16,568
Residential Pilot	Smart Thermostats	2,605
Nonresidential Pilot	On Demand Savings	33
Nonresidential Pilot	Strategic Energy Management	30
Pilot Subtotal		19,315

¹For CY 2016, the Evaluation Team determined participation for lightbulbs using data from the CY 2015 residential general population survey. The survey collected data on the number of bulbs purchased annually by 609 Wisconsin residents. Using the average number of bulbs purchased annually per household (6.8 CFLs and 5.8 LEDs) and the total number of bulbs purchased from the Program Implementer's tracking system, the Evaluation Team estimated the number of households that participated in the Program in CY 2015. See Volume II for methods used to determine annual participation.

²Does not include Retailer Lighting and Appliance Program participation.

³Although some customers may have participated in multiple programs, the residential portfolio subtotal represents a unique participant count of each individual program.

Figure 8 shows the percentage of verified gross lifecycle savings by sector.

Figure 8. CY 2016 Verified Gross Lifecycle Savings Impact by Sector

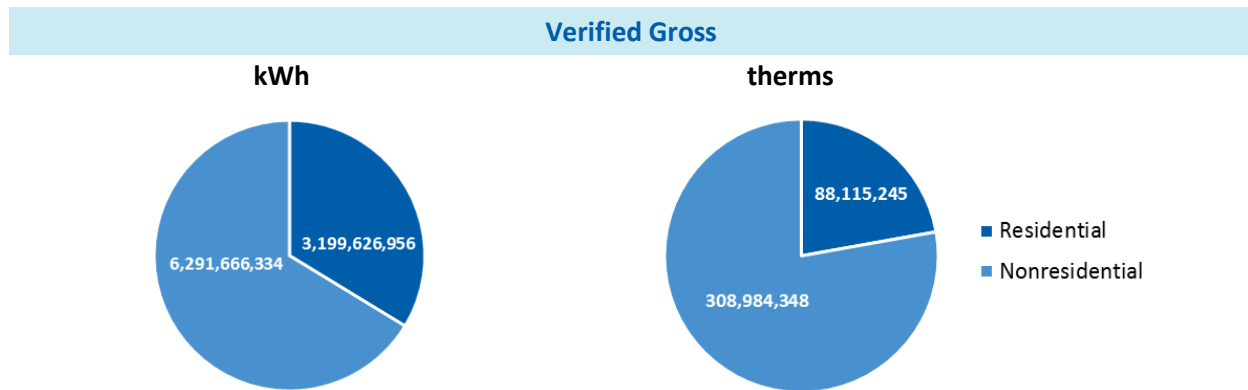


Figure 9 and Figure 10 show the verified gross lifecycle electric and gas energy savings by program for residential and nonresidential programs. Key findings from both segments include these:

- The Retailer Lighting and Appliance Program contributed the greatest amount of electric savings for the residential segment.
- The New Homes Program contributed the greatest amount of gas savings for the residential segment.
- The Large Energy Users Program contributed the greatest amount of electric and gas savings for the nonresidential segment.

Figure 9. CY 2016 Verified Gross Lifecycle Electric Energy Impacts by Program

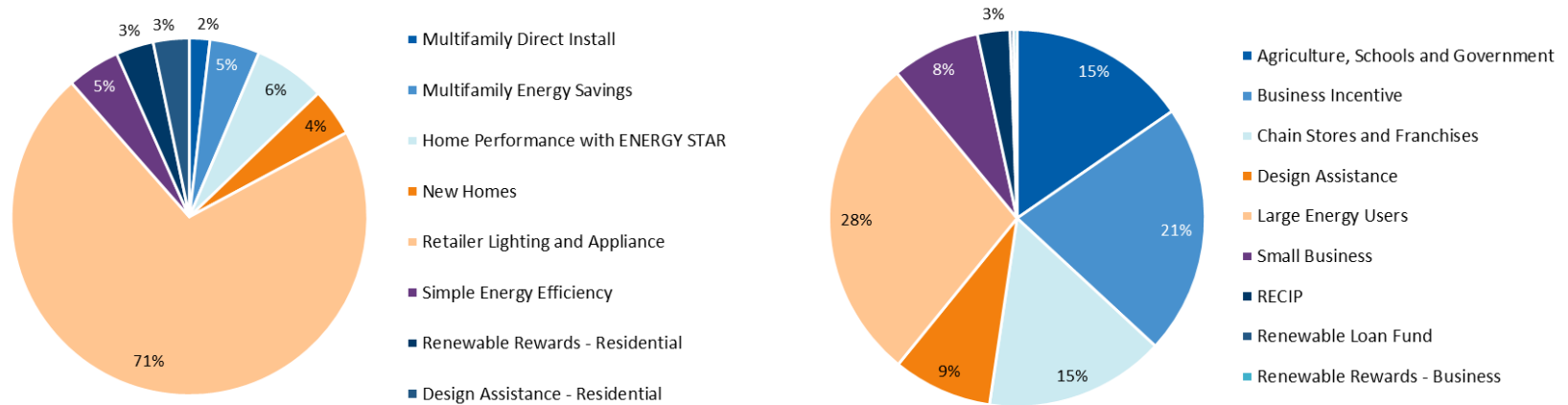


Figure 10. CY 2016 Verified Gross Lifecycle Gas Energy Impacts by Program

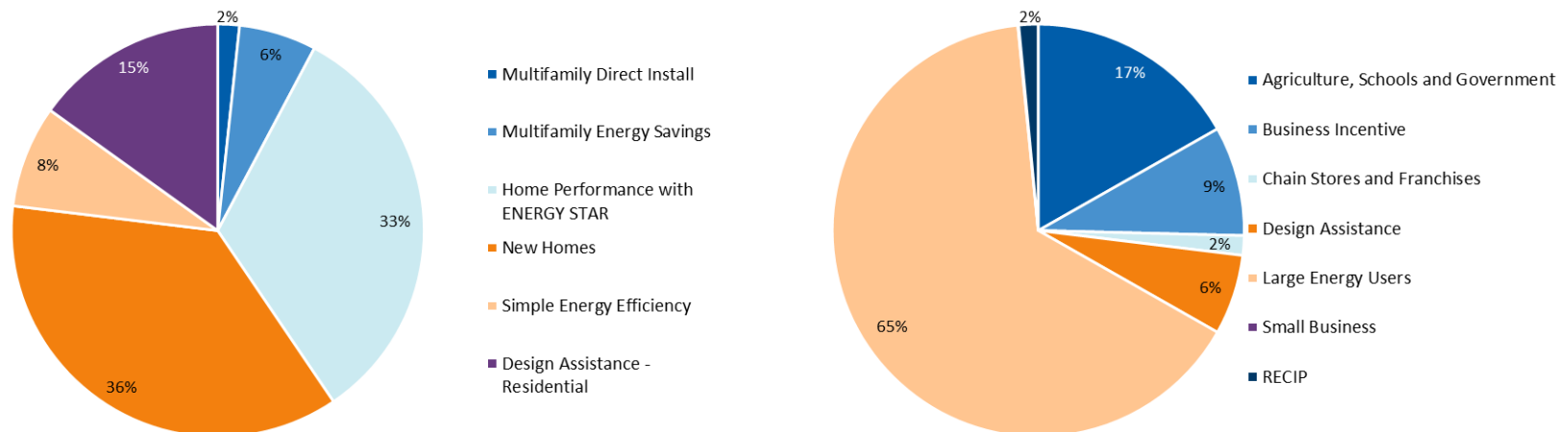


Table 13 lists the first-year annual gross, verified gross, and verified net demand savings for electricity and gas by program, segment, and overall portfolio.

Table 13. Summary of CY 2016 Annual Savings by Program

Program Name	Gross			Verified Gross			Verified Net		
	kWh	kW	therms	kWh	kW	therms	kWh	kW	therms
Residential Programs									
Multifamily Direct Install	4,010,760	282	150,816	3,868,738	268	142,638	3,868,738	268	142,638
Multifamily Energy Savings	11,555,067	1,291	392,155	11,246,920	1,104	353,092	8,885,067	872	278,942
Home Performance with ENERGY STAR	9,037,088	2,890	1,279,998	9,037,088	2,908	1,286,405	8,432,816	2,976	1,060,429
New Homes	4,734,561	1,388	1,045,694	4,734,561	1,388	1,045,694	0	0	77,139
Retailer Lighting and Appliance	150,281,756	17,722	0	146,942,436	17,135	0	105,898,165	12,349	0
Simple Energy Efficiency	11,864,279	874	820,059	11,265,413	866	688,612	11,248,334	865	688,045
Renewable Rewards	3,799,069	1,468	0	4,481,300	1,563	0	3,089,254	1,105	0
Design Assistance - Residential	5,216,274	764	643,583	5,196,843	740	650,206	4,833,064	688	604,691
Residential Total	200,498,853	26,679	4,332,305	196,773,299	25,971	4,166,647	146,255,438	19,122	2,851,884
Nonresidential Programs									
Agriculture, Schools and Government	68,540,772	9,269	4,773,326	67,602,715	9,431	4,435,341	43,941,765	6,130	2,882,971
Business Incentive	93,573,536	12,867	2,189,999	92,882,376	13,003	2,092,434	40,868,245	5,721	920,671
Chain Stores and Franchises	50,957,439	6,952	328,139	57,107,754	9,434	335,452	35,977,885	5,944	211,335
Design Assistance	26,934,946	3,957	960,441	26,834,611	3,832	970,324	24,956,188	3,564	902,401
Large Energy Users	135,311,286	16,305	13,360,620	130,760,798	15,041	13,896,333	107,223,854	12,333	11,394,993
Small Business	30,819,911	5,273	21,650	31,724,642	6,155	21,650	30,138,409	5,847	20,567
Renewable Energy Competitive Incentive	8,746,700	1,322	245,238	8,782,106	1,543	245,238	8,782,106	1,543	245,238
Renewable Loan Fund	749,086	301	0	780,556	391	0	764,945	383	0
Renewable Rewards – Business	615,653	247	0	720,614	271	0	526,048	197	0
Nonresidential Total	416,249,330	56,492	21,879,413	417,196,172	59,101	21,996,771	293,179,447	41,663	16,578,176

Program Name	Gross			Verified Gross			Verified Net		
	kWh	kW	therms	kWh	kW	therms	kWh	kW	therms
Pilot Programs									
Manufactured Homes	141,806	41	6,640	39,706	12	1,660	39,706	12	1,660
Seasonal Savings	392,779	0	48,281	441,188	0	48,764	441,188	0	48,764
Smart Thermostat Pilot	413,220	661	505,283	2,268,428	3,629	165,011	1,633,268	2,613	118,808
Pilots Total	947,804	702	560,204	2,749,321	3,640	215,435	2,114,161	2,624	169,232
Total All Programs	617,695,987	83,874	26,771,922	616,718,792	88,712	26,378,853	441,549,046	63,409	19,599,292

Because evaluation activities and results were not completed within the CY 2016 evaluation year for the On Demand Savings Pilot and Strategic Energy Management Pilot, the Evaluation Team did not provide evaluation findings for any of the pilots. For this reason, the gross savings for these pilots are reported separately and are excluded from all portfolio summaries of savings and cost-effectiveness. Table 14 lists the first-year gross annual savings for electricity and gas for the On Demand Savings Pilot and Strategic Energy Management Pilot.

Table 14. Summary of CY 2016 Gross Annual Savings by Pilot

Pilot Name	Gross		
	kWh	kW	therms
On Demand Savings	0	2,847	0
Strategic Energy Management	1,156,830	-3	1,196,367

Summary of Findings by Measure Category

Table 15 lists CY 2016 residential energy savings, demand savings, and incentive monies spent by measure category.

Table 15. Summary of CY 2016 Annual Savings by Measure Category in the Residential Segment

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	therms	therms %		
Boilers & Burners - Boiler	0	0.00%	0	0.00%	62,317	1.42%	\$161,325.00	0.80%
Boilers & Burners - Controls	0	0.00%	0	0.00%	11,273	0.26%	\$24,394.99	0.12%
Building Shell - Air Sealing	968	0.00%	0	0.00%	1,584	0.04%	\$2,159.43	0.01%
Building Shell - Insulation	1,107	0.00%	2	0.01%	990	0.02%	\$2,850.00	0.01%
Building Shell - Window	0	0.00%	0	0.00%	0	0.00%	\$0.00	0.00%
Domestic Hot Water - Aeration	4,665,960	2.34%	205	0.68%	684,384	15.62%	\$241,427.80	1.19%
Domestic Hot Water - Controls	298	0.00%	0	0.00%	41	0.00%	\$0.00	0.00%
Domestic Hot Water - Insulation	324	0.00%	0	0.00%	16	0.00%	\$49.00	0.00%
Domestic Hot Water - Showerhead	7,938	0.00%	0	0.00%	880	0.02%	\$592.00	0.00%
Domestic Hot Water - Water Heater	-891	0.00%	0	0.00%	13,910	0.32%	\$11,750.00	0.06%
Food Service - Oven	0	0.00%	0	0.00%	0	0.00%	\$25.00	0.00%
HVAC - Controls	2,276,335	1.14%	3,642	12.08%	164,280	3.75%	\$508,725.98	2.52%
HVAC - Furnace	6,368,657	3.19%	1,231	4.08%	566,439	12.93%	\$2,405,150.00	11.90%
HVAC - Other	2,057,660	1.03%	827	2.74%	135,341	3.09%	\$763,900.00	3.78%
Lighting - Controls	1,440,429	0.72%	189	0.63%	0	0.00%	\$333,411.20	1.65%
Lighting - Fluorescent, Compact (CFL)	21,543,600	10.80%	2,506	8.32%	0	0.00%	\$683,313.87	3.38%
Lighting - Light Emitting Diode (LED)	130,575,987	65.46%	15,639	51.90%	133	0.00%	\$8,344,806.59	41.28%
Lighting - Other	0	0.00%	0	0.00%	0	0.00%	\$0.00	0.00%
Motors & Drives - Motor	52,290	0.03%	10	0.03%	0	0.00%	\$13,500.00	0.07%
NA - NA	20,342,816	10.20%	2,113	7.01%	1,149,082	26.23%	\$2,423,770.09	11.99%
New Construction - Whole Building	4,383,946	2.20%	1,354	4.49%	1,045,694	23.87%	\$1,144,950.00	5.66%
Other - Bonus	0	0.00%	0	0.00%	0	0.00%	\$28,365.14	0.14%
Other - Other	933,990	0.47%	820	2.72%	544,192	12.42%	\$2,010,585.40	9.95%

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	therms	therms %		
Renewable Energy - Geothermal	734,318	0.37%	88	0.29%	0	0.00%	\$65,000.00	0.32%
Renewable Energy - Photovoltaics	4,097,597	2.05%	1,508	5.01%	0	0.00%	\$1,044,874.04	5.17%

Table 16 lists CY 2016 nonresidential savings and incentive monies spent by measure category.

Table 16. Summary of CY 2016 Annual Savings by Measure Category in the Nonresidential Segment

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	therms	therms %		
Aeration	3,437,277	0.82%	471	0.80%	19,326	0.09%	\$201,776.84	0.58%
Air Sealing	65,270	0.02%	8	0.01%	127,177	0.58%	\$58,634.70	0.17%
Biogas	6,489,500	1.56%	600	1.02%	201,902	0.92%	\$1,000,000.00	2.87%
Boiler	575,238	0.14%	64	0.11%	2,234,644	10.16%	\$2,012,130.09	5.78%
Bonus	0	0.00%	0	0.00%	0	0.00%	\$120,331.70	0.35%
Chiller	8,732,418	2.09%	1,367	2.31%	0	0.00%	\$960,830.33	2.76%
Clothes Washer	292	0.00%	0	0.00%	3,779	0.02%	\$2,776.56	0.01%
Compressor	6,932,300	1.66%	1,202	2.03%	0	0.00%	\$574,890.00	1.65%
Computer Management	1,104,368	0.26%	0	0.00%	0	0.00%	\$34,284.00	0.10%
Controls	29,446,612	7.06%	2,054	3.48%	1,066,273	4.85%	\$1,607,259.51	4.61%
Delamping	3,980,757	0.95%	848	1.44%	0	0.00%	\$89,103.20	0.26%
Design	24,680,824	5.92%	3,832	6.48%	970,324	4.41%	\$3,004,736.17	8.63%
Dishwasher, Commercial	553,456	0.13%	2	0.00%	9,708	0.04%	\$29,520.00	0.08%
Door	0	0.00%	0	0.00%	12,242	0.06%	\$9,484.00	0.03%
Dryer	994,456	0.24%	187	0.32%	59,928	0.27%	\$90,216.80	0.26%
Economizer	37,624	0.01%	0	0.00%	0	0.00%	\$5,050.00	0.01%
Energy Recovery	-279,438	-0.07%	401	0.68%	3,204,664	14.57%	\$1,914,090.44	5.50%
Fan	1,342,806	0.32%	333	0.56%	1,323	0.01%	\$181,507.26	0.52%
Filtration	589,142	0.14%	148	0.25%	344,923	1.57%	\$150,912.94	0.43%

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	therms	therms %		
Fluorescent, Compact (CFL)	136,754	0.03%	41	0.07%	0	0.00%	\$3,061.05	0.01%
Fluorescent, Linear	18,846,873	4.52%	3,872	6.55%	0	0.00%	\$1,057,834.52	3.04%
Fryer	17,475	0.00%	4	0.01%	17,163	0.08%	\$13,560.00	0.04%
Furnace	186,310	0.04%	0	0.00%	154,377	0.70%	\$108,259.20	0.31%
Geothermal	187,326	0.04%	71	0.12%	43,336	0.20%	\$107,132.66	0.31%
Grain Dryer	37,676	0.01%	0	0.00%	29,066	0.13%	\$27,316.74	0.08%
Greenhouse	0	0.00%	0	0.00%	23,629	0.11%	\$7,100.82	0.02%
Griddle	5,837	0.00%	2	0.00%	0	0.00%	\$475.00	0.00%
Heat Exchanger	1,300,305	0.31%	0	0.00%	0	0.00%	\$49,875.00	0.14%
High Intensity Discharge (HID)	104,936	0.03%	4	0.01%	0	0.00%	\$7,680.00	0.02%
Hot Holding Cabinet	63,548	0.02%	12	0.02%	0	0.00%	\$2,200.00	0.01%
Ice Machine	16,933	0.00%	2	0.00%	0	0.00%	\$840.00	0.00%
Infrared Heater	0	0.00%	0	0.00%	53,671	0.24%	\$16,556.75	0.05%
Insulation	186,481	0.04%	27	0.05%	482,954	2.20%	\$260,527.98	0.75%
Light Emitting Diode (LED)	151,406,009	36.29%	24,875	42.09%	0	0.00%	\$11,650,315.72	33.45%
Livestock Waterer	795,324	0.19%	0	0.00%	0	0.00%	\$15,685.00	0.05%
Motor	5,711,487	1.37%	791	1.34%	0	0.00%	\$146,711.34	0.42%
Nozzle	95,291	0.02%	36	0.06%	0	0.00%	\$160.00	0.00%
Other	68,346,864	16.38%	7,792	13.18%	7,694,225	34.98%	\$5,425,321.70	15.58%
Oven	150,369	0.04%	35	0.06%	12,434	0.06%	\$17,700.00	0.05%
Packaged Terminal Unit (PTAC, PTHP)	1,030,459	0.25%	0	0.00%	0	0.00%	\$60,500.00	0.17%
Photovoltaics	2,105,280	0.50%	872	1.48%	0	0.00%	\$935,670.41	2.69%
Pre-Rinse Sprayer	7,719	0.00%	2	0.00%	406	0.00%	\$496.51	0.00%
Process Heat	47,223	0.01%	6	0.01%	0	0.00%	\$4,050.00	0.01%
Pump	658,940	0.16%	17	0.03%	0	0.00%	\$29,433.20	0.08%
Reconfigure Equipment	2,511,258	0.60%	409	0.69%	0	0.00%	\$115,998.78	0.33%
Refrigerated Case Door	2,302,549	0.55%	310	0.52%	181,596	0.83%	\$195,136.00	0.56%

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	therms	therms %		
Refrigerator / Freezer - Commercial	726,595	0.17%	96	0.16%	0	0.00%	\$32,762.50	0.09%
Rooftop Unit / Split System AC	1,703,418	0.41%	1,095	1.85%	110,801	0.50%	\$420,400.23	1.21%
Scheduling	409,941	0.10%	14	0.02%	186,013	0.85%	\$161,894.76	0.46%
Showerhead	64,002	0.02%	0	0.00%	3,186	0.01%	\$2,052.00	0.01%
Solar PV	1,501,170	0.36%	661	1.12%	0	0.00%	\$73,573.68	0.21%
Specialty Pulp & Paper	355,486	0.09%	67	0.11%	0	0.00%	\$39,000.00	0.11%
Steam Trap	0	0.00%	0	0.00%	4,634,289	21.07%	\$160,443.43	0.46%
Steamer	109,580	0.03%	20	0.03%	11,838	0.05%	\$9,450.00	0.03%
Strip Curtain	90,601	0.02%	11	0.02%	0	0.00%	\$6,467.76	0.02%
Supporting Equipment	433,995	0.10%	50	0.09%	0	0.00%	\$20,705.49	0.06%
Tune-up / Repair / Commissioning	9,195,014	2.20%	593	1.00%	0	0.00%	\$146,446.82	0.42%
Unit Heater	0	0.00%	0	0.00%	47,014	0.21%	\$23,492.00	0.07%
Variable Speed Drive	57,355,502	13.75%	5,771	9.76%	3,572	0.02%	\$1,349,293.98	3.87%
Water Heater	308,743	0.07%	25	0.04%	43,877	0.20%	\$68,210.20	0.20%
Window	0	0.00%	0	0.00%	7,112	0.03%	\$6,123.20	0.02%
Water Heater	308,743	0.07%	25	0.04%	28,935	0.15%	\$68,210.20	0.19%
Window	0	0.00%	0	0.00%	4,595	0.02%	\$6,123.20	0.02%

Residential Segment Process Evaluation Findings

For the CY 2016 process evaluation of the residential programs, the Evaluation Team collected information and perspectives from Focus on Energy participants, Trade Allies, Program Implementers, and the Program Administrator. The Evaluation Team reached participants through a telephone program-level participant survey and/or an online or mailed participant satisfaction survey.

Table 17. Residential Process Evaluation Activities by Program

Evaluation Activity	Multifamily Direct Install	Multifamily Energy Savings	Home Performance with ENERGY STAR	New Homes	Retailer Lighting and Appliance	Simple Energy Efficiency
Participant Survey	✓	✓	✓			✓
Ongoing Participant Satisfaction Survey	✓	✓	✓			✓
Partial Participant Interviews	✓					
Stakeholder Interviews	✓	✓	✓	✓	✓	✓
Trade Ally and Market Actor Surveys/ Interviews		✓	✓		✓	

More than 94,000 residential customers in Wisconsin participated in Focus on Energy's programs in CY 2016. These participants did not include customers who purchased measures through the Retailer Lighting and Appliance Program. The Evaluation Team estimated that approximately 688,000 Wisconsin customers participated in the Retailer Lighting and Appliance Program in CY 2016.

As listed above in Table 15, residential customers installed energy-efficient measures across a wide range of technologies—which did include products purchased through the Retailer Lighting and Appliance Program—and achieved electricity savings of 148,369,600 kWh and natural gas savings of 3,021,116 therms.

Participant Satisfaction

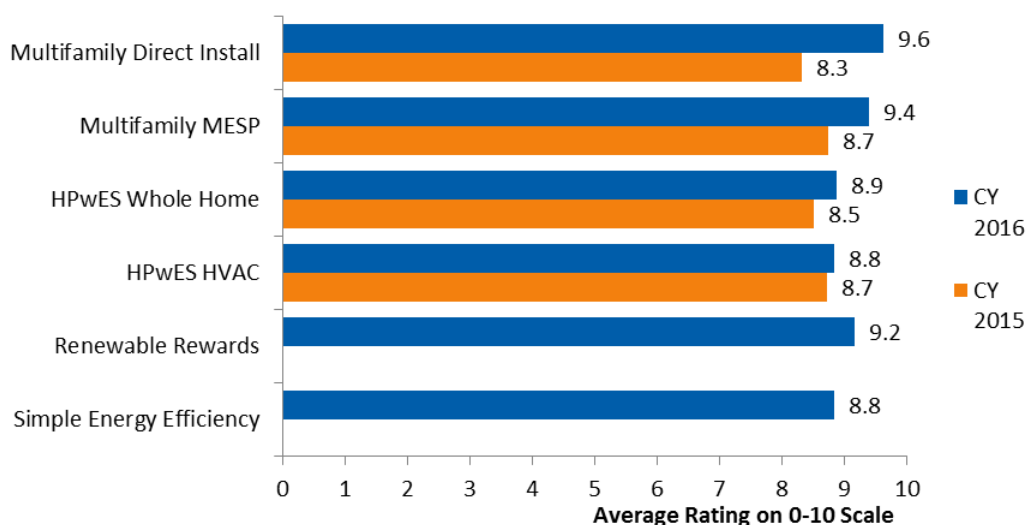
The Evaluation Team fielded satisfaction surveys online and by mail during CY 2016 and asked program participants to rate how satisfied they were with Focus on Energy's programs on a scale from 0 to 10, where 10 meant *extremely satisfied* and 0 meant *extremely dissatisfied*.

Participants in every program with a comparable CY 2015 program gave higher overall satisfaction ratings in CY 2016, with participants in the multifamily programs showing the largest increases and the highest ratings. In CY 2016, every residential program had an overall satisfaction rating of at least 8.8. The Renewable Rewards Program and both multifamily programs had satisfaction ratings significantly above the portfolio baseline of 8.8, while the other residential programs were equivalent to the

baseline.⁷ The participation-weighted average overall program satisfaction across all surveyed residential programs was 8.8, which was statistically equivalent to the portfolio baseline.⁸

Figure 11 shows participants' average satisfaction ratings with all of the surveyed residential programs.⁹

Figure 11. CY 2016 Average Overall Satisfaction Ratings for Residential Programs



Source: Wisconsin Focus on Energy Program Participant Satisfaction Mail/Online Surveys.
 "Overall, how satisfied are you with the program?" Multifamily Direct Install CY 2016 (n=16), CY 2015 (n=22); Multifamily Energy Savings CY 2016 (n=35), CY 2015 (n=88); Home Performance with ENERGY STAR (Whole Home) CY 2016 (n=471), CY 2015 (n=352); Home Performance with ENERGY STAR (HVAC) CY 2016 (n=597), CY 2015 Residential Rewards/Enhanced Rewards (n=542); Renewable Rewards CY 2016 (n=148); Simple Energy Efficiency CY 2016 (n=881)

The Evaluation Team calculated a net promoter score (NPS) for each program based on the likelihood of the participant to recommend the program. The NPS is simply the percentage of promoters (respondents giving a rating of 9 or 10) minus the percentage of detractors (respondents giving a rating of 0 to 6) and is expressed as an absolute number between -100 and +100. Generally, positive NPS scores are interpreted as good, and the closer the NPS is to +100, the more favorable the respondent is toward the program. The Renewable Rewards Program and multifamily programs had the highest NPS, with scores of +85 or higher, and all residential programs had NPS of at least +65 (Figure 12). The

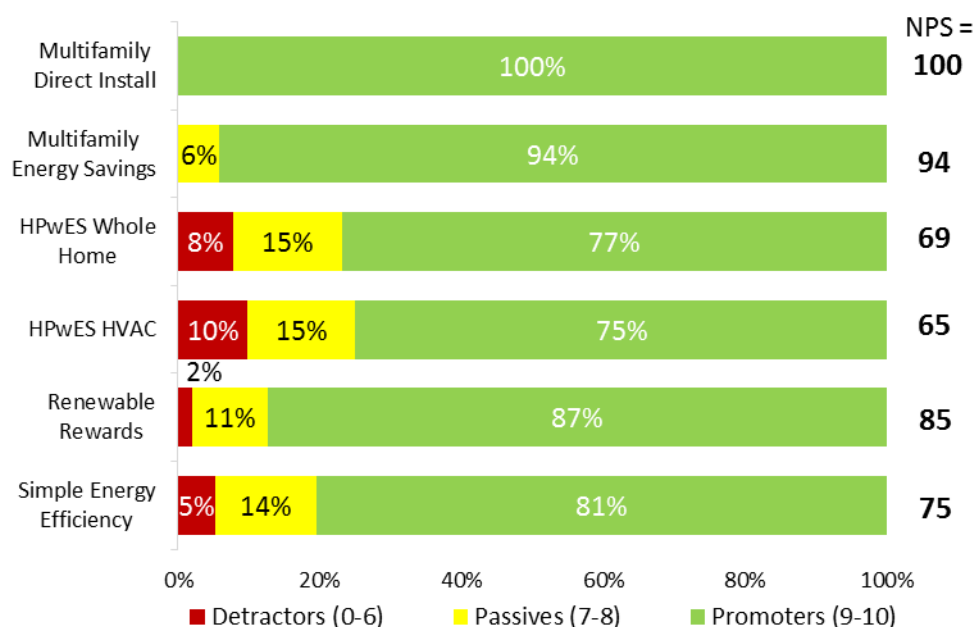
⁷ $p < 0.05$ or better using binomial t-tests.

⁸ The participation-weighted average for program satisfaction among surveyed residential programs is similar to the rating for Simple Energy Efficiency, because that program accounted for 77% of participation among all surveyed residential programs.

⁹ Ongoing participant satisfaction surveys for CY 2016 did not include the New Homes or Retailer Lighting and Appliance programs. The respondents for the multifamily programs' surveys were the building owners, not the residents of the buildings.

components of the Home Performance with ENERGY STAR Program had the lowest NPS scores, at +65 (HVAC) and +69 (whole home). This question—the likelihood of respondents to recommend the program—was first introduced in CY 2016, so no NPS comparison score was available from CY 2015. The CY 2016 results will provide a baseline for future program years.

Figure 12. CY 2016 Net Promoter Scores for Residential Programs



Source: Wisconsin Focus on Energy Program Participant Satisfaction Mail/Online Surveys.
 “How likely is it that you would recommend this program to others?” CY 2016 Multifamily Direct Install (n=15); Multifamily Energy Savings (n=35); Home Performance with ENERGY STAR (Whole Home) (n=476); Home Performance with ENERGY STAR (HVAC) (n=596); Renewable Rewards n=150; Simple Energy Efficiency (n=818).

Nonresidential Segment Process Evaluation Findings

For the CY 2016 nonresidential program evaluation, the Evaluation Team collected information and perspectives from customers, the Program Administrator, Program Implementers, Trade Allies, utility partners, and building design teams. This section describes high-level findings from the participant and Trade Ally surveys across these seven programs: Agriculture, Schools and Government, Business Incentive, Chain Stores and Franchises, Large Energy Users, the two multifamily programs (Multifamily Energy Savings and Multifamily Direct Install), and Small Business.¹⁰

¹⁰ Due to small sample sizes and alternate delivery approaches, the Design Assistance pre-interview online survey (n=8) and the Renewable Energy Competitive Incentive Program interviews (n=4) were omitted from this analysis.

The Evaluation Team asked specific core marketing and program experience questions to compare these programs' participants. The Evaluation Team surveyed Trade Allies about their participation to gain insights in year-over-year perceptions and insight into program design changes.

More than 5,000 nonresidential customers in Wisconsin realized the benefits of energy-efficient and renewable technologies through these Focus on Energy programs in CY 2016 and achieved electricity savings of 293,179,447 kWh and natural gas savings of 16,578,176 therms. These organizations completed over 23,000 projects, installing over 1.1 million energy-efficient measures across a wide range of technologies.

Focus on Energy offers three programs—Business Incentive, Small Business, and Large Energy Users—to the general business population with a portfolio of incentives based on energy usage and four programs—Agriculture, Schools and Government, Chain Stores and Franchises, Design Assistance, and Renewable Energy Competitive Incentive programs—that provide more tailored support for specific customer types and technologies. These programs target specific customer segments and are tailored to optimize participation within that customer segment.

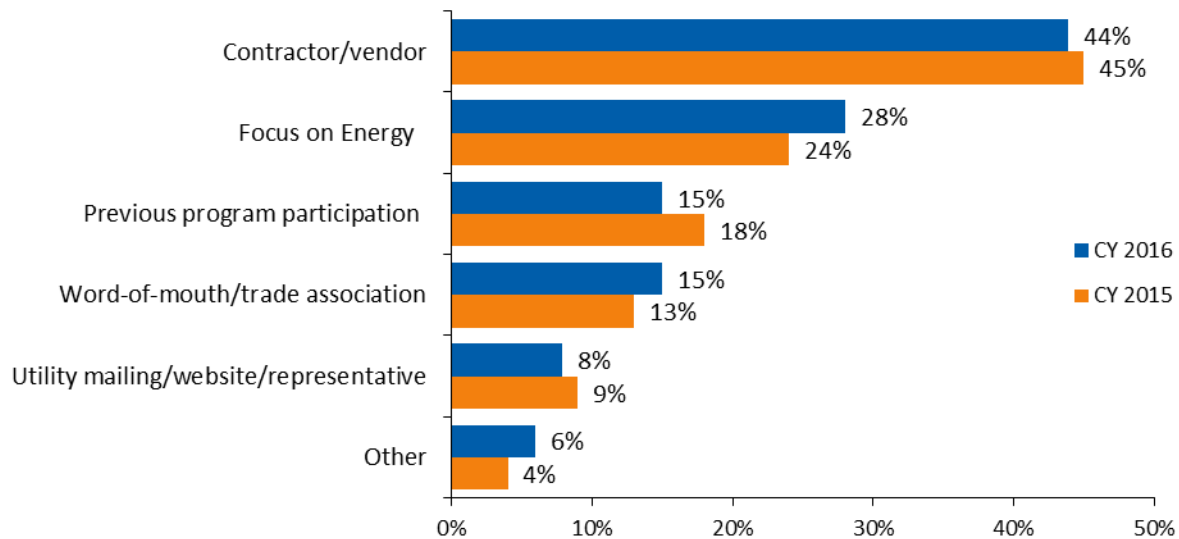
Although Focus on Energy captures multifamily property savings and ongoing participant satisfaction survey results through its residential portfolio, the participants of the Multifamily Energy Savings Program and Multifamily Direct Install Program are property managers and owners. These individuals participate through Trade Allies who typically serve nonresidential customers, and the Program Implementer has aligned multifamily program design, delivery strategy, and application materials with the nonresidential programs. Therefore, the Evaluation Team designed the multifamily participant and Trade Ally surveys to align with those of other nonresidential programs and reported results in the Nonresidential Segment Process Evaluation Findings section.

Awareness of Focus on Energy

The Evaluation Team contacted 2,179 program participants across the seven programs—Agriculture, Schools and Government, Business Incentive, Chain Stores and Franchises, Large Energy Users, the two multifamily programs (Multifamily Energy Savings and Multifamily Direct Install), and Small Business—and obtained 492 responses to its survey request, for a response rate of 23%.

In CY 2016, as shown in Figure 13, 44% of respondents (n=481) heard about the program incentives through their contractor and 28% through Focus on Energy. This was consistent with the CY 2015 responses in CY 2015, with 45% through their contractor and 24% through Focus on Energy (n=444). Of the 135 respondents who learned of the incentives directly from Focus on Energy, 76% had contact with a Focus on Energy representative, 16% visited the website, 7% attended a workshop, and 7% learned through newsletters or print materials.

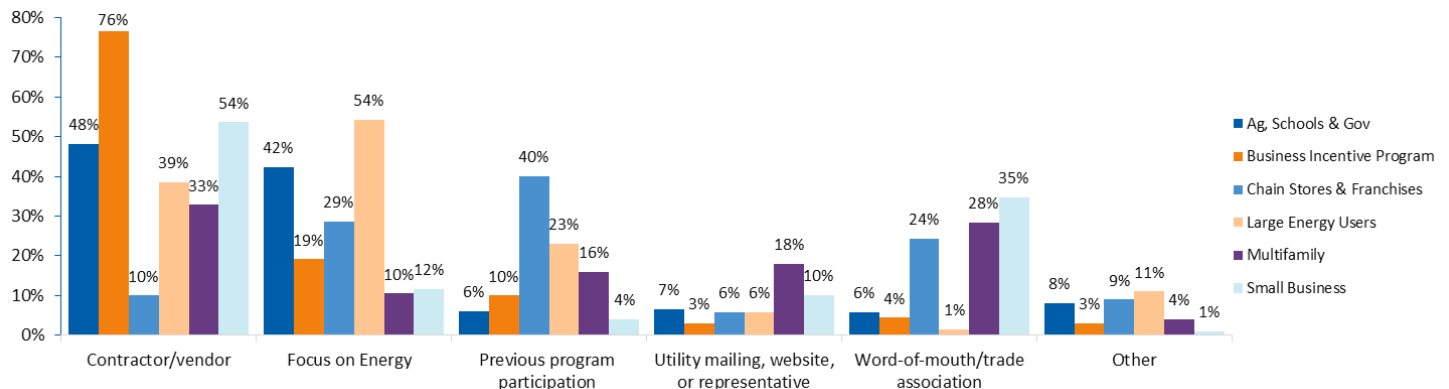
Figure 13. How Nonresidential Participants Learned about Incentives



Source: CY 2015/CY 2016 Program Participant Phone Surveys. "How did your organization learn about the incentives available for this project?" (CY 2016 n=481; CY 2015 n=444)

At the program level, participants gained an awareness of the incentive from a variety of sources, as shown in Figure 14. For most programs, the largest proportion of participants heard about the incentives through their contractor. However, the largest proportion of Large Energy Users and Chain Stores and Franchises respondents heard through Focus on Energy (54%) and from previous participation in a Focus on Energy Program (40%), respectively.

Figure 14. Program-Level Awareness Sources



Source: CY 2016 Program Participant Phone Surveys. "How did your organization learn about the incentives available for this project?" (Agriculture, Schools and Government, n=137; Business Incentive n=68; Chain Stores and Franchises n=70; Large Energy Users n=70; Multifamily n=67; Small Business n=69)

This question allowed for multiple responses.

Customer Messaging Preferences

In CY 2016, to help the Program Administrator enhance Focus on Energy messaging, the Evaluation Team asked participant survey respondents to share insights on which messages about energy efficiency resonated with them. To assess brand identity, the Team asked about the first three words that came to mind when respondents thought about Focus on Energy. As shown in Figure 15, the most common words across most programs and across all nonresidential respondent groups were “savings” and “energy.”

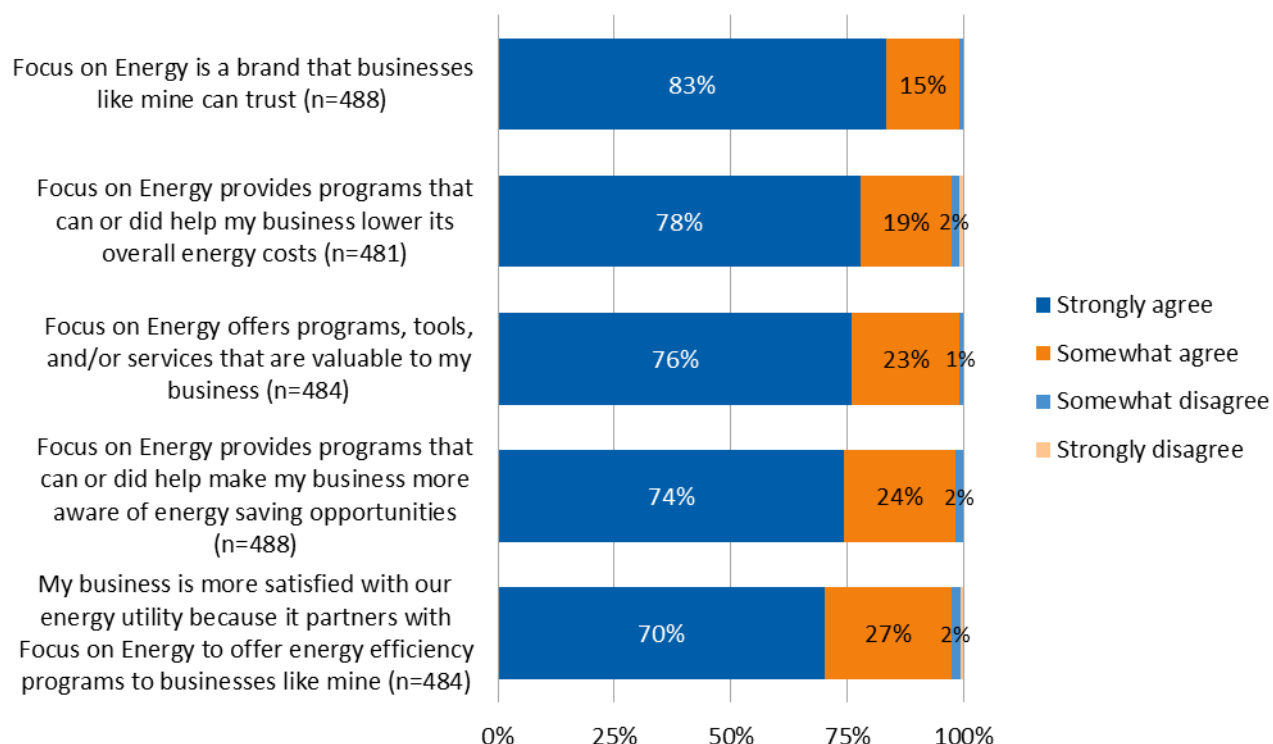
Figure 15. Respondent Word Association with “Focus on Energy”



Source: CY 2016 Participant Phone Surveys; "What are the first three words that come to mind when you hear 'Focus on Energy'?" (n=488)

To gauge Focus on Energy brand affinity, the Evaluation Team asked businesses to what extent they agreed with five marketing statements, as shown in Figure 16. The vast majority of respondents agreed with all five statements and most strongly with the statements that Focus on Energy is a trustworthy brand and that it helps businesses lower overall energy costs. Trust was also the top message at the program level for all except respondents in the Small Business Program and the multifamily programs. The largest share of Small Business Program respondents agreed most with this statement: “Focus on Energy offers programs, tools, and/or services that are valuable to my business.” Multifamily property managers and owners most strongly agreed with these statements: “Focus on Energy offers programs, tools, and/or services that are valuable to my business;” and “Focus on Energy provides programs that can or did help make my business more aware of energy saving opportunities.”

Figure 16. Agreement with Focus on Energy Claims



Source: CY 2016 Participant Phone Surveys; "Please tell me whether you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with these statements..."

The Evaluation Team asked survey respondents to identify which of the statements shown in Table 18 would make them most interested in learning more about Focus on Energy. Respondents indicated cost-oriented statements most strongly; 45% said reducing their energy costs and saving money.

Table 18. Participant Reaction to Marketing Statements

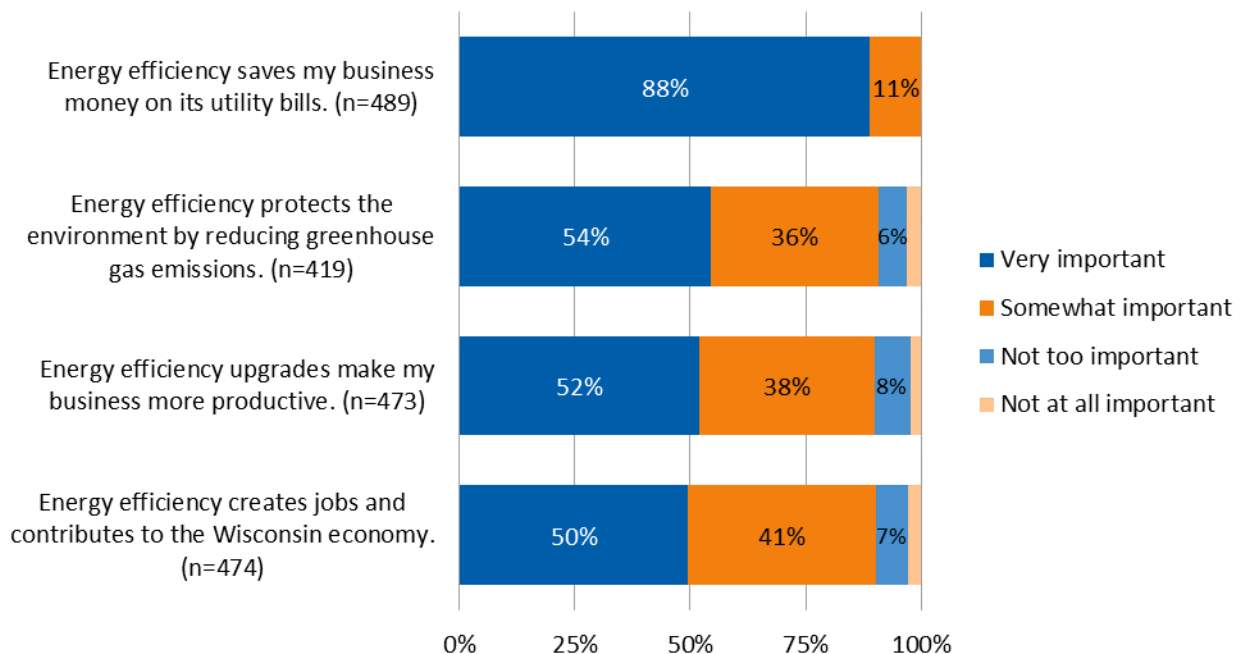
Focus on Energy helps Wisconsin businesses....	Top Statements by Percentage of Respondents
Reduce their energy costs and save money	45%
Lower their energy costs	28%
With solutions to use energy smarter and save money	19%
Grow by making smarter decisions about their energy use	8%

Source: CY 2016 Participant Phone Surveys. "Which of the following statements would make you most interested in learning more about Focus on Energy?" (n=485)

Similar to their response to marketing statements, businesses said messaging about saving money on utility bills was an important factor when making decisions about upgrading equipment. Businesses said all of the statements shown in Figure 17 were important, but when asked which statement was most

important in deciding to upgrade the energy efficiency of their business, 80% of respondents (n=489) chose the statement, “Energy efficiency saves my business money on its utility bills.”

Figure 17. Participant Reaction to Marketing Statements during Decision-Making Process



Source: CY 2016 Participant Phone Surveys. “Please tell me how important these statements are to you when deciding whether to upgrade the energy efficiency of your business.”

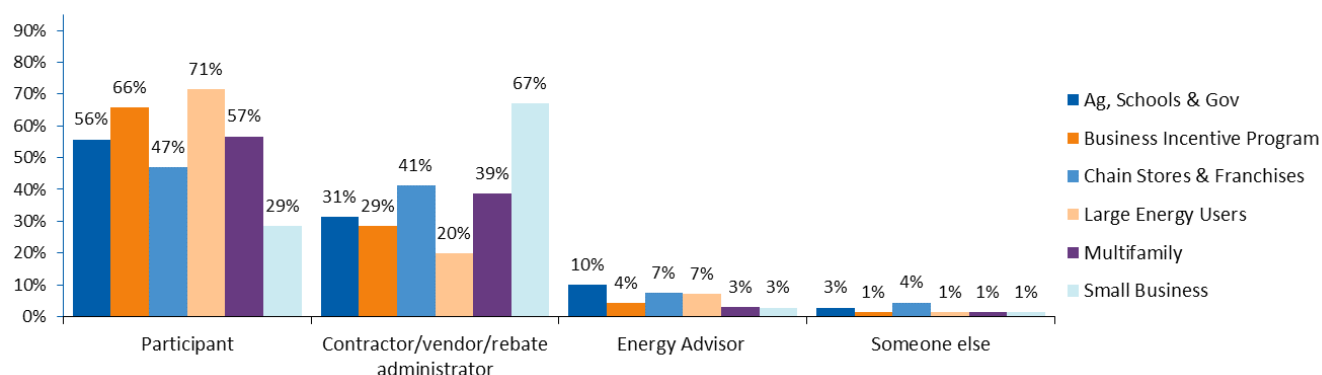
Ease of Application Process

The design of most Focus on Energy nonresidential programs expect Trade Allies to assist with the incentive paperwork. Of 80 surveyed Trade Allies, 88% said they assisted their customer in completing paperwork *all the time* or *frequently*. However, as shown in Figure 18, surveyed nonresidential participants said they were primarily responsible for completing the incentive applications.

The Small Business Program reimburses Trade Allies for project incentives, so Trade Allies are responsible for completing the paperwork. Therefore, most of this program’s participants (67%, n=70) credited their Trade Ally with taking the lead role in completing the incentive application.

Across the programs, most responses identified as *someone else* were to clarify that both the participant and the contractor or a utility representative were involved in completing the paperwork.

Figure 18. Party Responsible for Completing Application



Source: CY 2016 Participant Phone Surveys. "Who took the lead role in completing the application for the financial incentive?" Agriculture, Schools and Government (n=140); Business Incentive (n=70); Chain Stores and Franchises (n=68); Large Energy Users (n=70); Multifamily (n=67); Small Business (n=70)

The Evaluation Team asked respondents who completed the application themselves about the ease of completing the paperwork. A significantly higher percentage of CY 2016 respondents said the paperwork was easy (38% said it was *very easy* and 45% said it was *easy*, n=263) compared to CY 2015 (33% said it was *very easy* and 37% said it was *easy*, n=183).¹¹

In CY 2016, the Program Administrator and Program Implementer streamlined the paperwork and process for the Agriculture, Schools and Government Program and, as shown in Figure 19, respondents for this program reported the greatest ease with the paperwork.

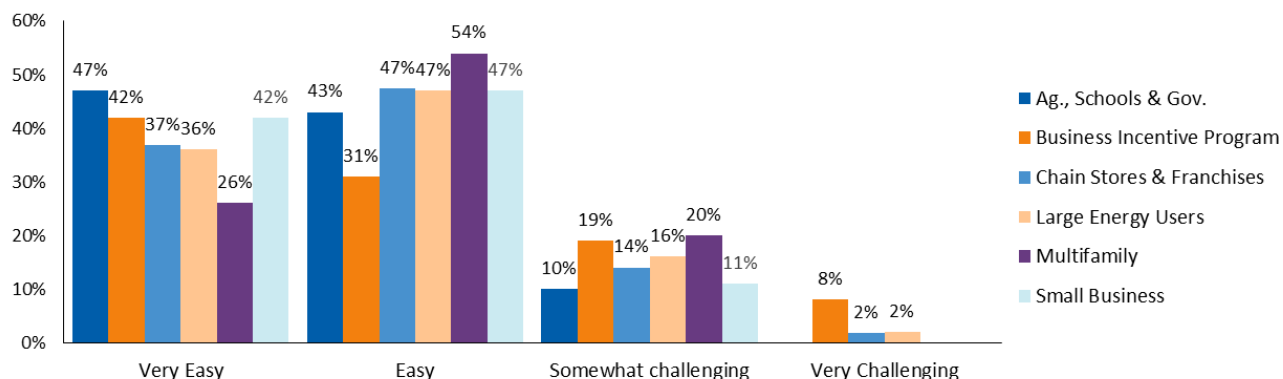
The Business Incentive Program also improved the process, expanding the incentive catalog format to all prescriptive offerings and enhancing the application submittal details on its custom application form. However, in CY 2016 participant responses were consistent with those in CY 2015—about one-quarter of the Business Incentive Program participants found the application *somewhat or very challenging*.

Across the nonresidential programs, most of the respondents who had challenges (17%, n=263) described concerns with qualifying equipment and the amount of information needed to complete the application. These were some of their comments:

- "Managing the different requirements on the application, [obtaining or referencing] product numbers... [the process] needs more of a quick reference guide."
- "[I had to] double check to see if certain fixtures were covered and needed Focus on Energy to approve the fixtures that were installed."
- "Finding the products that do qualify for the incentive. [There is] a lot of criteria to fulfill in the application. Not everything was clear."

¹¹ p < 0.01 using a binomial t-test.

Figure 19. Ease of the Incentive Application

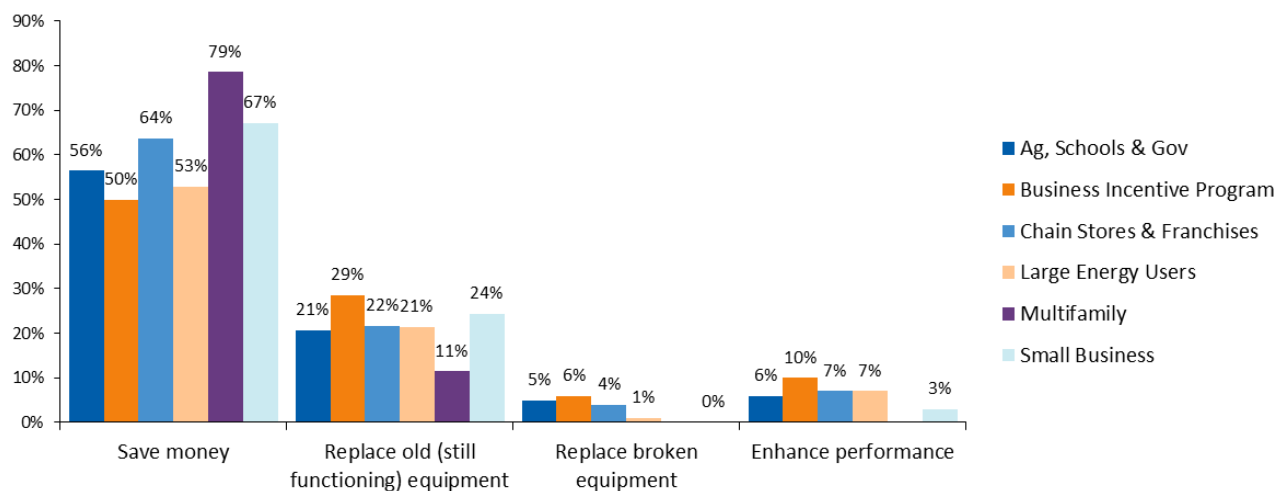


Source: CY 2016 Program Participant Phone Surveys. "Thinking about the application you submitted, how easy would you say this paperwork was to complete?" Agriculture, Schools and Government (n=60); Business Incentive (n=36); Chain Stores and Franchises (n=57); Large Energy Users (n=45); Multifamily (n=46); Small Business (n=19)

Participation Decisions

Across the nonresidential programs, the majority of respondents said wanting to save money on energy bills was the most important factor in their decision to install equipment that was more energy-efficient. Respondents also said they were motivated to replace old or broken equipment and to enhance the performance of existing systems or buildings. Figure 20 lists the top factors in participation by program.

Figure 20. Most Important Factors in Energy-Efficient Purchase Decisions



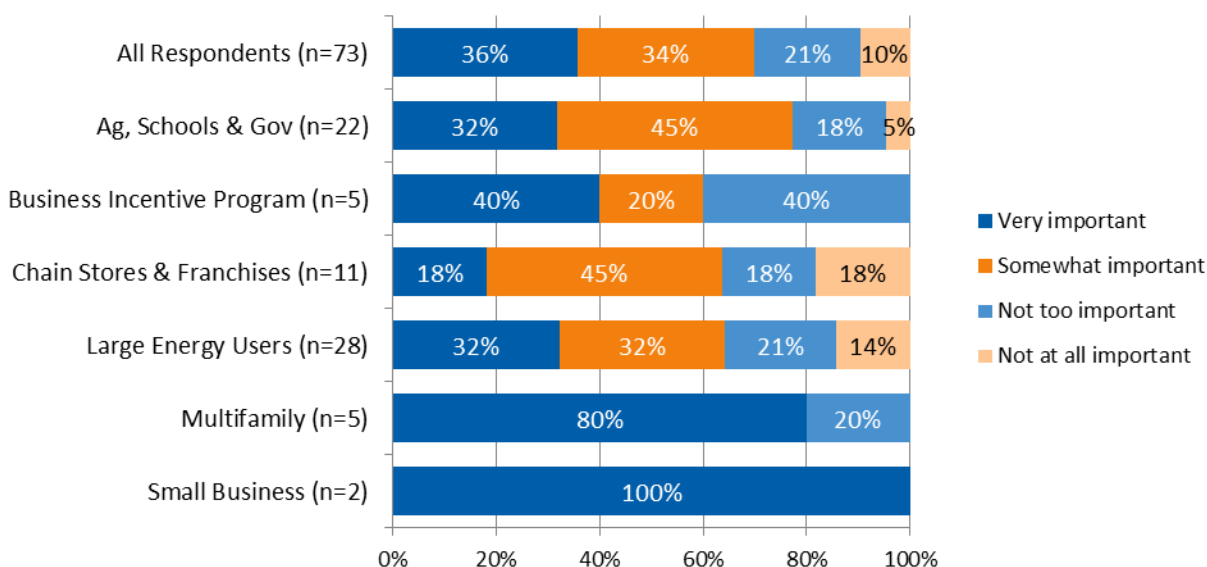
Source: CY 2016 Program Participant Phone Surveys. "What factor was most important to your company's decision to make these energy-efficiency upgrades?" Agriculture, Schools and Government (n=140); Business Incentive (n=70); Chain Stores and Franchises (n=69); Large Energy Users (n=70); Multifamily (n=70); Small Business (n=70)

Sixty-one percent of respondents (n=346) reported there was more than one decision-maker in their business.¹² Participants in the Large Energy Users Program were most likely to require approval for making energy-efficient upgrades (84%, n=68), while Small Business Program respondents (33%, n=70) were least likely to require approval from someone else in the business.

Participant Training and Information Sources

Businesses reported varied attendance at Focus on Energy training, but on average, 16% of participants (n=479) had attended a Focus-hosted training in the past two years. Participants in the Large Energy Users Program (41%, n=68) were the most likely to have attended training, while Small Business Program participants (3%, n=70) were least likely to have attended training. As shown in Figure 21, respondents also varied in how important the training they attended was in their decision to move ahead with energy efficiency upgrades (note small sample sizes in many of the programs).

Figure 21. Importance of Focus on Energy Training to Decision



Source: CY 2016 Program Participant Phone Surveys. “How important was your business’ participation in the training in your decision to move forward with the energy efficient upgrades for which you received an incentive?”

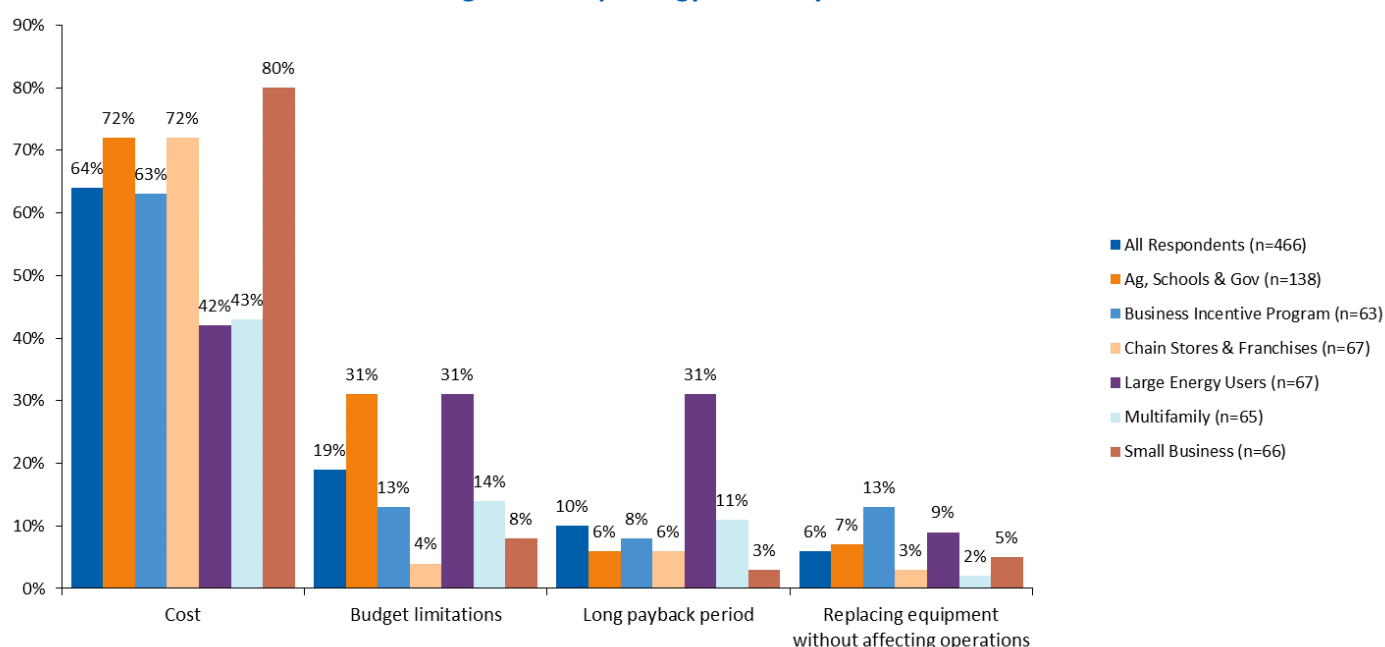
The Evaluation Team asked businesses who they seek as trusted sources of information regarding energy upgrades. Two-thirds of respondents (65%, n=479) relied on their contractor for information, 35% listed Energy Advisors, 19% said utility representatives, 10% said web resources, and 9% said other business owners.

¹² Chain Stores and Franchises Program respondents were omitted from this analysis because the Evaluation Team adjusted this question to ask respondents if they required corporate approval; 61% of respondents required approval.

Barriers to Participation

Surveyed participants said the biggest barriers to making energy-efficient improvements were high initial costs (64%) and budget limitations (19%). Figure 22 shows respondents' top four barriers to energy efficiency projects. A significantly higher percentage of Small Business Program participants mentioned cost as a barrier than did participants in the Business Incentive, Large Energy Users, and the multifamily programs.¹³ Compared to all other programs, a significantly higher percentage of participants in the Agriculture, Schools and Government and Large Energy Users programs mentioned budget limitations. A significantly higher percentage of participants in the Large Energy Users Program mentioned long payback periods as a barrier than did participants in all other programs.¹⁴

Figure 22. Top Energy Efficiency Barriers



Source: CY 2016 Program Participant Phone Surveys. "What do so see as the biggest challenges to making energy-efficient improvements inside your company?"

The Evaluation Team asked respondents what could be done to help their company overcome these barriers, and 19% had no suggestions or provided a response of *don't know*. About half (47%, n=492) said increasing the incentive levels would help, a significantly higher percentage compared to CY 2015 respondents (22%, n=418).¹⁵ A significantly higher percentage of CY 2016 respondents (34%) compared

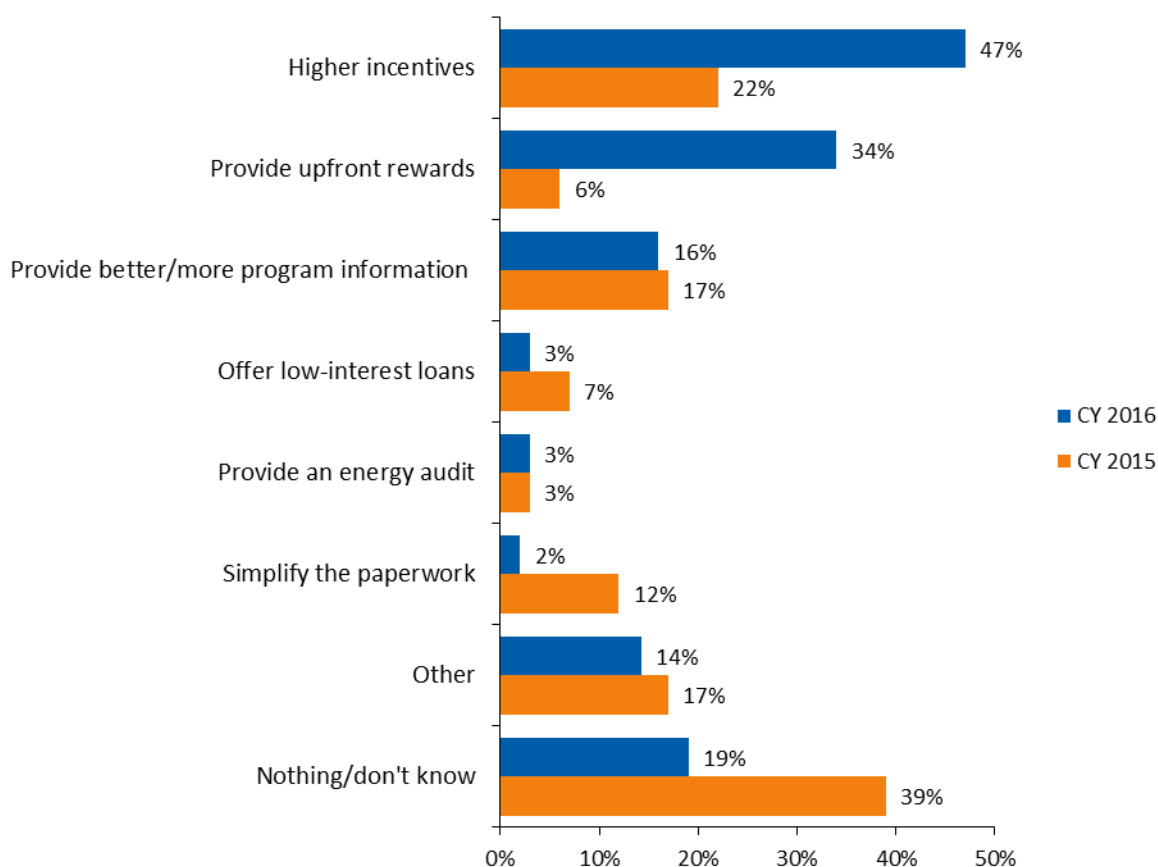
¹³ p < 0.05 using a binomial t-test.

¹⁴ p < 0.01 using a binomial t-test.

¹⁵ p < 0.01 using a binomial t-test. The CY 2016 and CY 2015 preceding questions to this follow-up question were different, however. In CY 2015, the Evaluation Team asked for respondents' level of agreement with various statements about common barriers to implementing energy efficiency, while in CY 2016, the Team asked the respondent to report the challenges their company directly experienced.

to CY 2015 respondents (6%) mentioned providing upfront rewards, where Trade Allies have the option of offering incentives as a deduction on a customer's invoice. In these cases, Trade Allies obtain the Focus on Energy incentives on their customer's behalf. Figure 23 compares all suggestions for CY 2015 and CY 2016.

Figure 23. Respondents' Suggestions to Overcome Barriers



Source: CY 2016 and CY 2015 Program Participant Phone Surveys. "What could be done to help your company overcome challenges with energy-efficiency improvements?" (CY 2016 n=492, CY 2015 n=418)

As shown in Figure 23, the number of participants asking for higher incentives rose significantly in CY 2016 from CY 2015. In CY 2016, the Program Administrator reduced incentive levels across all programs—prescriptive measure-level incentives by an average 17.5%, custom electric and demand incentives by 20%, and custom therms incentives by 50%.¹⁶

¹⁶ The Program Administrator reduced custom incentives from \$125/kW in CY 2015 to \$100/kW in CY 2016, \$0.04/kWh in CY 2015 to \$0.03/kWh in CY 2016, and from \$0.80/therm in CY 2015 to \$0.40/therm in CY 2016. The Program Administrator also reduced Large Energy Users Program custom lighting incentives from \$0.04/kWh in CY 2015 to \$0.02/kWh.

To assess whether these decreases could be correlated with participant freeridership levels, the Evaluation Team compared program-level freeridership from CY 2015 to CY 2016, as shown in Table 19. In CY 2015 and CY 2016, the Evaluation Team used self-report freeridership estimates for all measure categories. Participant freeridership increased in all programs from CY 2015 to CY 2016, except Small Business, where the Program Administrator made only minor changes to incentive levels.

Table 19. Freeridership Levels for all Measures by Program

Program	Incentive Reduction (%)		Freeridership	
	CY 2016 Prescriptive	CY 2016 Custom	CY 2015	CY 2016
Agriculture, Schools and Government	17.5%	20% for kW and kWh, 50% for therms ²	0.12	0.36
Business Incentive			0.36	0.56
Chain Stores and Franchises			0.23	0.40
Large Energy Users			0.18	0.19
Multifamily Energy Savings Program			0.18	0.23
Small Business	n/a ¹		0.13	0.06

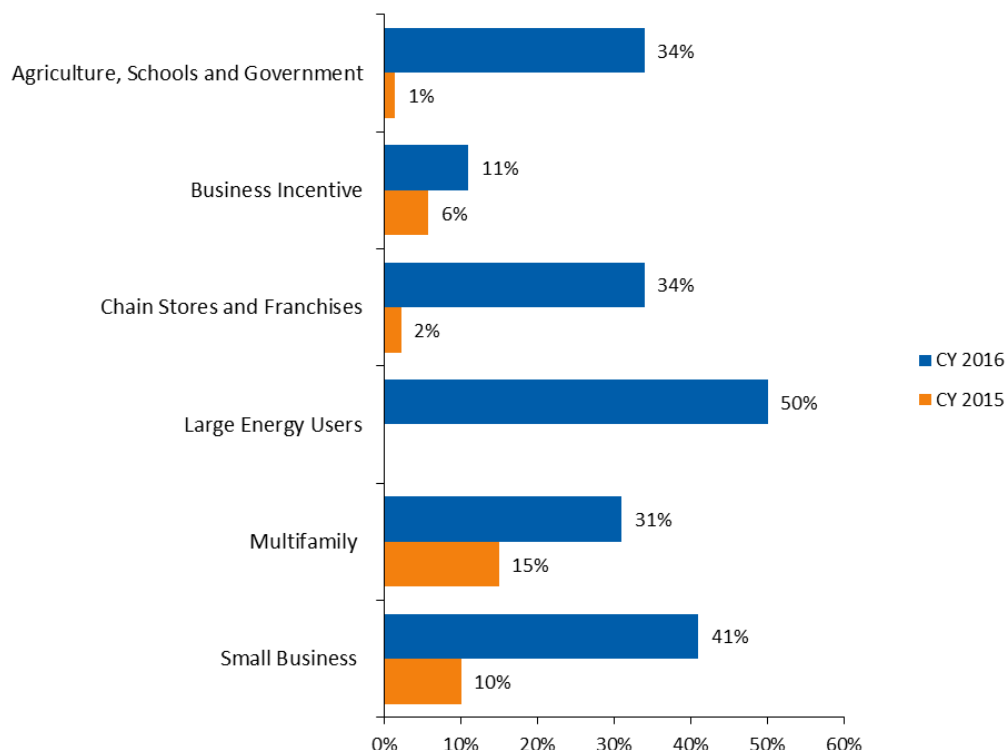
¹ The Program Administrator made minor adjustments to Small Business package offers, unrelated to the nonresidential portfolio incentive reductions.

² The Program Administrator also reduced Large Energy Users Program custom lighting kWh incentives by 50%.

As shown in Figure 23 above, the number of participants asking for upfront incentives from their contractor also rose significantly in CY 2016 from CY 2015. At the program level, differences between CY 2015 and CY 2016 were significant for all except the Business Incentive Program, where 11% of CY 2016 respondents requested upfront incentives, compared to 6% of CY 2015 respondents. The difference in the percentage of Large Energy Users respondents who requested upfront incentives was most notable (50% in CY 2016 compared to 0% in CY 2015).¹⁷ Figure 24 shows, by program, the percentage of respondents requesting upfront incentives.

¹⁷ $p < 0.01$ using a binomial t-test.

Figure 24. Percentage of Respondents Suggesting Upfront Incentives to Overcome Barriers



Source: CY 2016 and CY 2015 Program Participant Phone Surveys. “What could be done to help your company overcome challenges with energy-efficiency improvements?” (CY 2016: Agriculture, Schools and Government, n=142; Business Incentive n=70; Chain Stores and Franchises n=70; Large Energy Users n=70; Multifamily n=70; Small Business n=70. CY 2015: Agriculture, Schools and Government, n=70; Business Incentive n=104; Chain Stores and Franchises n=46; Large Energy Users n=68; Multifamily n=60; Small Business n=70)

To determine whether fewer Trade Allies offered upfront rewards in CY 2016 compared to CY 2015, the Evaluation Team assessed participants’ incentive payment recipients in these programs—Agriculture, Schools and Government, Business Incentive, Chain Stores and Franchises, and Multifamily Energy Savings—and determined that, across these programs, Focus on Energy paid Trade Allies incentive checks for 15% of participants’ projects in CY 2016 (n=4,373), which was consistent with the 16% paid in CY 2015 (n=4,582). Table 20 shows the percentage of customer incentives payments to Trade Allies by program and the average across these programs.

Table 20. Percentage of Incentive Payments to Trade Allies by Program

Program	Percentage of Customers' Incentive Checks Paid to Trade Allies	
	CY 2016	CY 2015
Agriculture, Schools and Government	7%	7%
Business Incentive	16%	15%
Chain Stores and Franchises	12%	16%
Large Energy Users	17%	17%
Multifamily Energy Savings Program	39%	45%
Average	15%	16%

Source: SPECTRUM CY 2015 and CY 2016 data, unique customer ID payments to Trade Allies. Because Trade Allies or the Program Implementer are paid incentives for all projects in the Small Business and Multifamily Direct Install programs, these programs are omitted from the analysis.

Participant Satisfaction

During CY 2016, the Evaluation Team fielded satisfaction surveys online and by mail that asked program participants to rate how satisfied they were with Focus on Energy's programs.¹⁸ Figure 25 shows participants' average satisfaction ratings with nonresidential programs.

Participants gave the Agriculture, Schools and Government Program a 9.1 satisfaction rating, the highest average of any nonresidential program during CY 2016. The Chain Stores and Franchises Program and Large Energy Users Program both received an 8.8—albeit still high, these programs received the lowest overall satisfaction ratings, which was also the case during CY 2015. The only nonresidential program with a significant change from the previous year was the Agriculture, Schools and Government Program, which increased from CY 2015.¹⁹

In CY 2016, all nonresidential programs were statistically equivalent to, or significantly higher than, the portfolio baseline of 8.8.²⁰ Across all nonresidential programs surveyed, the participation-weighted average overall program satisfaction rating was 9.0, which was significantly above the portfolio baseline.²¹

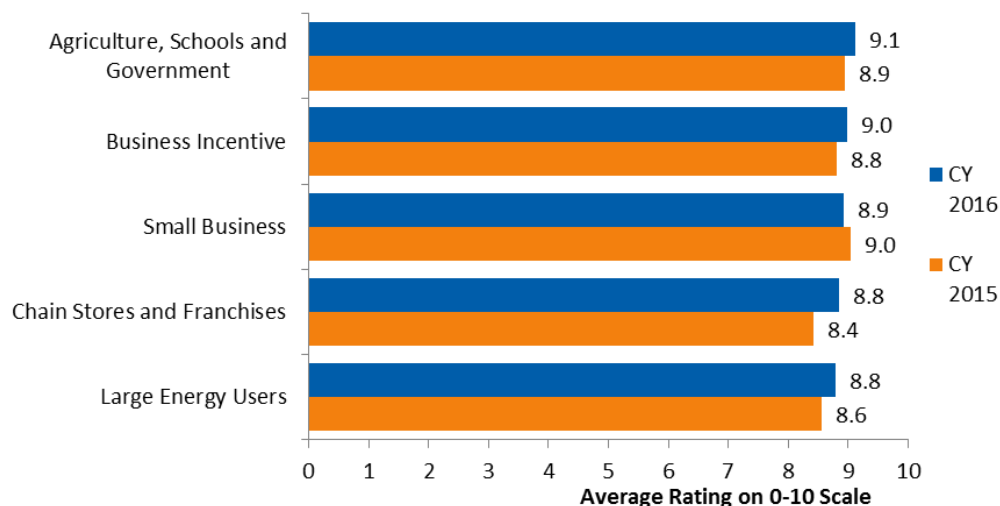
¹⁸ Multifamily Programs participant satisfaction findings are presented in the Residential Segment Process Evaluation Findings above. The surveys used a scale from 0 to 10, where 10 means extremely satisfied and 0 means not at all satisfied.

¹⁹ $p < 0.10$ using a binomial t-test.

²⁰ Overall satisfaction with the Agriculture, Schools and Government Program and Business Incentive Program were significantly higher than the baseline at $p < 0.05$ using a binomial t-test. The other nonresidential programs are statistically equivalent to the baseline.

²¹ $p < 0.10$ using a binomial t-test.

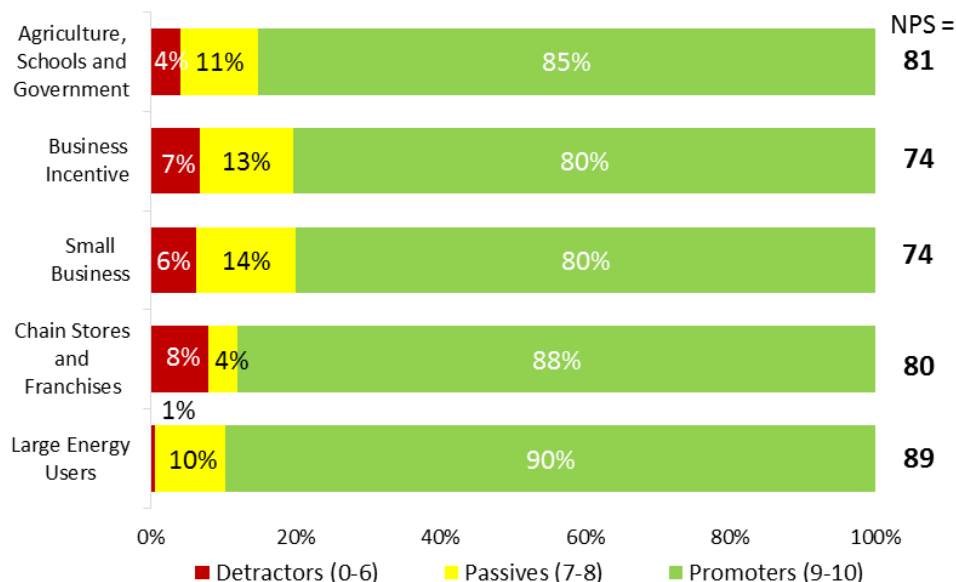
Figure 25. CY 2016 Average Overall Satisfaction Ratings for Nonresidential Programs



Source: Wisconsin Focus on Energy Program Participant Satisfaction Mail/Online Surveys. “Overall, how satisfied are you with the program?” Agriculture, Schools and Government CY 2016 (n=471), CY 2015 (n=324); Business Incentive Program CY 2016 (n=493), CY 2015 (n=372); Small Business CY 2016 (n=198), CY 2015 (n=256); Chain Stores and Franchises CY 2016 (n=50), CY 2015 (n=55); Large Energy Users CY 2016 (n=170), CY 2015 (n=131)

The Evaluation Team calculated an NPS for each program based on the likelihood of the participant to recommend the program. Generally, positive NPS scores are interpreted as good, and the closer the NPS is to +100, the more favorable the respondent is toward the program. The Large Energy Users Program had the highest NPS at +89, and all nonresidential programs had NPS of at least +74 (Figure 26). Because this question was first introduced in CY 2016, no NPS comparison score is available from CY 2015. The CY 2016 results will provide a baseline for future program years.

Figure 26. CY 2016 Net Promoter Scores for Nonresidential Programs



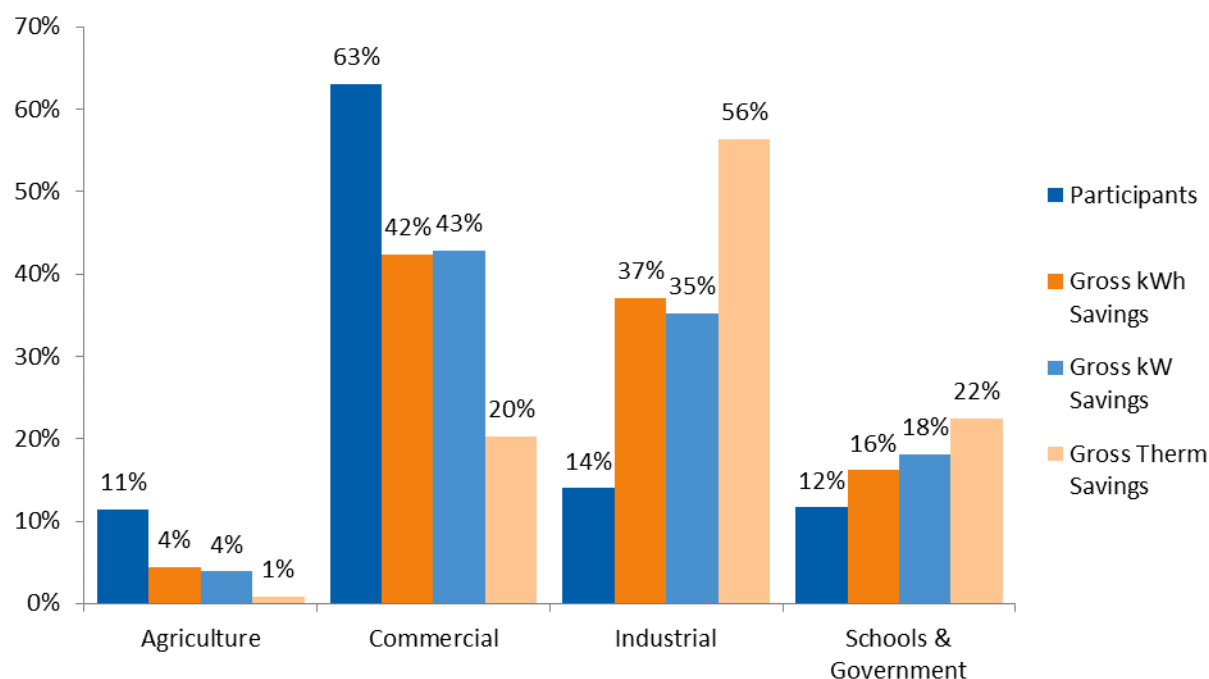
Source: Wisconsin Focus on Energy Program Participant Satisfaction Mail/Online Surveys.
 “How likely is it that you would recommend this program to others?” CY 2016 Agriculture, Schools and Government (n=459); Business Incentive Program (n=494); Small Business (n=190); Chain Stores and Franchises (n=50); Large Energy Users (n=165)

Business Characteristics

In the Statewide Program for Energy Customer Tracking, Resource Utilization, and Data Management (SPECTRUM), nonresidential participants are categorized into four sectors—commercial, industrial, agriculture, and schools and government. Because most nonresidential building stock falls into the commercial sector, the majority of CY 2016 participants were commercial businesses (63%). Fourteen percent of participants represented the industrial, 12% represented the schools and government sector, and 11% represented the agricultural sector.

The majority of gross electric savings (kWh) were attributed to the commercial sector (42%) and industrial sector (37%). Most of the gross gas savings (therms) were attributed to the industrial sector (56%) and to the schools and government sector (22%). Details are shown in Figure 27.

Figure 27. Participant Industry Sectors Compared to Savings Contribution



Source: CY 2016 SPECTRUM database nonresidential participants and savings by sector. Upstream and multifamily sector participants and savings were omitted.

Trade Allies

The Evaluation Team emailed an online survey to 515 Trade Allies across these programs—Business Incentive, Chain Stores and Franchises, Large Energy Users, Multifamily Energy Savings, Small Business, and Agriculture, Schools and Government. Surveys went to any Trade Ally who had received an incentive (or whose customer had received an incentive) in CY 2016 through at least one of the programs shown in Table 21.

The Evaluation Team received surveys from 83 Trade Allies (a 16% response rate) who provided feedback about their program experience. In CY 2016, the Team only invited Trade Allies who were officially registered with the Focus on Energy network. In CY 2015, the Team invited all participating Trade Allies regardless of their network registration status; 81% of the 167 Trade Ally respondents were registered.

Table 21. CY 2016 Trade Ally Respondents by Program

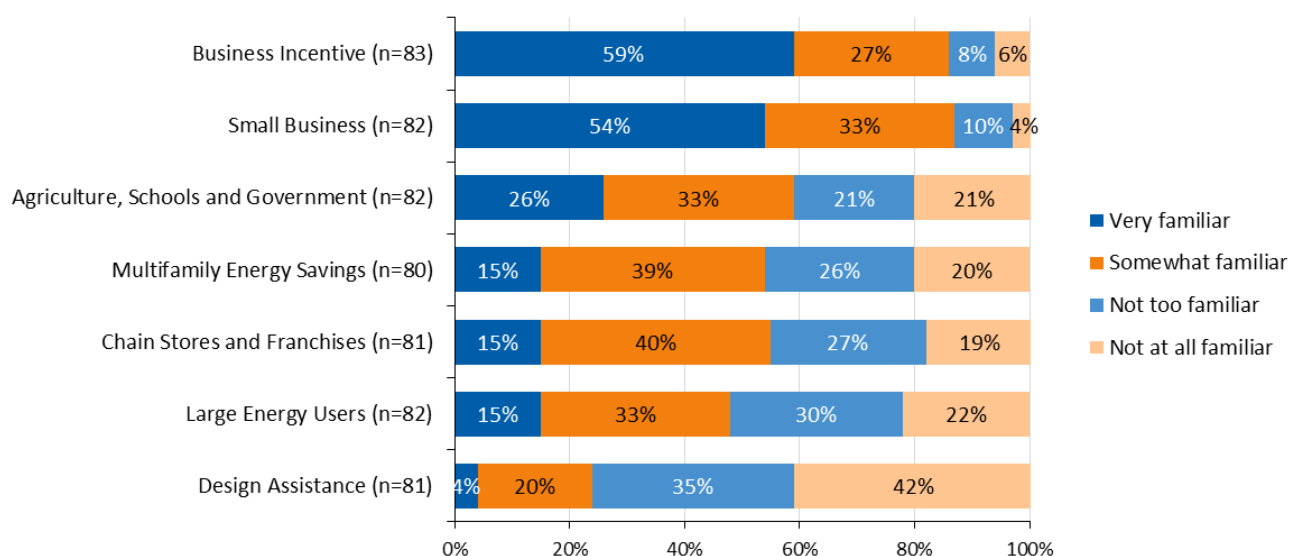
Program	Population ¹	Survey Sample	Respondents
Agriculture, Schools and Government	266	124	18
Business Incentive	444	149	20
Chain Stores and Franchises	90	58	4
Large Energy Users	116	70	10
Multifamily Programs	83	67	17
Small Business	77	65	18
Total¹	738	515	83

¹Some Trade Allies participated in more than one program. The population count reflects the total number of Trade Allies in the given program (with email contact information). The totals represent the population, sample and number of respondents across all of the programs. The Evaluation Team used the registered Trade Ally Network list and September 2016's SPECTRUM data extract file to determine the population and sample sizes.

Marketing and Engagement

Trade Allies were most familiar with the Business Incentive and Small Business programs, with 59% and 54% of respondents being *very familiar*, respectively. Trade Allies said they were least familiar with the Design Assistance Program, which targets a segment of Focus on Energy's new construction participants for custom designed projects. Figure 28 shows Trade Allies' familiarity by program.

Figure 28. Trade Ally Familiarity with Programs



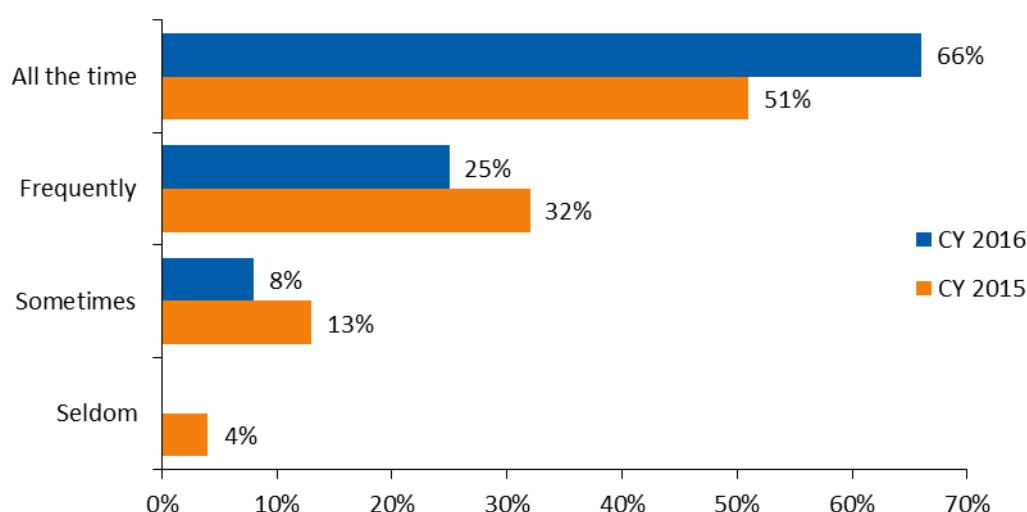
Source: CY 2016 Trade Ally Survey Question B2: "How familiar are you with each of the following Focus on Energy programs and incentives for business customers?"

Trade Allies consistently promoted Focus on Energy programs to their customers, as shown in Figure 29. A significantly higher percentage of CY 2016 Trade Allies (66%) reported promoting Focus on Energy *all*

the time compared to CY 2015 respondents (51%).²² The reason for this difference could be that the Evaluation Team surveyed only registered Trade Allies in CY 2016 (while in CY 2015, only 81% of respondents were registered). Eight percent of the CY 2016 Trade Allies reported they *sometimes* promoted the program and most frequently identified these reasons for not promoting the programs more consistently:

- Not confident about the details
- Too much paperwork
- Incentives are not worth the hassle

Figure 29. Trade Ally Marketing



Source: CY 2016 and CY 2015 Trade Ally Surveys Question B3/C2. “How often do you promote the Focus on Energy programs to customers?” (CY 2016 n=83, CY 2015 n=167)

Energy Advisors (Program Implementers’ staff responsible for conducting outreach to Trade Allies) were the preferred source of Program information for 33% of CY 2016 Trade Ally respondents (Figure 30), a significantly higher percentage compared to CY 2015 respondents (17%).²³ Thirty-one percent of Trade Allies preferred emails; this response differed significantly from CY 2015, when 61% of Trade Allies said email was their preferred source.²⁴ A significantly higher percentage of CY 2016 Trade Allies (27%) also preferred using the Focus on Energy website compared to CY 2015 respondents (7%).²⁵

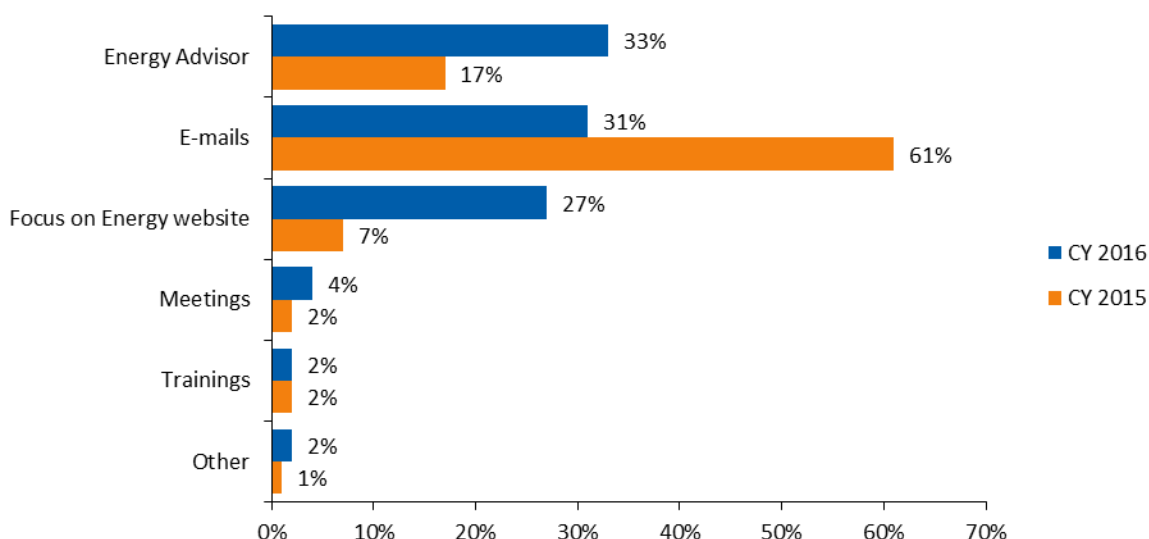
²² $p < 0.05$ using a binomial t-test.

²³ $p < 0.01$ using a binomial t-test.

²⁴ $p < 0.01$ using a binomial t-test.

²⁵ $p < 0.01$ using a binomial t-test.

Figure 30. Trade Ally Preferred Information Sources



Source: CY 2016 and CY 2015 Trade Ally Surveys Question C2/B3. “What is your preferred source for staying informed about Focus on Energy’s programs and Trade Ally network?” (CY 2016 n=82, CY 2015 n=135)

One-third of Trade Allies (33%, n=82) said they had attended Focus on Energy-sponsored training, with 12 attending technology-specific training and 15 identifying program-specific training, focus groups, and one-on-one trainings with a Focus on Energy representative. When asked how useful Program training was in providing the information they needed, 27 Trade Allies gave an average rating of 7.1 on a scale of 0 to 10, where 0 is *not at all useful* and 10 is *extremely useful*. Of these, 12 (44%) said the training was *very important* in their decision to promote Focus on Energy programs, five (19) said training was *somewhat important*, and nine (33%) said the training was *not too important* or *not at all important*.

Four of the six Trade Allies who had a suggestion for improving Focus on Energy training said program staff should follow up with Trade Allies after training and two said speakers should prepare better for the training or stay on topic.

Program Impacts on Trade Ally Business

The Evaluation Team asked Trade Allies about the impact of Focus on Energy on their business. Trade Allies estimated that over half (52%, n=79) of their projects were eligible and received an incentive from Focus on Energy in CY 2016, which was a similar percentage to CY 2015 (47%, n=162). Of 83 Trade Allies, most said participating in Focus on Energy Programs increased the volume of their sales (20% said *significantly increased* and 41% said *somewhat increased*).

To determine the impact on Trade Allies’ businesses of reducing the CY 2016 incentives, the Evaluation Team asked Trade Allies about their perception of incentive levels in Wisconsin and outside the state. Most respondents (77%, n=83) were aware that Focus on Energy reduced incentives across its nonresidential programs, and most of these reported these reductions had no major impact on how

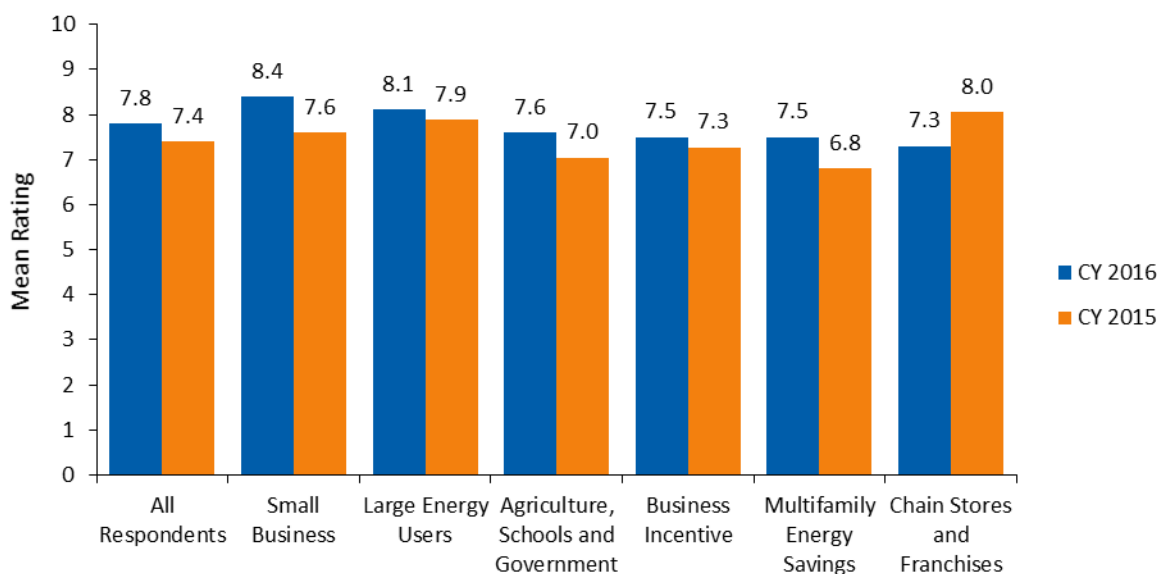
they sell projects. Seventy percent said the reductions had not changed how often they promoted Focus on Energy programs, 20% said they promoted the programs less often, and 9% said they promoted the programs more often (n=83).

Forty percent of respondents (n=83) said they also worked outside of Wisconsin. Of these 33 respondents, 39% were less satisfied, 15% were equally satisfied, and 27% were more satisfied with Focus on Energy's incentives than the incentives offered outside of Wisconsin (18% said *don't know*).

Trade Ally Satisfaction

Overall, Trade Allies respondents said they were satisfied with Focus on Energy. Figure 31 shows that satisfaction scores did not vary greatly among programs; the average rating was 7.8 across programs, which was similar to the 7.4 CY 2015 average rating (a statistically insignificant difference).²⁶ Trade Allies with the Small Business Program reported the highest satisfaction rating among nonresidential programs.²⁷

Figure 31. Overall Satisfaction with Focus on Energy



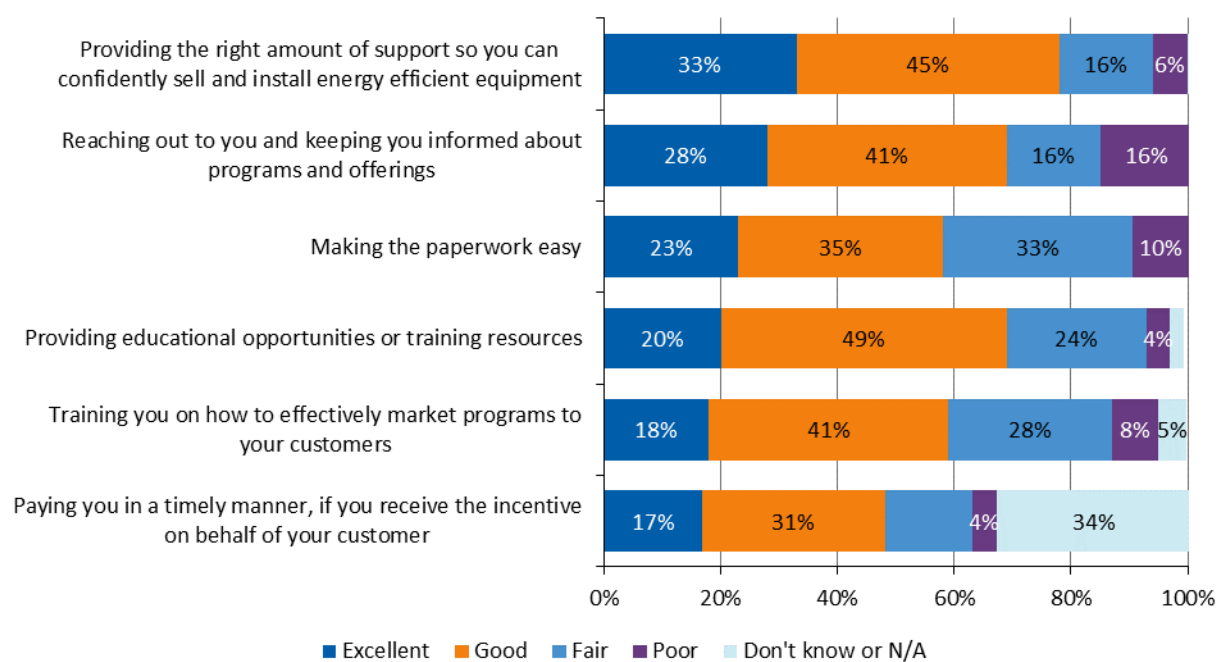
Source: CY 2016 and CY 2015 Trade Ally Surveys Question F5/E2. "On a 0-10 scale where 0 means *not at all satisfied* and 10 means *extremely satisfied*, how satisfied are you with Focus on Energy overall?" (CY 2016 n=78, CY 2015 n=166)

²⁶ Scale of 0 to 10, where 0 indicates *not at all satisfied* and 10 indicates *extremely satisfied*.

²⁷ The Evaluation Team did not statistically test for significant differences between the CY 2016 and CY 2015 mean ratings at the program level. Statistical tests must meet the sample size assumption of $n \geq 20$ respondents in each group; however, most the individual programs did not meet this sample size.

Most Trade Ally respondents across the nonresidential programs expressed satisfaction with various aspects of the programs (Figure 32).

Figure 32. Trade Ally Satisfaction with Program Aspects



Source: CY 2016 Trade Ally Survey Question F1. “How is Focus on Energy doing when it comes to the following?” (n=83)

Of the 41 respondents who offered suggestions for improving their satisfaction, the majority said streamlining the application process (37%) and increasing communication (32%). They offered these comments:

- “Keep making incentive application forms easier to complete and submit. [The] last round of changes with [the incentive] catalog [were] greatly appreciated.”
- “I find the catalog somewhat confusing. Maybe [offer] a user interface website where you select each condition to get the proper rebate incentive code.”
- “Communication on incentives right away so we can begin to sell. Have all your [Energy] Advisors on the same page. One tells me to calculate an incentive one way and someone else tells me a different way. [There] isn't ever any consistency, [which is] very frustrating. [The] approval timeframe of custom and ELO [exterior lighting optimization] programs could be greatly improved.”
- “I know they are limited on time, but [I] would like the WFOE [Focus on Energy] reps to stop in at our business.”
- “Keep Trade Allies informed on changes, specifically major changes, such as advisors [staff turnover].”

Energy Advisor Support

In CY 2016, Trade Allies reported high levels of satisfaction regarding their interactions with Energy Advisors. Of the 80 respondents, 60% were *very satisfied* with the support they received from their Energy Advisor, 30% were *somewhat satisfied*, 5% were *not too satisfied*, and 2% did not work with an Energy Advisor. Of the 96% of respondents who knew their Energy Advisor, 68% said communication with their Energy Advisors was sufficient, 29% wanted to hear from their Energy Advisor more frequently, and 3% said *don't know*.

Cost-Effectiveness Findings

With the oversight of, and in collaboration with the PSC and the Evaluation Team, the Focus on Energy Program Administrator developed a specific cost-effectiveness calculator for the CY 2015–CY 2018 quadrennial. The Program Administrator and the Program Implementers used the calculator to assess the cost-effectiveness of program designs prior to their implementation each year.

To maintain consistency between planning and evaluation approaches—critical for an understanding of program performance compared to expectations—the Evaluation Team used the same calculator to evaluate the cost-effectiveness of the Focus on Energy programs in CY 2016. Its findings are presented in this section.

As directed by the PSC,²⁸ the modified Total Resource Cost (TRC) test is considered the primary test in assessing the cost-effectiveness of individual programs and of the entire Focus on Energy portfolio of programs. The PSC also directed that three additional tests be conducted for advisory purposes. These are an expanded TRC test that also includes net economic benefits, the Utility Administrator Test (UAT), and the Ratepayer Impact Measure (RIM) test.

NTG ratios can be a significant driver in the results of the TRC, UAT, and RIM tests. NTG ratios are applied to adjust the impacts of the programs so they reflect only the gains resulting from the programs. Therefore, NTG ratios take into account the energy savings that would have been achieved without the efficiency programs (that is, when NTG is less than 1 savings are removed and when NTG is greater than 1 savings are added). In all cases, the energy savings are multiplied by NTG.

On the cost side, expenditures that would have occurred without the efficiency effort are also removed. These expenditures include the incremental measure costs and lost revenues, both of which are multiplied by NTG. Costs (e.g., delivery and administrative costs) that would not have occurred in the absence of the programs are not impacted by NTG.

²⁸ The PSC directed the use of the modified TRC test as the primary cost-effectiveness test. Public Service Commission of Wisconsin. *Quadrennial Planning Process II – Final Decision*. Order PSC Docket 5-FE-100, REF#:215245. September 5, 2014. Available online: http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=215245

Test Descriptions

The Evaluation Team—as well as the Program Administrator in developing its calculator—used methods adapted from the California Standard Practice Manual, the conventional standard of cost-effectiveness analysis for energy efficiency programs in the United States.²⁹ The modified TRC test is described in the next section. The detailed descriptions and results for the other benefit/cost tests—the expanded TRC test, the UAT, and the RIM test—are found in Appendix F.

Modified Total Resource Cost Test

The TRC test is the most commonly applied test for evaluating the cost-effectiveness of energy efficiency and renewable resource programs around the country. Applications range across states and utility jurisdictions, from the standard TRC test to the Societal Cost Test, which expands the test inputs to account for a more holistic societal perspective. Modifications to the standard TRC test often include reducing the discount rate or including various environmental and non-energy benefits. The test includes total participant and Program Administrator costs. The test also includes some non-energy benefits (e.g., emission reduction benefits). The TRC test does not include incentive costs.

The modified TRC test used for the CY 2016 evaluation defines if programs are cost-effective from a regulatory perspective (i.e., as directed by the PSC) and is intended to measure the overall impacts of program benefits and costs on the state of Wisconsin. The test compares all benefits and costs to the state that can be measured with a high degree of confidence, including any net avoided emissions that are regulated and that have either well-defined market or commission-established values. The purpose of the TRC test here is to determine if the total costs incurred by residents, businesses, and Focus on Energy for operating the programs are outweighed by the total benefits they receive.

In simple terms, the modified TRC test benefit/cost (B/C) value is the ratio of avoided utility and emission costs from avoided energy consumption and the combination of program administrative costs, program delivery costs, and net participant incremental measure costs.

The B/C equation used for the modified TRC test is:

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

Where:

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

²⁹ California Public Utilities Commission. *California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects*. July 2002. Available online: http://www.calmac.org/events/SPM_9_20_02.pdf

Interpreting Test Results

Because of changes in avoided electric energy and natural gas costs, changes to measure-level incremental costs, and emissions allowance prices for the CY 2015–CY 2018 quadrennial, cost-effectiveness results reported here are not directly comparable to results from the previous quadrennial (CY 2011–CY 2014). CY 2015 and CY 2016 results are directly comparable.

Value of Net Saved Energy

The value of energy saved, or displaced, equals the net energy saved multiplied by the utility-avoided cost of the saved energy. In the case of energy efficiency and renewable resource programs, avoided cost is the incremental (or marginal) cost for the additional energy and capacity the utility has to generate or purchase from another source rather than pay for the efficient measure that offsets this demand.

The PSC established the methodology to estimate electric energy avoided costs on June 18, 2012, in PSC Order, docket 5-GF-191 (PSC REF#:166932).³⁰ The PSC established new natural gas avoided costs for the CY 2015–CY 2018 quadrennial on February 26, 2015, by PSC Order, docket 5-FE-100 (PSC REF#:232431).³¹ These costs are based on Henry Hub price forecasts from the 2014 U.S. Energy Information Administration (EIA) Annual Energy Outlook.³²

In the CY 2016 evaluation, the Evaluation Team updated the electric energy avoided costs using an avoided cost/annualized forecast model, which relied on the Midcontinent Independent Transmission System Operator, Inc.'s (MISO's) forecast of Locational Marginal Pricing (LMP) for 2018, 2023, and 2028.³³

To derive net savings, the Evaluation Team decreased the verified gross energy savings by the conventional attribution factor of the NTG ratio. It then increased the net savings by the line loss factor of 8% to account for distribution losses. Table 22 shows the avoided cost assumptions used for the cost-effectiveness tests in CY 2016.

³⁰ Public Service Commission of Wisconsin. Quadrennial Planning Process II – Scope. Order PSC Docket 5-FE-100, REF#:166932. June 18, 2012. Available online: http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=166932

³¹ Public Service Commission of Wisconsin. Quadrennial Planning Process II – Scope. Order PSC Docket 5-FE-100, REF#:232431. February 25, 2015. Available online: http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=232431

³² 2014 U.S. Energy Information Administration (EIA). Annual Energy Outlook. Available online: <http://www.eia.gov/forecasts/aeo/er/index.cfm>

³³ Midcontinent Independent Transmission System Operator, Inc. Available online: <https://www.misoenergy.org/Planning/TransmissionExpansionPlanning/Pages/MTEPFutures.aspx>

Table 22. Avoided Cost Comparison Between Years

Avoided Cost	CY 2015	CY 2016
Electric Energy (\$/kWh)	\$0.02914-0.06871 ¹	\$0.02914-0.06871 ¹
Electric Capacity (\$/kW year)	130.26	130.26
Gas (\$/therms)	\$0.625-\$1.278 ²	\$0.625-\$1.278 ²
Avoided Cost Inflation	0%	0%
Real Discount Rate	2%	2%
Line Loss	8%	8%

¹ The CY 2015 and CY 2016 cost-effectiveness analyses used a time series that grows from \$0.02914 to \$0.06871 over 14 years in the forecast model.

² The natural gas avoided costs grows from \$0.625 to \$1.278 over a 25-year period based on growth rates from the EIA Annual Energy Outlook 2014.

Emissions Benefits

The emissions benefits require three key parameters—lifecycle net energy savings, emissions factors, and the dollar value of the displaced emissions. Emissions factors are simply the rate at which the pollutants are emitted per unit of energy and are most often expressed in tons of pollutant per energy unit—electric is in tons/megawatt hour (MWh) and gas is in tons/ thousand therms (MThm). The product of the emissions factor and the net lifecycle energy savings is the total weight of air pollutant displaced by the program. The product of the total tonnage of pollutant displaced and the dollar value of the displaced emissions per ton is therefore the avoided emissions benefit.

The natural gas emissions factor has remained constant since the 2011 evaluation report. For CY 2016, the Evaluation Team revised the electric emissions factors using a tool developed by the U.S. Environmental Protection Agency (EPA) to calculate avoided emissions from renewable energy and energy efficiency programs (the tool is officially called the “AVoided Emissions and geneRation Tool” or “AVERT”). Table 23 lists the emissions factors and allowance prices.

Table 23. Emissions Factors and Allowance Price

Service Fuel Type	CO ₂	NO _x	SO ₂
Electric Emissions Factor (Tons/MWh)	0.8855	0.0007	0.0015
Gas Emissions Factor (Tons/MThm)	5.85	n/a	n/a
Allowance Price (\$/Ton)	\$15	\$7.50	\$2

The Evaluation Team obtained NO_x and SO₂ emissions allowance prices from near the end of 2016 from the EPA’s Cross State Air Pollution Rule (CSAPR).³⁴ Markets for NO_x and SO₂ allowances continue to be

³⁴ S&P Global. “Platts MegaWatt Daily.” Accessed online April 2017: http://nyarea.org/wp-content/uploads/11_23_16_EARNED-MEDIA_Platts-Megawatt-Daily_King-Coal-to-reign-again-%E2%80%94-for-the-winter-EIA.pdf.

volatile, making it difficult to forecast NO_x and SO₂ allowance prices. However, given the generally lower prices in 2016, the Evaluation Team lowered the avoided emissions values for SO₂ and NO_x for 2016 to maintain a conservative estimate of the value of avoided emissions. The Evaluation Team used the CO₂ emissions price in the PSC's Order, docket 5-FE-100 Ref#: 279739, which states, "For purposes of evaluating the Focus program during the 2015–2018 quadrennium, the value of avoided carbon emissions shall be \$15 per ton."³⁵

Table 24 lists the emissions benefits for all programs by segment.

Table 24. Total Program Emissions Benefits by Segment

Program Year	Residential	Nonresidential	Total
CY 2015 Emissions Benefits ¹	\$25,236,521	\$85,344,610	\$110,581,131
CY 2016 Emissions Benefits ¹	\$33,488,565	\$70,614,708	\$104,103,273

¹Reported emissions impacts are based upon portfolio-level modeling within AVERT and are not measure- or project-level specific.

Program Costs

The program costs represent all costs associated with running the efficiency and renewable programs (including administration and delivery costs). The Evaluation Team did not include incentive costs as program costs because they are deemed transfer payments to the customer.³⁶ Focus on Energy's fiscal agent, Wipfli, provided the CY 2016 program costs used in this evaluation.

³⁵ Public Service Commission of Wisconsin. *Quadrennial Planning Process II – Scope*. Order PSC Docket 5-FE-100, REF#:279739. December 23, 2015. Available online: http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=279739

³⁶ The Evaluation Team included the incentive costs as part of the incremental cost but did not add them as a program cost.

Table 25 shows the CY 2016 program and incentive incremental cost values used for the cost-effectiveness tests.

Table 25. Sector Costs Comparison

Costs	CY 2015	CY 2016
Residential		
Incentive Costs	\$21,377,732	\$20,313,920
Administrative Costs	\$4,421,952	\$3,772,429
Delivery Costs	\$10,084,023	\$8,873,833
Total Residential Program Costs	\$35,883,707	\$32,960,182
Nonresidential		
Incentive Costs	\$40,612,777	\$35,523,227
Administrative Costs	\$4,070,977	\$4,162,016
Delivery Costs	\$16,623,494	\$16,995,245
Total Nonresidential Program Costs	\$61,307,247	\$56,680,488
Total for Residential and Nonresidential Sectors		
Incentive Costs	\$61,990,509	\$55,837,147
Administrative Costs	\$8,492,929	\$7,934,445
Delivery Costs	\$26,707,516	\$25,869,078
Total for Residential and Nonresidential Sectors Program Costs	\$97,190,955	\$89,640,670

Incremental Costs

The gross incremental costs are the additional costs incurred as a result of purchasing efficient equipment over and above a baseline nonqualified product. The Evaluation Team derived the gross incremental cost values used in this CY 2016 evaluation from the incremental cost study conducted by the Program Administrator, Program Implementers, and Evaluation Team. This study established up-to-date incremental costs for all measures using the best available data, including historical Focus on Energy program data and independent research from other state programs. The gross incremental costs, similar to the energy savings values used in the cost-effectiveness tests, required the application of attribution factors to account for freeridership.

As in the evaluation of the previous quadrennial (CY 2011–CY 2014), the Evaluation Team assigned actual project cost values from the program tracking databases to the renewable energy projects.

Table 26 shows the CY 2015 and CY 2016 total measure net incremental costs used for the cost-effectiveness tests.

Table 26. Net Incremental Measure Cost Comparison

Costs	Residential	Nonresidential
CY 2015 Incremental Costs	\$39,756,677	\$162,338,959
CY 2016 Incremental Costs	\$77,731,522	\$150,762,883

Table 27 lists CY 2016 incentive costs by sector, with renewables incorporated.

Table 27. CY 2016 Incentive Costs by Sector (with Renewables Incorporated)

Costs	Residential	Nonresidential	Total
Incentive Costs	\$20,313,920	\$35,523,227	\$55,837,147

Table 28 lists the findings of the benefit/cost analysis for Focus on Energy's CY 2016 programs by sector, with renewable measures incorporated into each sector for each cost-effectiveness test.

Table 28. CY 2016 Costs, Benefits, and Modified TRC Test Results by Sector

	Residential	Nonresidential	Total
Administrative Costs	\$3,772,429	\$4,162,016	\$7,934,445
Delivery Costs	\$8,873,833	\$16,995,245	\$25,869,078
Incremental Measure Costs	\$77,731,522	\$150,762,883	\$228,494,405
Total TRC Costs	\$90,377,784	\$171,920,144	\$262,297,928
Electric Benefits	\$166,766,433	\$294,143,943	\$460,910,375
Gas Benefits	\$46,194,917	\$175,286,641	\$221,481,558
Emissions Benefits	\$33,488,565	\$70,514,977	\$104,003,542
Total TRC Benefits	\$246,449,914	\$539,945,561	\$786,395,475
TRC Benefits Minus Costs	\$156,072,130	\$368,025,417	\$524,097,547
TRC B/C Ratio¹	2.73	3.14	3.00

¹The TRC ratio equals total TRC benefits divided by non-incentive costs.

Table 29 lists the CY 2015 and 2016 portfolio cost-effectiveness results.

Table 29. Cost-Effectiveness Results for Focus on Energy Portfolio

Calendar Year	Residential	Nonresidential	Renewables	Total
CY 2015: Modified TRC Test Results With Renewables	3.12	3.63	n/a	3.51
CY 2015: Modified TRC Test Results Renewables Separate	3.33	3.93	1.18	3.51
CY 2016: Modified TRC Test Results With Renewables	2.73	3.14	n/a	3.00
CY 2016: Modified TRC Test Results Renewables Separate	2.93	3.36	1.09	3.00

The PSC directed Focus on Energy to perform additional benefit/cost tests for informational purposes; these tests include the expanded TRC, UAT, and RIM test:

- The expanded TRC test has the same inputs as the modified TRC test but also includes the net economic benefits.
- The UAT measures the net benefits and costs of the programs as a resource option from the perspective of the Focus on Energy Program Administrator.
- The RIM test is the ratio of avoided utility costs and the combination of participant incentives, administrative costs, and lost utility revenue.

Table 30 lists the CY 2016 portfolio-level cost-effectiveness results for the additional test perspectives.

Table 30. Portfolio-Level Cost-Effectiveness Results for Additional Benefit/Cost Tests

Calendar Year	Residential	Nonresidential	Total
CY 2016: Expanded TRC B/C Results	5.01	6.34	5.88
CY 2016: UAT B/C Results	6.46	8.28	7.61
CY 2016: RIM B/C Results ¹	0.64	1.07	0.89

¹For the CY 2016 cost-effectiveness analysis the lost revenue portion of the RIM test assumes a fixed utility rate that does not escalate over time, while the avoided energy costs are escalated on a yearly basis resulting in greater benefits than costs for the nonresidential portfolio.

The inclusion of the economic benefits to the expanded TRC test results in higher benefit/cost ratios compared to the portfolio-level modified TRC test results. For the UAT, the results show that benefits from the residential programs were more than six times greater than the costs, while the benefits from the nonresidential programs outweighed the costs by a factor of 8.28. As expected, the benefit/cost values from the RIM test for the portfolio are near 1.0. When interpreted within the context of the UAT results, these findings indicate that, although annual Focus on Energy activities will probably induce theoretical upward pressure on future energy rates, total ratepayer energy costs will go down.

For additional details on the different benefit/cost test results and processes used for calculating the cost-effectiveness of the Focus on Energy portfolio, please refer to Appendix F as well as the Benefit/Cost Analysis CY 2009 Evaluation Report.³⁷

³⁷ Focus on Energy. *Benefit/Cost Analysis CY 2009 Evaluation Report*. Submitted to Public Service Commission of Wisconsin. Submitted by PA Consulting Group and KEMA, Inc. Final: November 24, 2009. Available online: https://focusonenergy.com/sites/default/files/bcanalysiscy09_evaluationreport.pdf

Outcomes and Recommendations

Based on the Evaluation Team’s segment- and portfolio-level findings, this section presents high-level outcomes and recommendations.

Outcome 1. Businesses consider Focus on Energy a trustworthy brand, and they associate Focus on Energy with cost savings.

Nonresidential participants considered Focus on Energy an objective source for energy efficiency information, with 83% of respondents who *strongly agree* with the claim that “Focus on Energy is a brand I can trust.” While larger businesses, agricultural businesses, and schools and government sectors favored this statement, small businesses and multifamily property owners preferred messaging that emphasized the value of Focus on Energy programs, tools, services, and energy efficiency awareness, which suggests that these customer segments may seek out Focus for different reasons. Most businesses also connected the Focus on Energy brand to messages about energy cost savings and said the top words associated with the brand were “savings” and “energy.” Because customers relied on Trade Allies and Energy Advisors as trusted energy efficiency information sources, they had a direct connection with the Focus on Energy brand.

Recommendation 1a. Safeguard the Focus on Energy’s brand by ensuring Energy Advisors and Trade Allies maintain service standards and effectively promote the programs. Because Trade Allies and Energy Advisors are ambassadors for the brand, consider providing standardized sales and customer service tactics through training and resources so these individuals can effectively convey program processes and estimate energy savings and incentives. Although customer service training and tactics for Energy Advisors and Trade Allies may be similar, Energy Advisors may benefit from learning sales tactics that specifically serve customers because of the Energy Advisor’s role as an objective, third-party advisor who eliminates project barriers. Lastly, and across Program Administrator and Program Implementer activities, continue to ensure that program- and- portfolio-level key performance indicators (KPIs) and program processes, such as response and application processing timing, are delivering to customer expectations.

Recommendation 1b. Explore options for customer-specific, targeted messaging tactics through deeper research. Future evaluation or Program Administrator activities could include more extensive contact with the various customer segments to explore how these customers perceive energy efficiency, technology, marketing, and other business and spending habits. With a more refined understanding of the customer segments, the Program Administrator and Program Implementers could create targeted marketing and outreach messages that customers would find relevant and ultimately lead them to buy energy-efficient equipment or participate in a Focus on Energy program. Another alternative to better understand customer preferences and interests would be to determine their preferences at the program level by assessing email open rates or conducting focus groups to identify the most influential messaging, images, and topics.

Outcome 2: Trade Allies are consistently promoting the programs to customers, regardless of incentive changes. However, Trade Allies are finding more appealing incentives in other states, and businesses gave Focus on Energy less credit for their projects and are increasingly asking for higher incentive levels, which could be the result of reductions in the CY 2016 incentive levels.

Focus on Energy has a positive impact on Trade Allies' sales, and most Trade Allies promote Focus on Energy incentives when talking about possible projects with their customers (66% promote Focus on Energy *all the time*, and 25% promote Focus on Energy *frequently*). Although the decreases in incentives did not greatly impact Trade Allies' sales process, 39% of those who also work outside of Wisconsin were more satisfied with the incentives offered outside of the Focus on Energy territory. Common energy efficiency program design assumes that higher incentive levels result in lower program freeridership levels. Conversely, the industry assumes that incentive level reductions can result in increased freeridership. Business participant freeridership increased from CY 2015 to CY 2016, except for small business owners, where incentives remained fairly consistent with CY 2015 levels. More businesses asked for higher incentives and upfront rewards compared to CY 2015, which is a common request.

Recommendation 2a. Consider continued monitoring of incentive levels relative to freeridership. The Evaluation Team acknowledges that the quadrennial goals and the budgets to achieve these goals had not changed, despite federal standards changes and reductions to deemed savings values over the quadrennium. These factors were outside the Program Administrator's control, but because the changes to incentive levels may be influencing freeridership, it may be necessary to explore these effects. For example, continue to review incentive levels relative to measure costs or measure type and technology.

Recommendation 2b. Retain Trade Ally engagement by increasing direct and web-based communications. Because Trade Allies value their relationships with Energy Advisors and identified the website as an ideal information source, continue one-on-one outreach to keep Trade Allies involved with Focus on Energy and maintain the Focus on Energy website as an objective, timely tool for program details and changes.

Outcome 3. Trade Ally satisfaction remains strong across the nonresidential programs, despite incentive/program changes.

Overall Trade Ally satisfaction was strong with a rating of 7.8 on a scale of 0 to 10, which was consistent with the 7.4 in CY 2015. Most Trade Allies were pleased with the level of support from their Energy Advisor.

Outcome 4: Businesses are pleased with the ease of the application process, but some businesses are uncertain about what equipment qualifies and have difficulty gathering the information needed to complete the application.

In CY 2016, fewer participants (17%) said they found the application difficult to fill out compared to 21% in CY 2015. In the program-level chapters, the Evaluation Team details the improvements the Program Implementers and the Program Administrator made to the application process; for example, one

improvement was a full transition to an application catalog format across most programs. Although fewer customers experienced difficulties in CY 2016, some described concerns with qualifying equipment and the amount of information needed to complete the application. This first issue was probably because customers attempted to verify eligibility prior to committing to a Trade Ally's proposed project, and the second concerned the role of the Trade Ally and the customer in the process. Focus on Energy paid only 15% of CY 2016 incentives to Trade Allies, while 85% were paid to customers. Businesses could become less concerned with the application process if Trade Allies were more frequently offering upfront rewards.

Recommendation 4. Seek ways to further improve Trade Ally support through incentive application process improvements and frequent, effective communication. As in CY 2015, the Evaluation Team recognized the strides the Program Administrator and Program Implementers made over several years to streamline the incentive process and ease the administrative burden for customers and Trade Allies. To continue these efforts, consider soliciting additional feedback from Trade Allies regarding program processes. Determine any program-specific difficulties with incentive processing, then identify KPIs that could improve the application experience; KPIs could include incomplete application frequencies or application processing times (i.e., the complete fulfillment cycle from the date a complete application is received to the date the incentive check is cut). Encourage Trade Allies to install equipment that qualifies for prescriptive incentives wherever possible, even if the project requires a custom application. This could also increase Trade Allies' use of upfront rewards.

Outcome 5. Participant satisfaction is high across all programs.

Focus on Energy residential and nonresidential participants completed over 9,000 surveys in CY 2016. Survey respondents gave Focus on Energy programs a combined, participation-weighted average overall satisfaction score of 8.9 (on a scale of 0 to 10), with average ratings per program ranging from 8.8 to 9.6. Although satisfaction with individual programs increased over CY 2015, the overall portfolio remained statistically equivalent to the 8.8 baseline established in CY 2015.

Consistent with CY 2015, participants also gave high ratings (averaging 8.7 or better) for Trade Allies, Program Implementers, and the upgrades they received. The aspect of Focus on Energy programs that received the lowest satisfaction ratings concerned incentive amounts, with average ratings per program ranging from 7.7 to 8.8. (This finding is not uncommon among energy efficiency programs across the country.)

In CY 2016, to assess NPS scores, the Program Administrator requested that the Evaluation Team add a question about the willingness of participants to recommend the program. Although no comparison could be made to CY 2015, scores across all programs were high, ranging from +65 to +100 for residential and +74 to +89 for commercial participants. The multifamily programs and the Renewable Rewards Program had the highest residential NPS scores (+85 to +100), with Home Performance with ENERGY STAR components for HVAC and Whole Home having the most room for improvement (+65 to +69). Participants in the Large Energy Users Program gave the highest NPS scores (+89) among

commercial participants, while the Business Incentive and Small Business programs showed the largest opportunity for improvement (both +74).

These surveys also solicited open-ended feedback and suggestions, which were useful for informing process improvements. The Program Administrator regularly monitors customer satisfaction feedback, including identifying responses that require follow-up. The Program Administrator collaborates with Program Implementers to respond to and resolve any identified ongoing issues and trends.

Recommendation 5a. Continue monitoring participant satisfaction and NPS scores through ongoing surveys and make process improvements to address customer concerns and suggestions. Although participant satisfaction ratings are now consistently trending high, the surveys also offered insight into gaps in service levels and communication. Continue to monitor ongoing trends in satisfaction ratings and NPS scores and respond to comments from program participants to address small service issues and inconsistencies before they can affect more customers.

Recommendation 5b. Consider a proactive nurture campaign to follow up with survey respondents indicating high likelihood for making improvements in the coming year. Because positive experiences with programs can lead to stronger engagement with energy efficiency upgrades and improvements, consider directing specific information and program outreach to participants who indicated a high likelihood to make another improvement. This type of nurture campaign is relatively cost-effective and can generate even higher satisfaction and repeat participation.

Outcome 6. Programs across the residential and nonresidential portfolios met nearly all key performance indicators (KPIs) identified by the Program Administrator to measure program success.

In addition to each program's energy and participation goals, the Program Administrator and Program Implementer tracked KPIs to measure program effectiveness and overcome program weaknesses. Common indicators across programs included incentive processing goals (i.e., the number of days an incentive was outstanding), customer participation targets, and satisfaction metrics. The vast majority of residential and nonresidential programs exceeded these KPIs. The following are examples of the programs' greatest successes in achieving these goals:

- The Retailer Lighting and Appliance Program launched the Retail Products Platform in April 2016, three months before its target launch date.
- The Business Incentive Program Implementer averaged 27 days to process completed applications (a two-day decrease from CY 2015), exceeding its goal of 35 days.
- The Program Implementer for the multifamily programs achieved its goal to convert previous (CY 2011–CY 2015) Multifamily Direct Install Program participants to the Multifamily Energy Savings Program. In CY 2016, 20% of Multifamily Energy Savings Program participants had previously participated in the Multifamily Direct Install Program, exceeding the Program Implementer's goal by 400%.

- The Small Business Program Implementer achieved its goal to increase Trade Ally satisfaction, increasing from an average satisfaction rating of 7.6 in CY 2015 to 8.4 in CY 2016.

Outcome 7. TRM process and products continue to improve.

The Wisconsin TRM is made of workpapers that have been reviewed and accepted by the Evaluation Team, PSC staff, and Program Administrator. There are also many accepted workpapers that are not included in the TRM but are still used to support SPECTRUM savings values. Finally, several measures in SPECTRUM are not supported by the current TRM or current workpapers, but rather they are based on old, outdated workpapers or other substandard documentation. These active measures with insufficient documentation are a major driver of deviation from expected savings values, which means the Evaluation Team must rely on other algorithms, input parameters, and other sources.

The continued use of Huddle and Trello as workpaper management tools has facilitated increased collaboration and made implementation of the formal workpaper process much easier. The TRM continues to expand and improve, with new workpapers, amendments to old ones, and more standardized sourcing practices. The incremental cost review in CY 2016 was thorough and included standardizing all cost sources in the TRM's incremental cost appendix. Amendments and additions to the TRM will continue to reflect new evaluation research findings and technology changes.

Recommendation 7. Continue to expand and improve the TRM's content. Increase the rigor of the measure management process to mitigate the effects of using old or insufficient documentation to determine current SPECTRUM savings. Consider employing sunset dates on all measures to limit how long a measure savings value can persist in the SPECTRUM database with no update or review. Also continue to improve and standardize sources and formatting throughout the TRM. In the future, Focus on Energy may want to consider an online and/or database-based TRM. This could streamline and improve the TRM update process and improve the user experience. Exploration of the benefits and risks of such a change would require careful consideration and is probably best left for the next quadrennium.

Outcome 8. Pilots have proven to be an effective and efficient approach to identifying potential new program offerings.

The Program Administrator has developed a successful three-stage approach to identify and approve new pilot offerings. This approach has enabled it to successfully launch several new pilots, some of which have been evaluated and some of which are ongoing. The performance of these pilots has varied; their performance is a good indication of whether a particular pilot is worth converting to a permanent program offering.

Recommendation 8. Continue to identify and launch promising pilots each year. The existing pilot proposal process allows Focus on Energy to take advantage of the knowledge, experience, and ideas of the larger energy efficiency community. Continuing this process each year ensures that Focus remains at the forefront of new ideas and provides an ongoing resource for potential program offerings.

Outcome 9. Processes for tracking adjustment measures and water adjustments continue to improve but with room for improvement.

Adjustment measures are created in SPECTRUM to resolve an oversight in savings or incentives, such as claiming incorrect *ex ante* kWh, therms, or kW values, or the payment of incorrect incentives. This adjustment reconciles known errors in SPECTRUM prior to end-of-year reporting. The process surrounding adjustment measures has steadily improved each year and has contributed to greater accuracy of the program metrics that impact realization rates and NTG ratios.

However, when multiple measures (as counted by their measure master ID) are adjusted by a single adjustment measure, there is typically insufficient information in the adjustment measure tracking spreadsheets or the specific adjustment application SPECTRUM data to determine how to appropriately break out the correct adjustment for each originating application and measure because the per-unit savings adjustment may differ for every measure.

Electric savings generated upstream at water treatment plants because of the installation of water-saving equipment are also tracked in SPECTRUM, with one water adjustment measure for each utility impacted by water savings. Large custom projects are able to claim water savings as an individual measure in the application. Several times throughout the year, the Program Administrator creates water adjustment measures. However, the Program Administrator does not currently align the specific application IDs and measure master IDs that are generating water savings with their corresponding water adjustment measures. This means the Evaluation Team cannot precisely reconcile which originating applications generated the water savings applied by the water adjustment measures.

Recommendation 9. Continue to work with the Evaluation Team to determine improvements in tracking adjustment measures and water adjustments to improve the accuracy of SPECTRUM.

Consider tracking each adjustment at the individual application ID and measure master ID level. This would provide the necessary information, allow the process to be automated, attribute the adjustments measures back to their originating application, and support the same level of precision as the regular adjustment measures. Another option would be to allow SPECTRUM to record multiple applications per row but only one measure master ID.

Outcome 10. Multiple residential programs are shifting their lighting offerings from CFLs to LEDs.

Focus on Energy has many reasons for making the transition from offering CFLs to offering only LEDs. These reasons include higher lifetime energy savings, higher customer satisfaction, and adjusting to the quickly evolving lighting market. This shift is supported by results from the residential longitudinal study (discussed in more detail in the Retailer Lighting and Appliance Program chapter), where LED penetration nearly doubled from CY 2015 (30%) to CY 2016 (52%), and the Simple Energy Efficiency Program participant survey, where 91% of respondents were *very satisfied* with the general service LEDs they received compared to 82% of respondents who were *very satisfied* with the CFLs they received.

Recommendation 10. Focus on Energy should continue to exclusively offer LEDs, but be mindful of market factors. Even with the new ENERGY STAR 2.0 lighting specification, the lighting market continues to stock value LEDs and halogens. Therefore, continue to educate customers about the benefits of LEDs over other less-efficient lighting choices. Furthermore, consider educating customers on the additional benefits of the ENERGY STAR brand to reduce market barriers to ENERGY STAR LED adoption that may be associated with poor consumer satisfaction of value lighting products. .