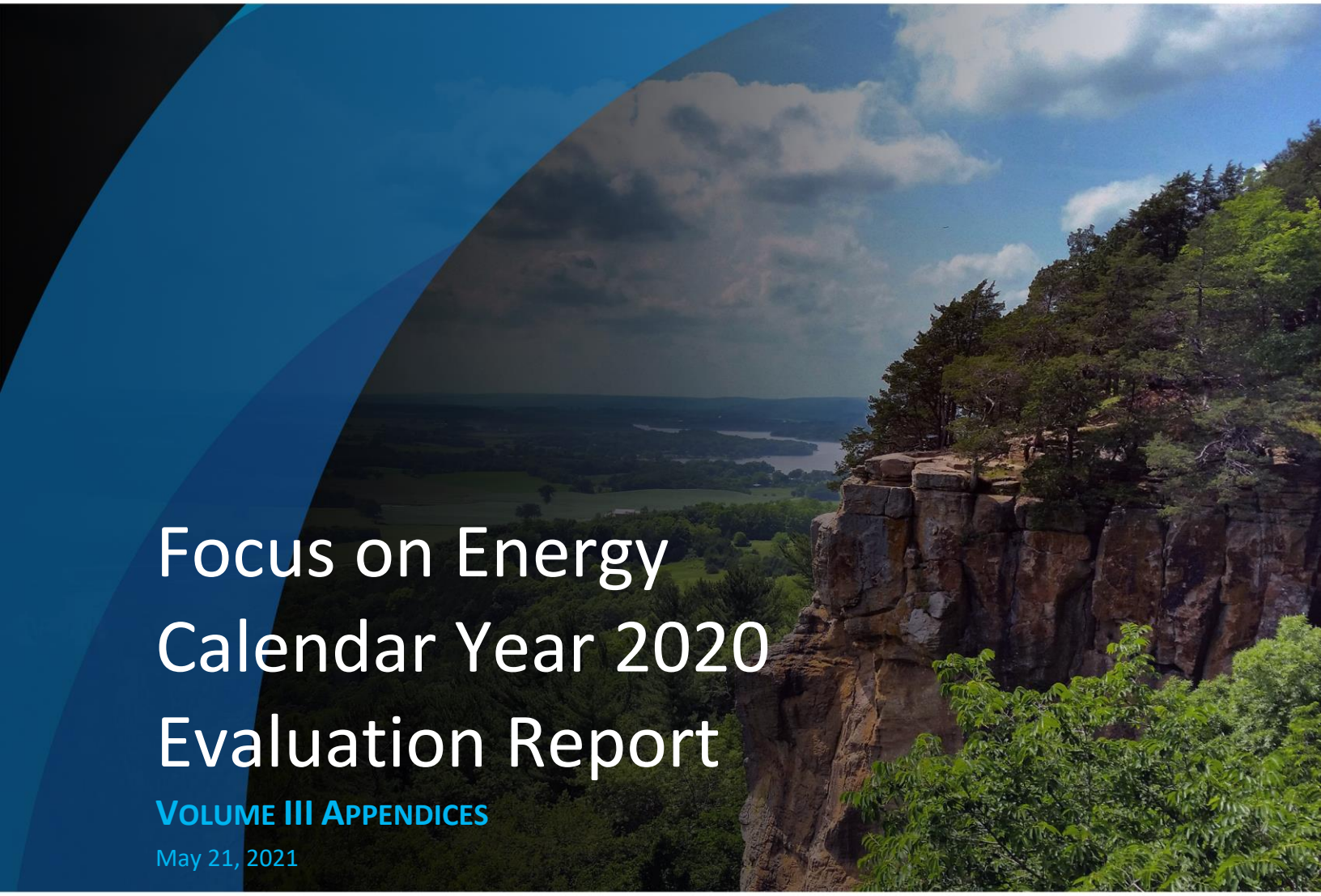
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Focus on Energy Calendar Year 2020 Evaluation Report

VOLUME III APPENDICES

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Appendix A. Key Achievements and Figures for State of Wisconsin and Focus on Energy

Offering Participants

- CY 2020 Residential: 171,745
  - Upstream Lighting Participation: 975,611
- CY 2020 Nonresidential: 4,865
- CY 2020 Midstream: 740
- CY 2020 Total Participants: 177,350

Total Electric and Natural Gas Energy Usage

- CY 2019 Electric Sales to Wisconsin Retail Customers megawatt hours (MWh): 69,157,540[1]
- CY 2019 Wisconsin Aggregated Electric Utilities Noncoincident Peak Demand megawatts (MW): 15,312[1]
- CY 2020 Natural Gas Consumption (MThms): 3,805,481[2]

Total Verified Gross Lifecycle Savings

- CY 2020 Energy Savings (MWh): 11,331,863
- CY 2020 Demand Reduction (MW): 101
- CY 2020 Natural Gas Savings (therms): 321,783,600

Total Verified Net Annual Savings

- CY 2020 Energy Savings (MWh): 449,634
- CY 2020 Demand Reduction (MW): 64
- CY 2020 Natural Gas Savings (therms): 16,975,333

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1 U.S. Energy Information Administration. Independent Statistics and Analysis. "Wisconsin Electricity Profile 2019." https://www.eia.gov/electricity/state/Wisconsin/

2 U.S. Energy Information Administration. Independent Statistics and Analysis. "Natural Gas Consumption by End Use." https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SWI_a.htm

Population Numbers (CY 2020)

- Statewide Census Population: 5,893,718[3]
- Wisconsin Residential Electric Accounts: 2,720,287[4]
- Wisconsin Residential Gas Accounts: 1,793,147[5]
- Wisconsin Nonresidential Electric Accounts: 356,561
- Wisconsin Nonresidential Gas Accounts: 172,012

Table A-1. CY 2020 Costs, Benefits, and Modified TRC Test Results by Sector Combined

	Residential	Nonresidential	Midstream	Renewables	Total
Administrative Costs	$1,292,223	$1,422,713	$9,657	$64,144	$2,788,738
Delivery Costs	$11,563,550	$17,745,763	$525,541	$709,320	$30,544,175
Incremental Measure Costs	$47,796,116	$158,148,925	$2,118,513	$42,957,092	$251,020,645
Total TRC Costs	**$60,651,889**	**$177,317,401**	**$2,653,712**	**$43,730,556**	**$284,353,558**
Electric Benefits	$71,967,357	$274,243,541	$684,267	$46,565,622	$393,460,787
Gas Benefits	$20,599,359	$103,887,844	$2,463,121	$0	$126,950,324
Emissions Benefits	$22,299,686	$85,800,515	$520,240	$7,844,515	$116,464,956
T&D Benefits	$10,443,511	$44,043,325	$178,562	$0	$54,665,398
Total TRC Benefits	**$125,309,914**	**$507,975,225**	**$3,846,189**	**$54,410,137**	**$691,541,465**
TRC Benefits Minus Costs	**$64,658,025**	**$330,657,824**	**$1,192,478**	**$10,679,580**	**$407,187,907**
TRC Benefit/Cost Ratio without T&D Benefits [a]	**1.89**	**2.62**	**1.38**	**1.24**	**2.24**
TRC Benefit/Cost Ratio with T&D Benefits [a]	**2.07**	**2.86**	**1.45**	**1.24**	**2.43**

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

[3] U.S. Census Bureau. "Resident Population for the 50 States." https://www2.census.gov/programs-surveys/decennial/2020/data/apportionment/apportionment-2020-table02.pdf

[4] U.S. Energy Information Administration. "Annual electric power industry Report, Form EIA-861 detailed data files." Sales, revenue, and energy efficiency. https://www.eia.gov/electricity/data/eia861/

[5] U.S. Energy Information Administration. "Number of Natural Gas Consumers." https://www.eia.gov/dnav/ng/ng_cons_num_dcu_SWI_a.htm

Appendix B. Glossary of Terms

Term	Definition
Attribution	The establishment of a causal relationship between action(s) taken by a group or program and an outcome. Being attributable to a program means that energy savings and demand reduction can be viewed as a result of the program influence, and the savings would not have been achieved in the program's absence.
Avoided Costs	Costs to the utility avoided by implementing an energy efficiency measure, program, or practice.
Administrative Costs	Costs not directly associated with a specific program activity but necessary to the development and administration of programs, including record keeping, payroll, accounting, auditing, billing, business management, budgeting and related activities, overhead allocation, and other costs necessary to direct the organization of the program.
Baseline	Conditions (including energy consumption) that would have occurred without implementing the measure or project. These conditions can be either as-found (prior to the energy efficiency retrofit or to conditions that meet the state or federal efficiency codes) or a combination of efficient and nonefficient conditions derived from data.
Benefit/Cost Ratio	Mathematical relationship between the benefits and costs associated with implementing energy efficiency measures, programs, or practices or including emission reduction benefits resulting from such implementation.
Claimed Savings	Energy savings the Offering Administrator or Offering Implementer reports before verification by the Evaluation Team (also called *ex ante* savings, reported savings, or tracked savings).
Cost-Effectiveness	Comparison of the benefits and costs associated with implementing energy efficiency measures and programs. The actual benefits and costs included can vary based on the design and intent of different cost-effectiveness tests.
Custom Savings	Savings for nonprescriptive measures that do not meet the criteria for deemed savings as calculated by the Offering Administrator or Offering Implementer at the time of project completion. The result reflects savings for the specific project based on pre- and post-installation energy use.
Deemed Savings	An estimate of energy, demand, or natural gas savings for a single unit of an installed energy efficiency measure. Deemed savings are typically developed from data sources and analytical methods that are widely considered acceptable for the measure and are applicable to the situation.
Downstream Offering	An efficiency program that provides incentives to the end user by directly offsetting the first cost of the equipment and reducing the payback period.
Ex Ante Savings	Energy savings the Offering Administrator or Offering Implementer reports before verification by the Evaluation Team (also called claimed savings, reported savings, or tracked savings).
Ex Post Evaluation	An assessment of an activity's impact(s) after completion.
Estimated Savings	Savings estimated by an evaluator after conducting an energy impact evaluation.
Freeriders	Participants who took part in an efficiency program but would have adopted the energy-efficient measure in the program's absence. Freeriders can be total, partial, or deferred.
Gross Savings	The unadjusted program-reported change in energy consumption or demand resulting from efficiency program–related actions taken by participants.
Interactive Effects	The influence of one technology application on the energy required to operate another application.
Locational Marginal Price	The marginal cost to serve a unit of energy at a specific location at the time of delivery.
Lifecycle Savings	Energy savings—expressed as verified gross or verified net—generated from measures installed in the current program cycle over each measure's effective useful life.

Term	Definition
Lifetime Savings	Energy savings—expressed as verified gross or verified net—produced as a result of measures installed in the current and previous program cycles, provided that the reporting period falls within each measure's useful life. This incorporates annual savings and each measure's effective useful life.
Market Effects	Changes in marketplace practices, services, and promotional efforts that induce businesses and consumers to buy energy-saving products and services without direct offering assistance. Evaluators generally consider these effects as resulting from offering impacts on the market.
Market Lift	An increase in efficient product sales above a pre-established baseline in response to program incentives, promotion, or advertising.
Measure Life	The life of an energy consuming measure, including its equipment life and savings persistence.
Midstream Offering	An efficiency program that targets retailers, distributors, or both. Midstream programs are designed to encourage the targeted audience to stock, promote, and sell more energy-efficient products. Incentives are paid directly to the retailer or distributor.
Net Savings	Savings net of what would have occurred in the program's absence (observed impacts attributable to the program). Net savings are typically calculated by applying the net-to-gross ratio to the verified gross savings.
Net-to-Gross Ratio	The ratio of verified net savings (attributed to the program after evaluation) to the verified gross savings.
Non-Energy Benefits	An array of valued attributes, such as increased property values or reduced water usage, that were derived from energy-efficient measures in addition to energy savings.
Nonparticipant Spillover	The effect on eligible general consumers who did not participate in an efficiency program yet adopted energy saving products or practices because of program influence.
Participant Spillover	The effect of participants who, after an initial program experience, adopt more energy saving products or practices without program assistance.
Precision	The degree to which repeated measurements under unchanged conditions produce the same results.
Realization Rate	The ratio of gross savings to verified gross savings.
Reported Savings	Energy savings the Offering Administrator or Offering Implementer reports before verification by the Evaluation Team (also called tracked savings, *ex ante* savings, or claimed savings).
Resource Acquisition Offering	An efficiency program designed to directly achieve energy savings and/or demand reduction, as well as avoided emissions.
Standard Error	The measure of a data sample's variability (that is, the distance of a typical data point from the sample mean).
Tracked Savings	Energy savings the Offering Administrator or Offering Implementer reports before verification by the Evaluation Team (also called reported savings, *ex ante* savings, or claimed savings).
Unclaimed Rewards	Incentives set aside for customers who fail to submit paperwork to claim program incentives.
Upstream Offering	An efficiency program designed to encourage retailers and manufacturers to promote and sell more energy-efficient products. These programs provide incentives to retailers or manufacturers, which are passed through to customers.
Verified Gross Savings	Energy savings that are verified by an independent Evaluation Team and are based on inspections and reviews of the number and types of implemented energy efficiency measures and the engineering calculations used to estimate the energy saved. Verified gross savings reflect total calculated savings based on changes in energy consumption or demand resulting from program-related actions taken by participants in an efficiency program without considering the influence of freeridership or spillover.
Verified Net Savings	Energy savings that evaluators can confidently attribute to program efforts. To calculate verified net savings, the Evaluation Team makes adjustments for outside influences, such as freeridership and spillover.

Appendix C. Acronyms and Abbreviations

Acronym	Term
ACS	American Community Survey
APS	Advanced power strip
AVERT	AVoided Emissions and geneRation Tool
BPK	Benefits per kilowatt-hour
Btu	British thermal unit
C&I	Commercial and Industrial
CDD	Cooling degree day
cfm	Cubic feet per minute
COBRA	Co-Benefits Risk Assessment
CREED	Consortium for Retail Energy Efficiency Data
CY	Calendar year
DDC	Digital direct control
DSM	Demand-side management
EISA	Energy Independence and Security Act
EPA	U.S. Environmental Protection Agency
EUL	Expected useful life
HDD	Heating degree day
ISR	In-service rate
kW	Kilowatt
kWh	Kilowatt hour
LED	Light-emitting diode
LMP	Locational marginal price
MMBtu	Million British thermal units
MMID	Master measure identification
MThms	Thousand therms
MW	Megawatt
MWh	Megawatts per hour

Acronym	Term
NAC	Normalized annual consumption
NCP	National Consumer Panel
NOAA	National Atmospheric and Oceanographic Administration
NTG	Net-to-gross
NTGR	Net-to-gross ratio
OLS	Ordinary least squares
POS	Point-of-sale
PRISM	PRInceton Scorekeeping Method
PSC	Public Service Commission of Wisconsin
PWC	People Working Collaboratively
PV	Photovoltaic
RIM	Ratepayer impact measure test
ROI	Return on investment
SEER	Seasonal energy efficiency rating
SEM	Strategic Energy Management
SNF	Skilled nursing facility
SPECTRUM	Statewide Program for Energy Customer Tracking, Resource Utilization, and Data Management
T&D	Transmission and distribution
TRC	Total resource cost test
TRM	Technical reference manual
UAT	Utility administrator cost test
UEC	Unit energy consumption
UMP	Uniform Methods Project
UPC	Universal product code
VFD	Variable frequency drive

Appendix D. CY 2020 Statewide Total Energy Efficiency Savings and Participation

Table D-1 presents the CY 2020 program savings and participation for Focus on Energy, Northern States Power (Xcel Energy), and We Energies.

Northern States Power and We Energies ran voluntary programs, with authorization from the Public Service Commission of Wisconsin (PSC), using funds in addition to the funding they contribute to Focus on Energy.

Northern States Power and We Energies complemented Focus on Energy programs in CY 2020 by adding bonus incentives. Therefore, these programs' kilowatt, kilowatt-hour, and therms savings do not represent additive savings but instead are represented as Focus on Energy portfolio savings achieved by the projects that received the bonus incentives.

Table D-1. CY 2020 Wisconsin Total Energy Efficiency Verified Gross Annual Savings and Participation

Program	Participation	kW	kWh	therms	Net kWh	Net Therms
Focus on Energy	1,152,950	100,953	730,831,145	22,320,251	449,633,945	16,795,333
Northern States Power [a]	4,175	TBD	TBD	TBD	N/A	N/A
We Energies Design Assistance Program	5	141	862,561	10,888	759,054	9,581
We Energies Residential Natural Gas Assistance Program [b]	162	N/A	N/A	37,184	N/A	N/A

[a] Northern States Power offers the Community Conservation Program, which is designed to complement Focus on Energy programs by adding bonus incentives for both residential and business customers throughout the service territory. The report savings for this utility will be published later in the year See Docket 4220-EE-2020 for additional details. https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=406689

[b] We Energies Residential Natural Gas Assistance Program. See Docket 5-EE-2020 for additional details. https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=407807

Appendix E. Detailed Findings

This section contains detailed first-year annual gross savings and lifecycle savings for the residential, nonresidential, and midstream channels as well as savings organized by offering and measure category.

Overview of Savings

Table E-1 lists the CY 2020 gross, verified gross, and verified net savings claimed basis prior to verification.

Table E-1. CY 2020 First-Year Annual Savings Split Between Residential, Nonresidential and Midstream

Savings Type	Unit	Residential	Nonresidential	Midstream	Total
Gross	MMBtu	1,272,394	3,451,246	35,303	**4,758,944**
	kWh	275,382,970	456,421,316	654,459	**732,458,745**
	kW	36,488	65,008	211	**101,707**
	therms	3,327,876	18,939,369	330,704	**22,597,949**
Verified Gross	MMBtu	1,268,775	3,421,465	35,381	**4,725,621**
	kWh	272,994,306	457,179,998	656,841	**730,831,145**
	kW	35,738	65,004	211	**100,953**
	therms	3,373,182	18,615,669	331,400	**22,320,251**
Verified Net	MMBtu	592,742	2,585,561	35,381	**3,213,684**
	kWh	99,974,109	349,002,995	656,841	**449,633,945**
	kW	13,874	49,314	211	**63,399**
	therms	2,516,308	13,947,625	331,400	**16,795,333**

Table E-2 lists the lifecycle savings achieved by Focus on Energy in CY 2020. Lifecycle savings represent the savings an offering can realize through measures over these measures' effective useful life.

Table E-2. CY 2020 Lifecycle Savings Split between Residential, Nonresidential and Midstream

Savings Type	Unit	Residential	Nonresidential	Midstream	Total
Gross	MMBtu	21,090,255	51,563,420	488,422	**73,142,097**
	kWh	4,500,211,092	6,780,175,714	8,323,255	**11,288,710,061**
	kW	36,488	65,008	211	**101,707**
	therms	57,355,345	284,294,608	4,600,227	**346,250,180**
Verified Gross	MMBtu	21,000,820	49,352,516	489,340	**70,842,676**
	kWh	4,456,602,415	6,866,908,785	8,351,599	**11,331,862,798**
	kW	35,738	65,004	211	**100,953**
	therms	57,948,924	259,226,228	4,608,448	**321,783,600**
Verified Net	MMBtu	9,417,062	37,338,868	489,340	**47,245,270**
	kWh	1,624,115,989	5,232,291,398	8,351,599	**6,864,758,985**
	kW	13,874	49,314	211	**63,399**
	therms	38,755,786	194,862,893	4,608,448	**238,227,128**

Summary of Savings by Offering

Table E-3 summarizes the first-year annual savings by offering.

Table E-3. Summary of First-Year Annual Savings by Offering, CY 2020

Solution Name	Offering Name	Gross			Verified Gross			Verified Net		
		kWh	kW	therms	kWh	kW	therms	kWh	kW	therms
Residential Offerings										
Direct to Customer	Appliance Recycling	4,112,206	480	0	4,431,570	517	0	1,997,134	233	0
	Farmhouse Kits	197,855	18	9,457	203,111	18	9,794	165,868	15	9,479
	Online Marketplace	19,243,652	1,762	412,349	16,795,694	1,173	456,192	14,395,507	998	397,192
	Packs	19,603,098	1,906	643,172	20,112,988	1,953	650,130	17,098,096	1,674	622,030
	Retail	196,540,555	22,766	171,251	195,339,470	22,381	153,642	42,784,681	4,709	101,319
	Rural Retail Events	2,809,232	314	21,647	2,380,663	207	12,117	1,997,626	174	11,639
Trade Ally	Heating and Cooling	10,416,028	1,970	1,340,213	11,272,511	1,979	1,362,032	8,945,121	1,621	1,100,902
	Insulation and Air Sealing	1,599,150	574	285,154	1,597,105	574	284,642	1,942,382	745	251,516
	Renewable Energy, Residential	17,746,157	5,939	0	17,746,157	6,177	0	10,647,694	3,706	0
New Construction	Residential New Construction	3,115,038	759	444,633	3,115,038	759	444,633	0	0	22,232
Residential Total		**275,382,970**	**36,488**	**3,327,876**	**272,994,306**	**35,738**	**3,373,182**	**99,974,109**	**13,874**	**2,516,308**
Midstream Offerings										
Midstream	Midstream	654,459	211	330,704	656,841	211	331,400	656,841	211	331,400
Midstream Total		**654,459**	**211**	**330,704**	**656,841**	**211**	**331,400**	**656,841**	**211**	**331,400**

Solution Name	Offering Name	Gross			Verified Gross			Verified Net		
		kWh	kW	therms	kWh	kW	therms	kWh	kW	therms
Nonresidential Offerings										
Business and Industry	Agribusiness	27,845,261	3,746	288,793	27,288,356	3,746	259,914	23,467,986	3,222	223,526
	Commercial and Industrial	149,925,381	20,235	1,945,652	148,426,127	20,033	1,926,196	114,288,118	15,425	1,483,171
	Large Industrial	119,196,563	13,082	11,983,350	121,580,494	13,474	11,384,182	89,969,566	9,971	8,424,295
Schools and Government	Government	31,882,520	3,814	1,290,087	32,201,346	3,852	1,625,509	23,506,982	2,812	1,186,622
	Schools	38,554,177	7,136	1,751,011	38,554,177	7,136	1,751,011	28,144,549	5,209	1,278,238
New Construction	Design Assistance/Review	34,412,314	6,429	1,099,494	34,412,314	6,301	1,099,494	27,873,974	5,104	890,590
	Prescriptive	36,436,136	4,860	580,983	36,436,136	4,812	569,363	29,513,270	3,897	461,184
Trade Ally	Renewable Energy, Commercial	14,432,806	4,793	0	14,432,806	4,793	0	8,659,683	2,876	0
RECIP	RECIP	3,736,159	913	0	3,848,244	858	0	3,578,867	798	0
Nonresidential Total		**456,421,316**	**65,008**	**18,939,369**	**457,179,998**	**65,004**	**18,615,669**	**349,002,995**	**49,314**	**13,947,625**
Total All Offerings		**732,458,745**	**101,707**	**22,597,949**	**730,831,145**	**100,953**	**22,320,251**	**449,633,945**	**63,399**	**16,795,333**

Table E-4 summarizes the lifecycle savings by offering.

Table E-4. Summary of Lifecycle Savings by Offering, CY 2020

Solution Name	Offering Name	Gross		Verified Gross		Verified Net	
		kWh	therms	kWh	therms	kWh	therms
Residential Offerings							
Direct to Customer	Appliance Recycling	41,122,060	0	44,315,695	0	19,971,340	0
	Farmhouse Kits	2,781,142	106,023	2,843,577	107,938	2,290,217	104,225
	Online Marketplace	281,537,862	4,123,495	238,545,690	4,561,918	203,716,197	3,971,919
	Packs	275,628,747	8,097,278	279,241,762	8,113,219	235,739,648	7,751,233
	Retail	3,118,601,145	1,745,385	3,099,411,283	1,558,981	673,759,417	1,030,307
	Rural Retail Events	42,275,916	235,362	36,354,896	133,316	30,526,608	127,012
Trade Ally	Heating and Cooling	168,197,787	23,998,135	185,871,185	24,434,125	152,101,416	20,066,234
	Insulation and Air Sealing	32,953,057	5,710,663	32,913,250	5,700,423	39,818,796	5,037,906
	Renewable Energy, Residential	443,662,217	0	443,653,917	0	266,192,350	0
New Construction	Residential New Construction	93,451,159	13,339,004	93,451,159	13,339,004	0	666,950
Residential Total		**4,500,211,092**	**57,355,345**	**4,456,602,415**	**57,948,924**	**1,624,115,989**	**38,755,786**
Midstream Offerings							
Midstream	Midstream	8,323,255	4,600,227	8,351,599	4,608,448	8,351,599	4,608,448
Midstream Total		**8,323,255**	**4,600,227**	**8,351,599**	**4,608,448**	**8,351,599**	**4,608,448**

Solution Name	Offering Name	Gross		Verified Gross		Verified Net	
		kWh	therms	kWh	therms	kWh	therms
Nonresidential Offerings							
Business and Industry	Agribusiness	443,958,722	5,115,065	417,321,199	4,603,559	358,896,231	3,959,060
	Commercial and Industrial	1,978,834,873	27,915,361	1,959,046,524	27,915,361	1,508,465,824	21,494,828
	Large Industrial	1,725,067,554	172,934,530	1,845,822,282	141,806,314	1,365,908,489	104,936,673
Schools and Government	Government	452,402,743	21,803,057	461,450,798	28,562,005	336,859,083	20,850,263
	Schools	512,361,248	25,156,403	512,361,248	25,156,403	374,023,711	18,364,174
New Construction	Design Assistance/Review	688,246,280	21,989,880	688,246,280	21,989,880	557,479,487	17,811,803
	Prescriptive	534,602,179	9,380,312	534,602,179	9,192,706	433,027,765	7,446,092
Trade Ally	Renewable Energy, Commercial	360,798,140	0	360,798,140	0	216,478,884	0
RECIP	RECIP	83,903,975	0	87,260,134	0	81,151,925	0
Nonresidential Total		**6,780,175,714**	**284,294,608**	**6,866,908,785**	**259,226,228**	**5,232,291,398**	**194,862,893**
Total All Offerings		**11,288,710,061**	**346,250,180**	**11,331,862,798**	**321,783,600**	**6,864,758,98**	**238,227,128**

Summary of Savings by Measure

Table E-5 summarizes CY 2020 residential savings by measure category.

Table E-5. Summary of First-Year Annual Savings by Measure Category, Residential Channel

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	Therms	Therms %		
Boilers & Burners-Boiler	0	0.00%	0	0.00%	158,874	4.71%	$301,575.00	1.30%
Boilers & Burners-Controls	14,625	0.01%	0	0.00%	1,980	0.06%	$3,975.00	0.02%
Boilers & Burners-Tune-up/Repair/Commissioning	0	0.00%	0	0.00%	111	0.00%	$329.12	0.00%
Building Shell-Air Sealing	98,667	0.04%	7	0.02%	6,980	0.21%	$995,201.43	4.30%
Building Shell-Insulation	1,563,964	0.57%	596	1.67%	291,152	8.63%	$1,023,733.90	4.42%
Building Shell-Window	752	0.00%	1	0.00%	433	0.01%	$3,131.75	0.01%
Domestic Hot Water-Aeration	1,390,712	0.51%	93	0.26%	273,535	8.11%	$170,853.49	0.74%
Domestic Hot Water-Insulation	2,304,831	0.84%	356	1.00%	276,700	8.20%	$252,156.54	1.09%
Domestic Hot Water-Other	130,928	0.05%	17	0.05%	53,759	1.59%	$83,717.25	0.36%
Domestic Hot Water-Showerhead	1,416,453	0.52%	68	0.19%	283,345	8.40%	$269,676.20	1.16%
Domestic Hot Water-Water Heater	0	0.00%	0	0.00%	17,768	0.53%	$21,050.00	0.09%
HVAC-Air Conditioner - Residential	2,443	0.00%	5	0.01%	0	0.00%	$3,677.86	0.02%
HVAC-Controls	9,916,199	3.63%	0	0.00%	661,348	19.61%	$1,354,551.00	5.85%
HVAC-Furnace	5,092,113	1.87%	640	1.79%	864,671	25.63%	$2,912,975.00	12.58%
HVAC-Other	817,394	0.30%	271	0.76%	36,593	1.08%	$271,200.00	1.17%
HVAC-Packaged Terminal Unit (PTAC, PTHP)	25,766	0.01%	3	0.01%	0	0.00%	$1,200.00	0.01%
HVAC-Rooftop Unit/Split System AC	726,789	0.27%	922	2.58%	0	0.00%	$168,175.00	0.73%
HVAC-Tune-up/Repair/Commissioning	0	0.00%	0	0.00%	1,302	0.04%	$10,970.15	0.05%
Lighting-Light Emitting Diode (LED)	221,337,443	81.08%	24,890	69.65%	0	0.00%	$10,623,421.81	45.89%
Motors & Drives-Motor	27,390	0.01%	5	0.01%	0	0.00%	$4,590.00	0.02%
New Construction-Whole Building	3,115,038	1.14%	759	2.12%	444,633	13.18%	$1,256,900.00	5.43%
Other-Bonus	0	0.00%	0	0.00%	0	0.00%	$3,875.04	0.02%
Other-Other	0	0.00%	0	0.00%	0	0.00%	$9,425.15	0.04%
Refrigeration-Other	4,431,570	1.62%	517	1.45%	0	0.00%	$5,940.00	0.03%
Renewable Energy-Geothermal	515,302	0.19%	104	0.29%	0	0.00%	$72,250.00	0.31%
Renewable Energy-Photovoltaics	17,746,157	6.50%	6,177	17.28%	0	0.00%	$2,837,744.29	12.26%
Vending & Plug Loads-Controls	2,319,773	0.85%	307	0.86%	0	0.00%	$486,785.15	2.10%

Table does not include adjustment measure records. As a result, this sum will not match with other CY 2020 totals.

Table E-6 lists CY 2020 nonresidential savings by measure category.

Table E-6. Summary of First-Year Annual Savings by Measure Category, Nonresidential Channel

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	Therms	Therms %		
Aeration	4,469,258	0.98%	499	0.77%	31,480	0.17%	$203,401.93	0.64%
Air Sealing	0	0.00%	0	0.00%	164,085	0.88%	$26,600.00	0.08%
Biogas	1,957,000	0.43%	188	0.29%	0	0.00%	$117,169.25	0.37%
Boiler	-21,493	0.00%	-3	0.00%	1,713,244	9.20%	$1,356,686.30	4.24%
Bonus	0	0.00%	0	0.00%	0	0.00%	$272,164.84	0.85%
Chiller	5,477,293	1.20%	877	1.35%	0	0.00%	$475,582.31	1.49%
Clothes Washer	22,370	0.00%	-5	-0.01%	33,821	0.18%	$34,558.84	0.11%
Compressor	7,064,310	1.55%	1,294	1.99%	0	0.00%	$329,570.00	1.03%
Controls	26,571,747	5.81%	2,004	3.08%	1,221,143	6.56%	$1,612,654.03	5.04%
Delamping	1,098,668	0.24%	228	0.35%	0	0.00%	$23,685.00	0.07%
Design	34,206,383	7.48%	6,282	9.66%	1,093,326	5.87%	$3,975,550.89	12.42%
Dishwasher, Commercial	28,164	0.01%	0	0.00%	2,264	0.01%	$2,250.00	0.01%
Dryer	538,647	0.12%	81	0.13%	134,312	0.72%	$244,287.50	0.76%
Economizer	4,537	0.00%	0	0.00%	0	0.00%	$400.00	0.00%
Energy Recovery	-10,664,671	-2.33%	-1,358	-2.09%	6,626,556	35.60%	$1,451,372.34	4.53%
Fan	1,405,093	0.31%	349	0.54%	23,469	0.13%	$130,571.39	0.41%
Filtration	315,323	0.07%	53	0.08%	279,970	1.50%	$210,480.24	0.66%
Fryer	28,482	0.01%	6	0.01%	123,844	0.67%	$51,430.00	0.16%
Furnace	62,924	0.01%	13	0.02%	85,169	0.46%	$70,080.00	0.22%
Grain Dryer	0	0.00%	0	0.00%	59,870	0.32%	$48,380.00	0.15%
Greenhouse	0	0.00%	0	0.00%	381	0.00%	$825.12	0.00%
Griddle	3,445	0.00%	1	0.00%	0	0.00%	$150.00	0.00%
Heat Exchanger	1,200,142	0.26%	2	0.00%	0	0.00%	$72,153.87	0.23%
Ice Machine	7,458	0.00%	1	0.00%	0	0.00%	$325.00	0.00%
Infrared Heater	0	0.00%	0	0.00%	12,635	0.07%	$13,077.50	0.04%
Insulation	12,685	0.00%	17	0.03%	290,926	1.56%	$218,769.89	0.68%
Light Emitting Diode (LED)	239,109,602	52.30%	32,943	50.68%	0	0.00%	$11,910,074.47	37.20%

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	Therms	Therms %		
Livestock Waterer	383,270	0.08%	0	0.00%	0	0.00%	$11,823.04	0.04%
Motor	1,146,960	0.25%	140	0.22%	0	0.00%	$35,150.00	0.11%
Nozzle	19,008	0.00%	7	0.01%	0	0.00%	$32.00	0.00%
Other	48,172,035	10.54%	5,196	7.99%	5,525,320	29.68%	$4,545,759.62	14.20%
Oven	4,124	0.00%	1	0.00%	2,636	0.01%	$3,040.00	0.01%
Packaged Terminal Unit (PTAC, PTHP)	953,369	0.21%	38	0.06%	0	0.00%	$32,605.00	0.10%
Photovoltaics	16,324,049	3.57%	5,463	8.40%	0	0.00%	$1,771,831.65	5.53%
Pump	808,043	0.18%	82	0.13%	0	0.00%	$34,587.19	0.11%
Reconfigure Equipment	1,882,740	0.41%	350	0.54%	0	0.00%	$94,011.91	0.29%
Refrigerated Case Door	2,189,834	0.48%	198	0.30%	107,580	0.58%	$86,284.00	0.27%
Refrigerator/Freezer - Commercial	31,237	0.01%	4	0.01%	0	0.00%	$6,800.00	0.02%
Rooftop Unit/Split System AC	1,278,979	0.28%	1,314	2.02%	123,645	0.66%	$369,430.33	1.15%
Scheduling	406,268	0.09%	11	0.02%	14,304	0.08%	$21,538.40	0.07%
Servers	646,286	0.14%	74	0.11%	0	0.00%	$32,574.56	0.10%
Specialty Pulp & Paper	2,238,866	0.49%	433	0.67%	0	0.00%	$125,662.50	0.39%
Steam Trap	0	0.00%	0	0.00%	505,248	2.71%	$59,070.00	0.18%
Steamer	9,978	0.00%	26	0.04%	2,735	0.01%	$2,640.00	0.01%
Strip Curtain	6,237	0.00%	1	0.00%	0	0.00%	$140.00	0.00%
Study	0	0.00%	0	0.00%	0	0.00%	$34,950.00	0.11%
Supporting Equipment	768,214	0.17%	85	0.13%	0	0.00%	$27,364.52	0.09%
System Isolation	117,945	0.03%	17	0.03%	0	0.00%	$2,312.64	0.01%
Tune-up/Repair/Commissioning	7,554,115	1.65%	0	0.00%	263,756	1.42%	$120,066.55	0.37%
Unit Heater	0	0.00%	0	0.00%	19,552	0.11%	$13,283.38	0.04%
Variable Air Volume (VAV)	910,925	0.20%	116	0.18%	78,719	0.42%	$113,270.16	0.35%
Variable Speed Drive	58,217,998	12.73%	7,958	12.24%	0	0.00%	$1,491,201.15	4.66%
Water Heater	6,220	0.00%	0	0.00%	46,627	0.25%	$61,902.60	0.19%
Whole Building	205,931	0.05%	19	0.03%	6,168	0.03%	$49,167.00	0.15%
Window	0	0.00%	0	0.00%	22,883	0.12%	$20,340.00	0.06%

Table does not include adjustment measure records. As a result, this sum will not match with other CY 2020 totals.

Table E-7 lists CY 2020 midstream savings by measure category.

Table E-7. Summary of First-Year Annual Savings by Measure Category, Midstream Channel

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	Therms	Therms %		
Dishwasher, Commercial	303,237	46.17%	15	6.99%	1,561	0.47%	$12,200.00	3.01%
Fryer	0	0.00%	0	0.00%	208,199	62.82%	$114,900.00	28.39%
Hot Holding Cabinet	49,407	7.52%	10	4.52%	0	0.00%	$4,500.00	1.11%
HVAC-Other	177,986	27.10%	50	23.66%	105,795	31.92%	$234,000.00	57.82%
Ice Machine	31,177	4.75%	4	1.68%	0	0.00%	$1,250.00	0.31%
Oven	5,168	0.79%	1	0.65%	12,941	3.90%	$9,450.00	2.33%
Refrigerator/Freezer - Commercial	16,503	2.51%	2	0.89%	0	0.00%	$5,700.00	1.41%
Steamer	49,890	7.60%	130	61.61%	2,904	0.88%	$15,300.00	3.78%
Variable Speed Drive	23,473	3.57%	0	0.00%	0	0.00%	$7,425.00	1.83%

Table does not include adjustment measure records. As a result, this sum will not match with other CY 2020 totals.

Table E-8 lists CY 2020 residential lifecycle savings by measure category.

Table E-8. Summary of Lifecycle Savings by Measure Category, Residential Channel

Measure Category	Verified Gross			
	kWh	kWh %	Therms	Therms %
Boilers & Burners-Boiler	0	0.00%	3,177,476	5.48%
Boilers & Burners-Controls	146,250	0.00%	19,800	0.03%
Boilers & Burners-Tune-up/Repair/Commissioning	0	0.00%	222	0.00%
Building Shell-Air Sealing	1,480,006	0.03%	104,694	0.18%
Building Shell-Insulation	32,743,765	0.73%	5,865,529	10.12%
Building Shell-Window	15,038	0.00%	8,652	0.01%
Domestic Hot Water-Aeration	13,907,122	0.31%	2,735,349	4.72%
Domestic Hot Water-Insulation	34,572,462	0.78%	4,150,500	7.16%
Domestic Hot Water-Other	1,963,923	0.04%	806,379	1.39%
Domestic Hot Water-Showerhead	14,164,525	0.32%	2,833,454	4.89%
Domestic Hot Water-Water Heater	0	0.00%	266,520	0.46%
HVAC-Air Conditioner - Residential	4,886	0.00%	0	0.00%
HVAC-Controls	99,161,987	2.23%	6,613,478	11.41%
HVAC-Furnace	101,859,893	2.29%	17,293,413	29.84%
HVAC-Other	16,653,047	0.37%	731,850	1.26%
HVAC-Packaged Terminal Unit (PTAC, PTHP)	386,490	0.01%	0	0.00%
HVAC-Rooftop Unit/Split System AC	17,435,909	0.39%	0	0.00%
HVAC-Tune-up/Repair/Commissioning	0	0.00%	2,604	0.00%
Lighting-Light Emitting Diode (LED)	3,518,545,152	78.95%	0	0.00%
Motors & Drives-Motor	493,020	0.01%	0	0.00%
New Construction-Whole Building	93,451,159	2.10%	13,339,004	23.02%
Other-Bonus	0	0.00%	0	0.00%
Other-Other	0	0.00%	0	0.00%
Refrigeration-Other	44,315,695	0.99%	0	0.00%
Renewable Energy-Geothermal	7,729,530	0.17%	0	0.00%
Renewable Energy-Photovoltaics	443,653,917	9.95%	0	0.00%
Vending & Plug Loads-Controls	13,918,639	0.31%	0	0.00%

Table E-9 lists CY 2020 nonresidential lifecycle savings by measure category.

Table E-9. Summary of Lifecycle Savings by Measure Category, Nonresidential Channel

Measure Category	Verified Gross			
	kWh	kWh %	Therms	Therms %
Aeration	87,992,954	1.28%	317,981	0.12%
Air Sealing	0	0.00%	1,639,500	0.63%
Biogas	39,520,000	0.58%	0	0.00%
Boiler	-503,724	-0.01%	33,702,788	13.00%
Bonus	0	0.00%	0	0.00%
Chiller	105,830,994	1.54%	0	0.00%
Clothes Washer	335,551	0.00%	512,445	0.20%
Compressor	108,830,018	1.58%	0	0.00%
Controls	313,245,440	4.56%	17,120,025	6.60%
Delamping	10,987,649	0.16%	0	0.00%
Design	684,127,660	9.96%	21,866,520	8.44%
Dishwasher, Commercial	282,137	0.00%	22,736	0.01%
Dryer	8,588,240	0.13%	2,686,247	1.04%
Economizer	46,136	0.00%	0	0.00%
Energy Recovery	-159,888,175	-2.33%	84,367,814	32.55%
Fan	20,484,755	0.30%	357,539	0.14%
Filtration	1,351,979	0.02%	3,838,016	1.48%
Fryer	341,788	0.00%	1,500,240	0.58%
Furnace	1,132,897	0.02%	1,546,953	0.60%
Grain Dryer	0	0.00%	1,209,500	0.47%
Greenhouse	0	0.00%	3,807	0.00%
Griddle	41,342	0.00%	0	0.00%
Heat Exchanger	17,267,354	0.25%	0	0.00%
Ice Machine	74,576	0.00%	0	0.00%
Infrared Heater	0	0.00%	190,100	0.07%
Insulation	317,118	0.00%	4,427,587	1.71%
Light Emitting Diode (LED)	3,469,483,595	50.52%	0	0.00%
Livestock Waterer	3,201,208	0.05%	0	0.00%
Motor	17,327,644	0.25%	0	0.00%
Nozzle	285,120	0.00%	0	0.00%
Other	656,670,619	9.56%	74,640,801	28.79%
Oven	49,496	0.00%	31,712	0.01%
Packaged Terminal Unit (PTAC, PTHP)	14,300,528	0.21%	0	0.00%
Photovoltaics	408,538,274	5.95%	0	0.00%
Pump	12,714,810	0.19%	0	0.00%
Reconfigure Equipment	25,852,388	0.38%	0	0.00%
Refrigerated Case Door	21,723,644	0.32%	1,624,076	0.63%
Refrigerator/Freezer - Commercial	374,844	0.01%	0	0.00%
Rooftop Unit/Split System AC	19,020,019	0.28%	1,872,243	0.72%
Scheduling	2,039,554	0.03%	74,356	0.03%
Servers	3,389,835	0.05%	0	0.00%
Specialty Pulp & Paper	35,229,224	0.51%	0	0.00%

Measure Category	Verified Gross			
	kWh	kWh %	Therms	Therms %
Steam Trap	0	0.00%	2,822,105	1.09%
Steamer	119,766	0.00%	32,889	0.01%
Strip Curtain	24,948	0.00%	0	0.00%
Study	0	0.00%	0	0.00%
Supporting Equipment	9,456,430	0.14%	0	0.00%
System Isolation	618,631	0.01%	0	0.00%
Tune-up/Repair/Commissioning	15,239,699	0.22%	264,911	0.10%
Unit Heater	0	0.00%	286,014	0.11%
Variable Air Volume (VAV)	14,333,677	0.21%	1,019,203	0.39%
Variable Speed Drive	892,322,116	12.99%	0	0.00%
Water Heater	67,411	0.00%	667,110	0.26%
Whole Building	4,118,620	0.06%	123,360	0.05%
Window	0	0.00%	457,650	0.18%

Table E-10 lists CY 2020 midstream lifecycle savings by measure category.

Table E-10. Summary of Lifecycle Savings by Measure Category, Midstream Channel

Measure Category	Verified Gross			
	kWh	kWh %	Therms	Therms %
Dishwasher, Commercial	3,032,370	36.31%	15,610	0.34%
Fryer	0	0.00%	2,498,388	54.21%
Hot Holding Cabinet	592,884	7.10%	0	0.00%
HVAC-Other	3,203,748	38.36%	1,904,310	41.32%
Ice Machine	311,770	3.73%	0	0.00%
Oven	62,016	0.74%	155,292	3.37%
Refrigerator/Freezer - Commercial	198,036	2.37%	0	0.00%
Steamer	598,680	7.17%	34,848	0.76%
Variable Speed Drive	352,095	4.22%	0	0.00%

Appendix F. Nonresidential Survey Findings by Offering

Business and Industrial Solution: Commercial & Industrial Offering

In November 2020, the evaluation team contacted a random sample of participants in the CY 2020 Business and Industrial Solution's Commercial and Industrial (C&I) offering to assess their experiences.

Participation Awareness and Experience

Contractors were an important part of offering awareness—66% of respondents (n=139) learned about Focus on Energy incentives through their contractor or vendor and 78% said a contractor or vendor helped initiate their projects (n=141). Contractors also took the lead on completing the incentive applications 48% of the time (n=142). Respondents and energy advisors completed the application 44% and 7% of the time, respectively. Most respondents who led the paperwork process found completing the paperwork was *very easy* (42%, n=52) or *mostly easy* (42%). Of the remaining eight participants, six said the paperwork was confusing or difficult.

The evaluation team asked respondents about their experience. Eighty-five percent said project eligibility information was *very clear* or *mostly clear* (n=141). Forty-eight percent had participated in a Focus on Energy program in previous years (n=120). Of respondents who also worked with a Focus on Energy advisor or representative on a previous project, 36% of Commercial and Industrial respondents (n=25) worked with the same staff member as before. Though some respondents worked with a different energy advisor, 82% said they were *very satisfied* (n=44) with the support they received and 16% were *somewhat satisfied*.

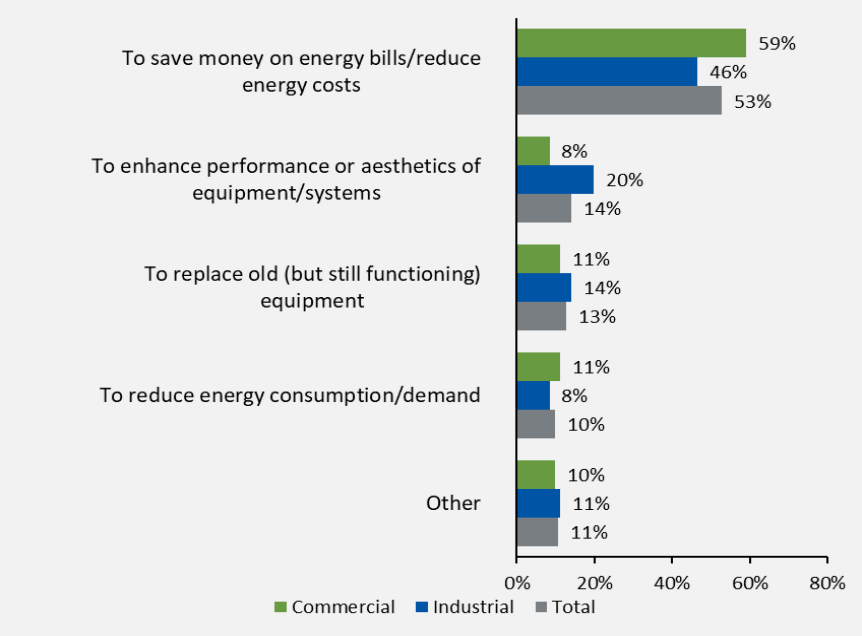
When asked how their experience with Focus on Energy in 2020 compared to prior years, 75% of past participants (n=73) said it was *about the same* and 21% said it was *more positive.* Of the three respondents who reported a *less positive* experience, one cited a lowered incentive amount, another cited confusion around eligibility of certain measures, and one who worked with a new contact from Focus on Energy this year cited difficulty submitting the paperwork.

Motivations and Decision-Making

Saving money or reducing energy costs was the top driver for participation (53% of respondents, n=142), followed by enhancing performance or aesthetics of equipment (14%) and replacing old but functioning equipment (13%). Figure F-1 shows the breakdown of responses.

Only 3% of respondents—three commercial and one industrial—attended an in-person or web-based Focus on Energy training in the past two years (n=140). Two of the three commercial respondents said the training was *somewhat important* in their decision to move forward with energy-efficient upgrades, and one said the training was *very important.* The one industrial respondent said the training was *not too important*.

Figure F-1. C&I Offering: Motivation to Participate

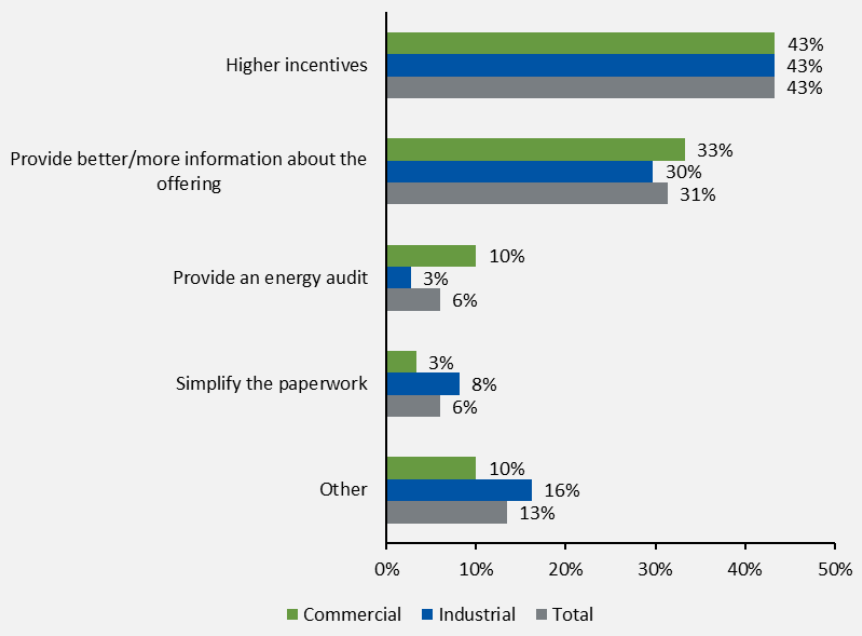


Source: Respondent Survey Question C1. "What factor was most important to your company's decision to make the energy-efficient upgrades for which you received an incentive?" (n=142)

Barriers

Cost was the greatest challenge in implementing energy efficiency projects—67% of respondents (n=142) listed cost as the largest barrier for their organization. Eighteen percent were challenged by internal decision-making or budgeting processes, 9% by time constraints, and 6% by technical issues. When asked what could be done to help participants overcome challenges to making energy efficiency improvements, respondents suggested higher incentives (43%, n=67) and more information about the offering (31%). Figure F-2 shows all responses.

Figure F-2. C&I Offering: Respondent Suggestions to Overcome Barriers



Source: Respondent Survey Question D2. "What could be done to help your company overcome challenges with energy efficiency improvements?" Multiple responses allowed (n=67)

Small Business Assessment

Eighty-five percent of respondents self-identified or were identified by Focus on Energy as small businesses (118 respondents out of 143).[6] None had obtained an energy-saving pack available from Focus on Energy, though 24% of small business respondents were aware of Focus on Energy's online portal, where small businesses can create a customized energy assessment of their facility then receive access to a no-cost energy-saving pack. Of the small business respondents who were not aware of the portal (n=88), 66% said they are *very likely* or *somewhat likely* to look into using it.

Small business respondents were significantly less likely to report that Focus on Energy staff helped to initiate energy efficiency projects, with 27% (n=116) reporting that Focus on Energy staff helped to initiate, compared to 67% of non-small business respondents (n=18).[7,8]

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[6] Focus on Energy defines small businesses as having an average consumption of 40,000 kWh or less during the months of July and August of the most recent year. Of the 118 respondents who were small businesses, 33 previously participated in Focus on Energy's Small Business Program and were verified to be small businesses under that definition. The remaining 85 respondents self-identified as a small business in the survey.

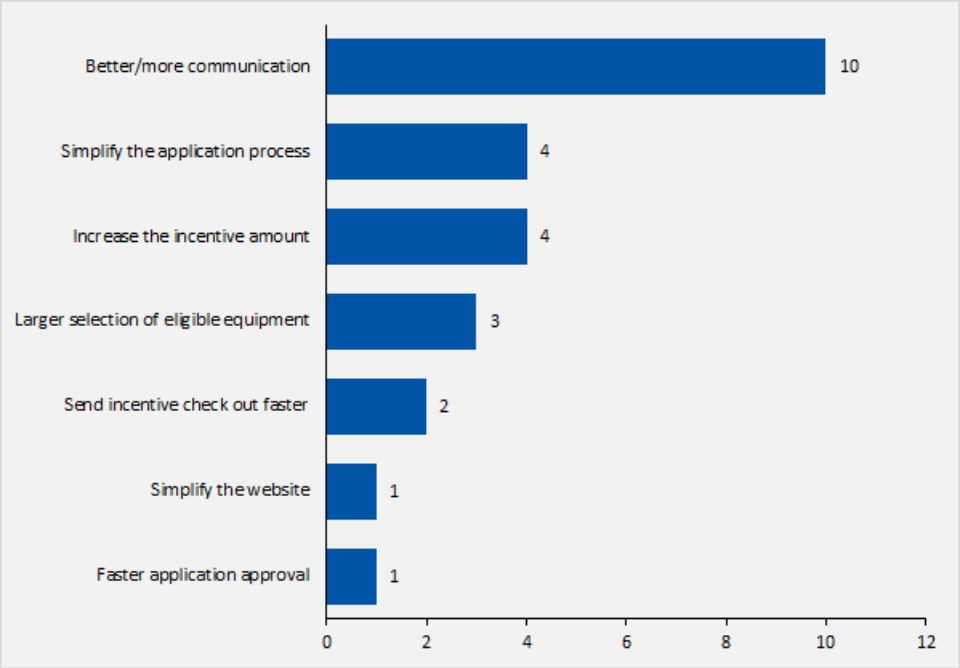
[7] $p < 0.05$ using a binomial t-test. Due to the small sample size of non-small business respondents, however, statistical differences should be considered with caution.

[8] For the offering as a whole, 32% of Commercial and Industrial respondents reported receiving assistance from Focus on Energy during project initiation.

Suggestions for Improvement

The evaluation team asked respondents what could be done to improve the overall participant experience. Of the 27 who offered a suggestion, the most common was better or more communication. When asked how to improve communication, six respondents recommended increasing information about equipment eligibility, and three recommended increasing awareness of the offering or Focus on Energy in general.

Figure F-3. C&I Offering: Respondent Suggestions for Improved Overall Experience



Source: Respondent Survey Question B16. "What could Focus on Energy have done to improve your overall experience, if anything?" Multiple responses allowed. (n=25)

Commercial and Industrial respondents had many positive comments for Focus on Energy as well. When asked if they had anything additional to share, 53 respondents made comments. Most comments (72%) complimented Focus on Energy on the smooth process, the helpfulness of the team, and the overall positive experience. These were some examples of comments received:

- "Good program very helpful and worthwhile."
- "Having a rep you can contact via email is very, very helpful."
- "It was a very easy process and great experience."
- "Just a comment of the overall process was easy for an individual business to do themselves. We did it without a contractor. The myth is that you need a contractor to do these but that's not necessarily the case."
- "You're saving me quite a bit of money every month. It's unbelievable. I mean I lowered my energy costs here by just under 20%."

The evaluation team specifically asked the small business respondents about the best way for Focus on Energy to help them learn more about energy-savings opportunities. Only a few respondents had a suggestion: six said email is the best way to reach them and to let them know about offerings, three suggested hard copy mailers or flyers, two recommended direct phone calls, and one recommended that Focus on Energy develop an app.

Business and Industrial Solution: Agribusiness

In October 2020, the evaluation team contacted a random sample of CY 2020 Agribusiness offering participants to assess their experiences with this Focus on Energy offering.

Participation Awareness and Experience

Contractors played a large role in Focus on Energy awareness and project implementation—70% of Agribusiness respondents (n=70) learned about available incentives for their CY 2020 projects through their contractor or vendor, and 84% reporting a contractor or vendor helped initiate the project. Contractors took the lead on completing incentive applications 57% of the time (n=70), while respondents took the lead 33% of the time.

Because the portfolio has been restructured, the evaluation team asked participants if they had previously participated in a program and whether their experience had changed. Seventy-one percent of respondents were repeat Focus on Energy participants (n=70), and most said their CY 2020 experience was *about the same* (81%, n=53) or *better* (17%) than their previous experience. Of the respondents who expressed a more positive experience (n=9), three mentioned a streamlined process, three thought communication improved, and three said repeat participation deepened their understanding of the offerings or made participation easier. One respondent said the experience was less positive than before and perceived that fewer measures were eligible.

Respondents encountered few problems with offering processes. Most respondents found the rebate application *very easy* (45%, n=20) or *mostly easy* (45%). Forty-nine percent said the eligibility requirements were *very clear* (n=69), and 36% said the requirements were *mostly clear*. Of the 18 respondents who received help from their energy advisor to initiate their project, 15 were *very satisfied* with the support they received from their energy advisor, and three were *somewhat satisfied*.

Motivations and Decision-Making

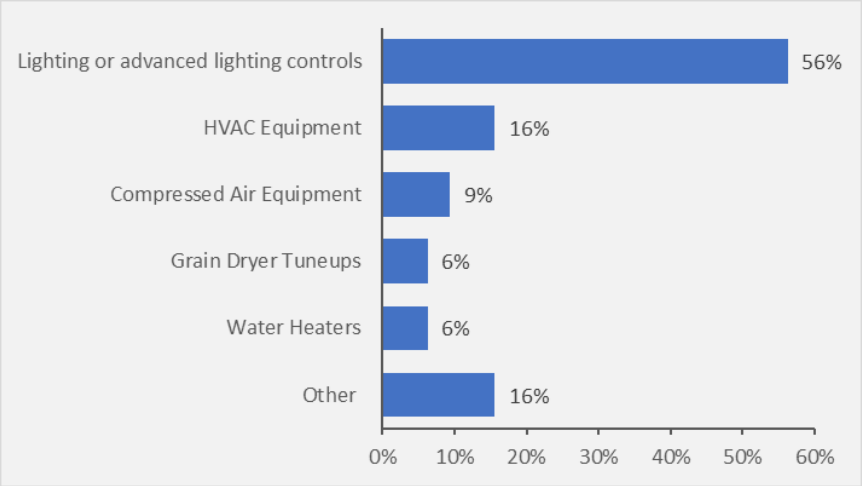
Saving money or reducing energy costs was the top driver for participation (36% of respondents, n=70), followed by reducing energy usage or achieving environmental goals (26%) and replacing old but functional equipment (13%).

Forty-seven percent of respondents reported considering energy-efficient upgrades for 2021 (n=70). Of these 33 respondents, most said they were considering lighting or advanced controls (56%).[9] Figure F-4 lists planned upgrades in 2021. Of those who were not considering upgrades (n=36), 42% said they were not aware of any other affordable opportunities, 39% said making an upgrade was not in the budget for

[9] No respondents mentioned horticultural lighting, specifically.

next year, and 11% said they had not taken the time to consider other upgrades. Only 3% said concerns about COVID-19 were preventing them from making an upgrade in CY 2021.

Figure F-4. Planned Upgrades for Agribusiness Participants in 2021



Source: Respondent Survey Question C4. "What other upgrades are you considering?" Multiple responses allowed (n=33)

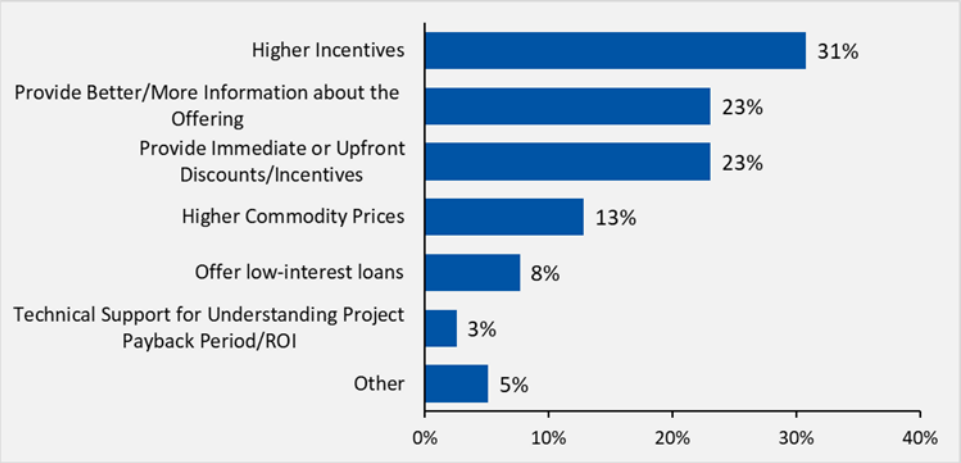
When asked how COVID-19 would impact their organization's interest in or ability to complete energy efficiency projects, 78% of respondents said there would be no impact (n=64). The evaluation team compared responses by property type (dairy, crop, livestock, food manufacturing, and other) and found that most Agribusiness offering respondents for all property types said there would be no impact. Of the 64 respondents, 50 were dairy. Fourteen respondents thought COVID-19 would reduce their organization's interest in or ability to complete projects because of reduced budget (8%), uncertainty in the market (6%), difficulty in obtaining equipment (3%), or needing to focus on non-energy costs to keep organization running (2%). Of these 14 respondents, 12 were dairy farmers.

Barriers

Cost was the top challenge to energy efficiency projects, with 72% of respondents listing cost as their biggest barrier (n=68). Of the remaining respondents, 18% said their internal decision-making or budgeting process was the biggest challenge, 7% said time constraints, and 3% said technical issues. When asked what could be done to overcome the challenges, respondents suggested higher incentives (31%, n=39), more information about the offerings (23%), and immediate or upfront incentives (23%). Thirteen percent of respondents, all dairy farmers, suggested that if commodity prices for their products were higher, they would have more funds available to invest in energy efficiency upgrades. Figure F-5 shows all respondents' suggestions.

The evaluation team notes that obtaining immediate or upfront discounts is a possibility for customers if they are working with a trade ally who is willing to apply a project discount and wait to receive the project incentive on their customers' behalf later. However, just 17% of respondents reported that they received such a discount from their contractor.

Figure F-5. Agribusiness Offering: Respondent Suggestions to Overcome Barriers

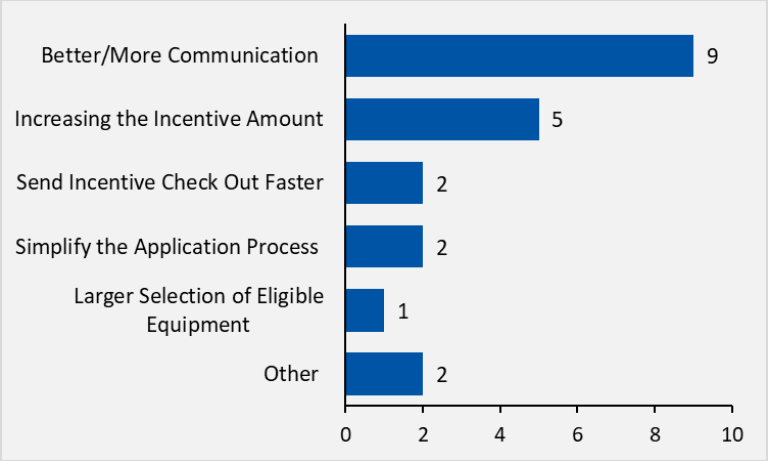


Source: Respondent Survey Question D2. "What could be done to help your company overcome challenges with energy efficient improvements?" Multiple responses allowed (n=39)

Suggestions for Improvement and Training Topics

The evaluation team asked respondents what Focus on Energy could have done to improve the overall experience. Of the 21 respondents who offered a suggestion, the most common was to *provide better or more communication*. When these respondents were asked how to improve communication, six recommended increasing information about equipment eligibility, and three recommended increasing awareness of the offering or more updates. Figure F-6 shows all respondents' suggestions.

Figure F-6. Agribusiness Offering: Respondent Suggestions for Improved Overall Experience



Source: Respondent Survey Question B14. "What could Focus on Energy have done to improve your overall experience, if anything?" Multiple responses allowed (n=21)

Just nine out of 66 respondents wanted Focus on Energy to provide in-person or online training in 2021. Of the nine respondents who expressed interest in training, five wanted updates on incentive offers and the types of eligible equipment, and one respondent each recommended training on insulation, lighting, residential ground source heat pumps, and wind turbines.

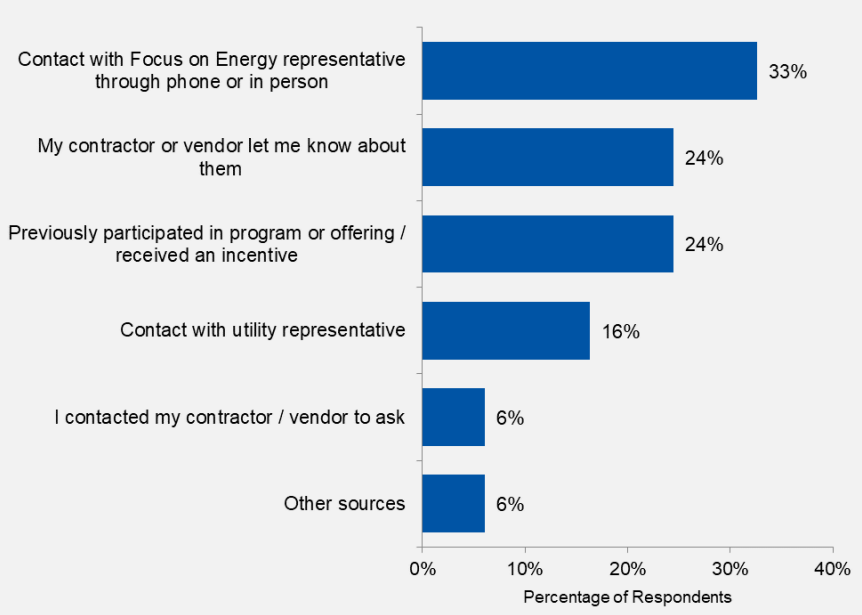
Business and Industrial Solution: Large Industrial Offering

In December 2020, the evaluation team contacted CY 2020 Large Industrial offering participants to assess their experiences with this Focus on Energy offering.[10]

Participation Awareness and Experience

Customers learned about the Large Industrial offering through an array of sources. In CY 2020, respondents most frequently reported learning about the offering from Focus on Energy representatives (33%), contractors and vendors (24%), and previous experience with Focus on Energy (24%; Figure F-7).

Figure F-7. Large Industrial Offering: Customer Source of Awareness



Source: CY 2020 Large Industrial Offering Participant Survey, Question B3. "How did your organization learn about the Focus on Energy incentives available for this project?" Multiple responses allowed (n=49).

Most respondents reported that both contractors (65%) and Focus on Energy representatives (77%) were involved in helping them initiate their energy efficiency projects, while 31% mentioned utility account managers (n=48).

The evaluation team asked Large Industrial participants whether they had previously participated in a program and whether their experience had changed. Seventy-eight percent were repeat Focus on Energy participants (n=49). Among the 29 respondents who had previously participated and reported that a Focus on Energy representative helped initiate their project, 83% worked with the same representative. All repeat participants said their CY 2020 experience was *about the same* (82%, n=38) or *more positive* (18%) than their prior experience. Of respondents who expressed a more positive

[10] Focus on Energy defines large industrial as businesses whose average monthly demand exceeds 1,000 kW of electricity or 100,000 therms of natural gas per month and whose combined utility bills were at least $60,000 in any month of the preceding year.

experience, five cited the helpfulness of the Focus on Energy representatives who worked with them on their project, and two mentioned more frequent and responsive communication from Focus on Energy representatives.

Respondents encountered few problems with offering processes. Of the 24 respondents who took the lead in applying for an incentive, most found the rebate application *very easy* (38%, n=24) or *mostly easy* (50%), and 12% said completing the application was either *a mix of easy and challenging* or *mostly challenging*. Of the three respondents who faced challenges filling out the application, two cited changing eligibility requirements and incentive levels and one having to do research to understand some of the terminology.

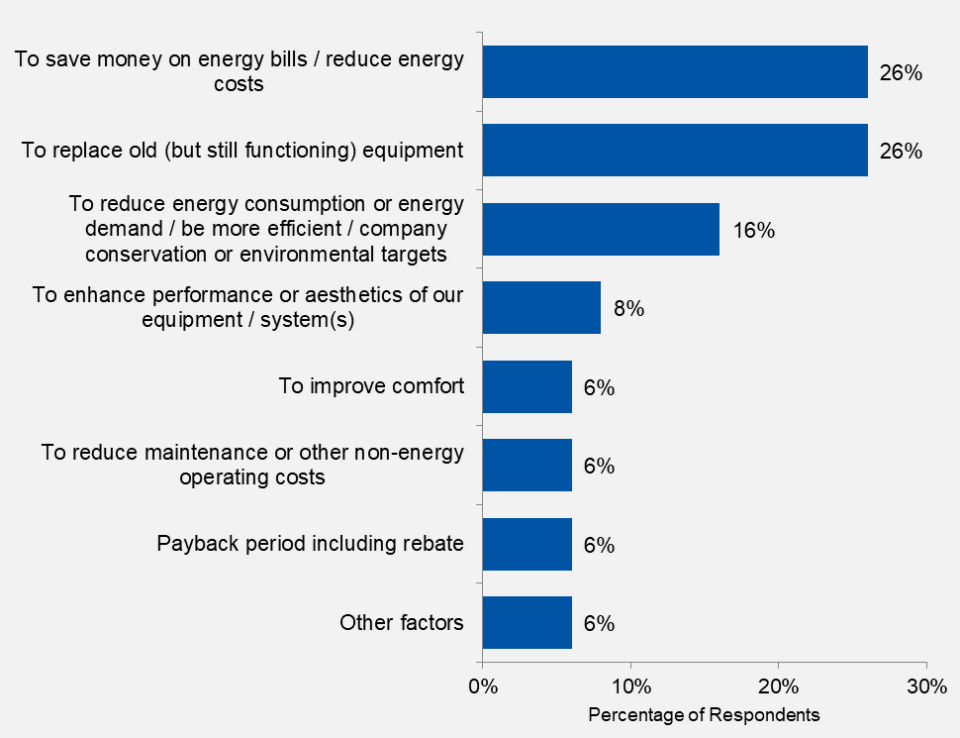
Forty-eight percent of respondents said the eligibility requirements were *very clear* (n=50), 48% said they were *mostly clear*, and 4% said they were *a mix of clear and not clear*. Of the 37 respondents who received help from a Focus on Energy advisor to initiate their project, 81% were *very satisfied* with the support they received from their energy advisor, and 19% were *somewhat satisfied*. Of the respondents who were *somewhat satisfied*, two said their energy advisor could have been more proactive about informing them of offerings and incentives, two wanted more responsive communications, one wanted more equipment to be eligible, and one cited delays in project inspections impacted by COVID-19.

Motivations and Decision-Making

The most common motivations for participating in the Large Industrial offering in CY 2020 were saving money on energy costs (26%) and replacing aging but functional equipment (26%; Figure F-8). Another 16% cited a broader goal of improving energy efficiency, including setting company conservation or environmental targets.

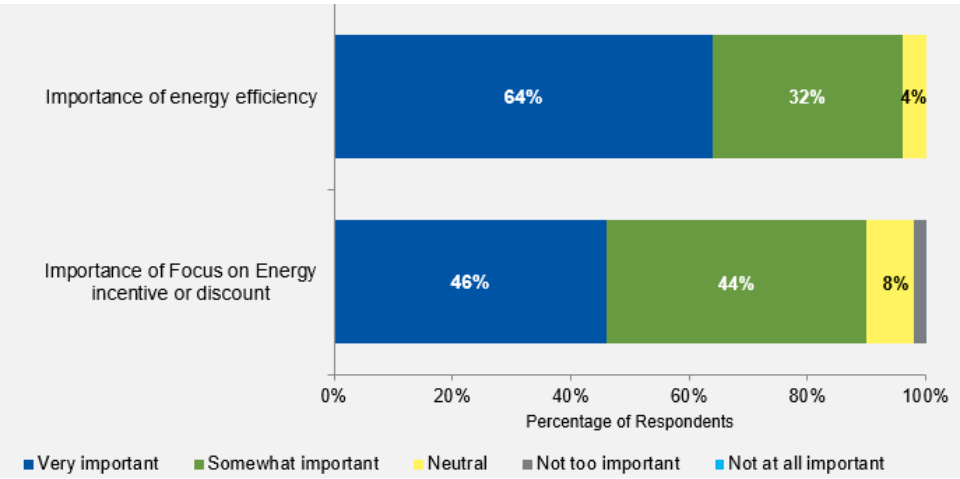
In support of the findings about why customers participated in this offering, the survey found that energy efficiency is a driving factor in decisions to make facility or equipment updates. When asked to rate the importance of energy efficiency as well as Focus on Energy incentives and discounts on their company's capital upgrade decisions, 64% said energy efficiency was *very important*, compared to 46% who said incentives and discounts were *very important* (Figure F-9).

Figure F-8. Large Industrial Offering: Motivation to Participate



Source: CY 2020 Large Industrial Offering Participant Survey, Question C1. "What factor was most important to your company's decision to make the energy-efficient upgrades for which you received an incentive?" (n=50).

Figure F-9. Importance of Energy Efficiency and Incentives on Capital Upgrades and Improvements



Source: CY 2020 Large Industrial Offering Participant Survey, Questions C4. "How important is energy efficiency to your organization when making capital upgrades or improvements?" and C5. "How important is a Focus on Energy incentive or discount to your organization when making capital upgrades or improvements?" (n=50).

A little less than one-third of respondents also reported attending an in-person or web-based training delivered by Focus on Energy in the past two years. Of these 11 respondents, seven said this training was *very* or *somewhat* important in their decision to move forward with their Large Industrial offering projects in CY 2020.

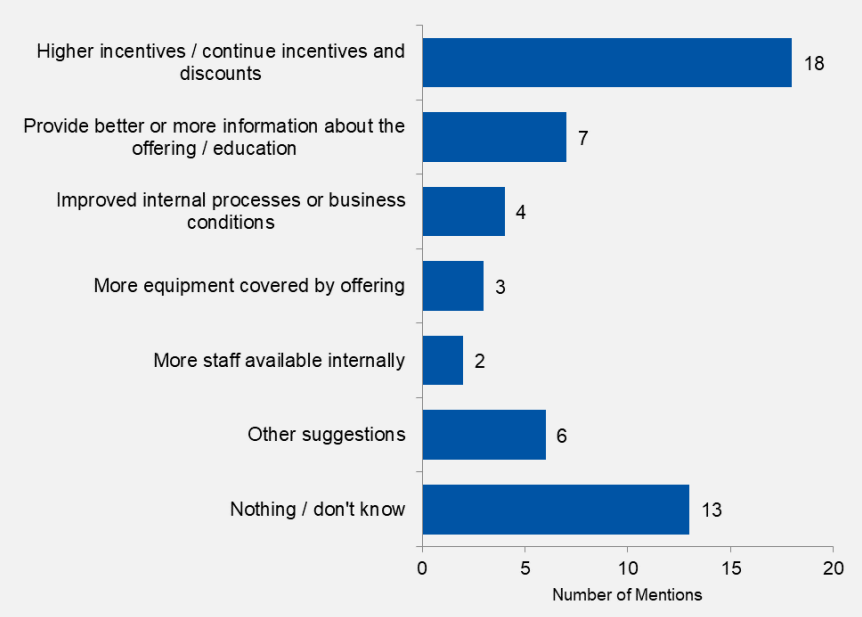
When asked how projects move forward, nearly half the respondents (46%, n=46) said their company had an internal payback threshold that projects must meet to gain approval. Of the 19 respondents who specified a threshold, the required payback periods ranged from one to five years, with an average payback period of 2.8 years and a median of two years.

Barriers

Cost was the greatest challenge reported by respondents in implementing energy efficiency projects (61%, n=49), followed by internal decision making or budgeting processes (24%), staff time (10%), and technical questions or issues (4%).

As shown in Figure F-10, corresponding with project costs being the most frequently mentioned barrier to completing energy efficiency projects, respondents most frequently suggested increasing or maintaining incentives and discounts to overcome barriers (18 mentions). Some respondent suggestions related to internal processes and business conditions at their company (four mentions) or internal staff levels (two mentions).

Figure F-10. Large Industrial Offering: Solutions for Energy Efficiency Project Challenges



Source: Large Industrial Offering Participant Survey Question D2. "What could be done to help your company overcome challenges with energy efficiency improvements?" Multiple responses allowed (n=50).

Suggestions for Improvement

The evaluation team asked what Focus on Energy could do to improve their overall experience with the Large Industrial offering. Only 12 respondents offered suggestions (24%, n=50). These suggestions were to improve communications (five mentions), increase incentives (four mentions), simplify the application process (three mentions), and increase the selection of eligible equipment (two mentions; respondents could make more than one suggestion). Suggestions to improve communications included clearer guidelines on submitting applications, more proactive notification about new or changing incentives, and more frequent communications from energy advisors.

Company Characteristics

Most respondents to the Large Industrial offering survey said their organizations have more than one location in Wisconsin (71%, n=45), ranging up to 40 locations. The average number of Wisconsin locations of firms in the Large Industrial offering survey was 3.8, with a median number of three. The number of Wisconsin employees reported in the Large Industrial offering survey ranged from 18 to 3,000, with an average of 598 employees and a median of 350 employees (n=42).

Appendix G. Residential Survey Findings by Offering

The following sections discuss process findings from the residential participant surveys. Impact-related findings, such as in-service rates (ISRs) and net-to-gross (NTG), are discussed in the Direct to Customer Solution and Trade Ally Solutions chapters in Volume II.

Direct to Customer Solution: Appliance Recycling

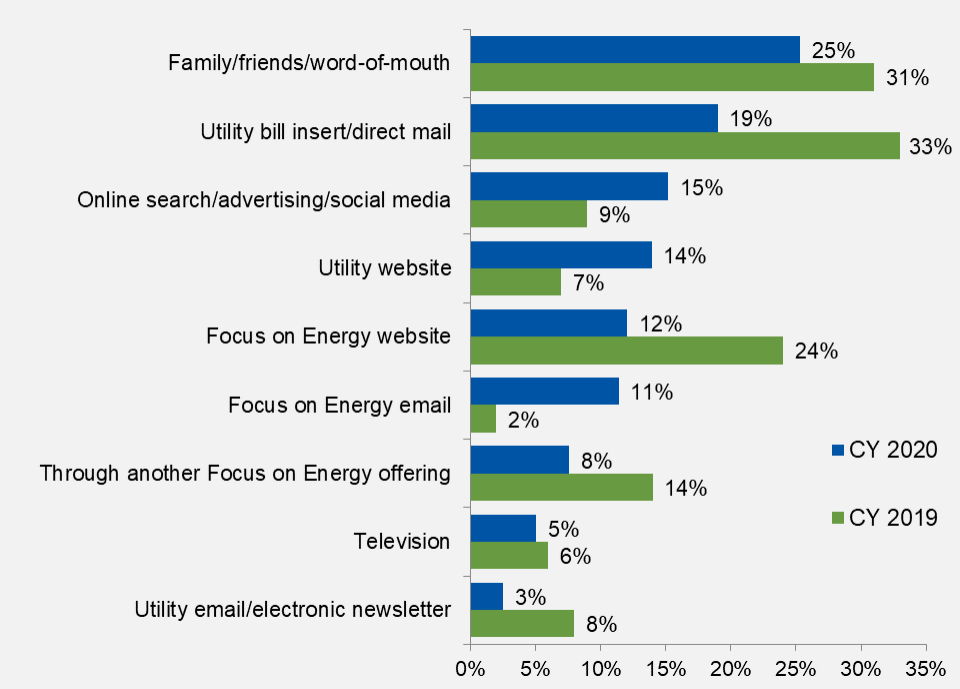
In September and October 2020, the evaluation team contacted a random sample of CY 2020 Appliance Recycling participants by telephone to assess their experiences with this Focus on Energy offering. Of the 1,009 participants contacted, 173 completed the survey for a 17% response rate.

Cadmus asked survey respondents to describe how they learned of the Appliance Recycling offering, what channels they thought would be best for Focus on Energy to market its offerings, their motivations for recycling their appliances, suggestions for improving the offering, and demographic information.

Participation Experience

In CY 2020, respondents heard about the Appliance Recycling offering from diverse sources, as shown in Figure G-1 Similar to CY 2019, word of mouth (25%) and bill inserts and direct mail from utilities (19%) were the two most frequent sources of awareness in CY 2020, though bill inserts and utility mailings were mentioned much more frequently in CY 2019 (33%).

Figure G-1. Sources of Awareness – Appliance Recycling Offering

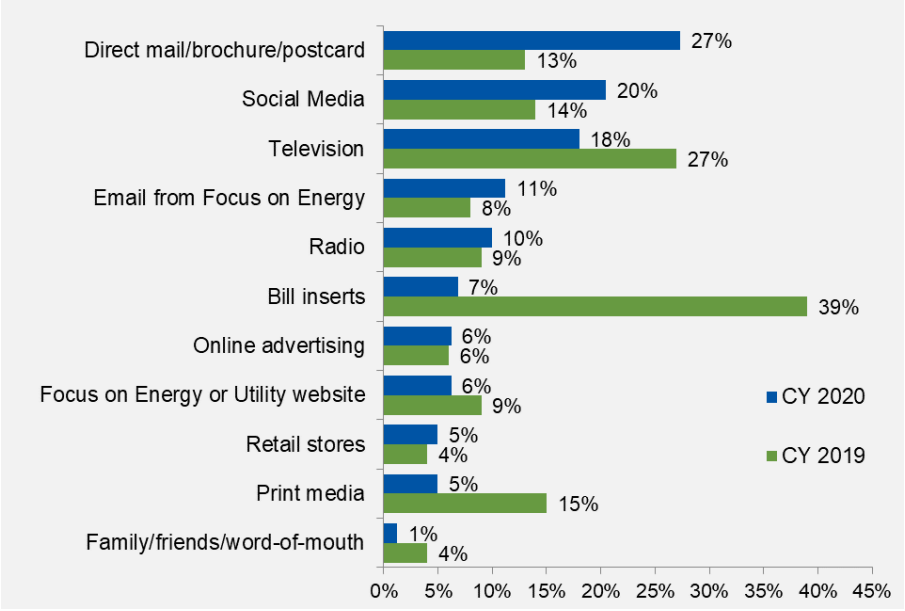


Source: CY 2020 Appliance Recycling Offering Participant Survey, Question B1. "Where did you most recently hear about Focus on Energy's Appliance Recycling Offering?" and Question B2. "Are there any other ways you heard about the offering? Select all that apply." Multiple responses allowed (n=158). Identical questions B1 and B2 from CY 2019 Appliance Recycling Program Participant Survey. Multiple responses allowed (n=159).

In CY 2020, more respondents heard about the Appliance Recycling offering from online searches and social media (15%), utility websites (14%), and emails from Focus on Energy (11%), but fewer heard about it from the Focus on Energy website (12%) or through participating in other Focus on Energy offerings (8%).

Cadmus asked participants what they thought would be the best methods for Focus on Energy to inform the public about its energy efficiency offerings. As shown in Figure G-2, their preferred channels were direct mail (27%) and social media (20%); both channels were mentioned more frequently than in CY 2019. Television was mentioned by a substantial 18%, though this was a decrease from the 27% in CY 2019. The largest decline from the previous year was for bill inserts, mentioned by only 7% in CY 2020 but 39% in CY 2019. Print media (5%) also declined substantially from the 15% in the previous year.

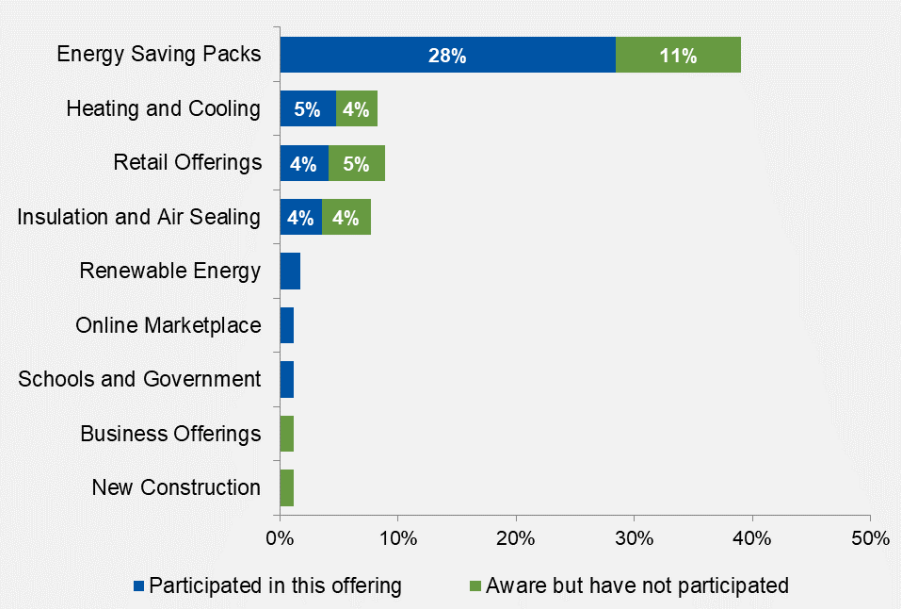
Figure G-2. Recommended Ways to Inform Public – Appliance Recycling Offering



Source: CY 2020 Appliance Recycling Offering Participant Survey, Question B3. "What do you think is the best way for Focus on Energy to inform the public about energy efficiency offerings? Select all that apply." Multiple responses allowed (n=161). Identical question B7 from CY 2019 Appliance Recycling Program Participant Survey. Multiple responses allowed (n=161).

About half the respondents in the Appliance Recycling offering (49%, n=170) said they were not familiar with any other Focus on Energy offerings. Among those who were aware of other offerings, the Packs offering was the most well-known, with 28% of all respondents having participated in this offering and another 11% aware of it without having participated. Nearly 10% had participated in, or were aware of, the Heating and Cooling, Retail, and Insulation and Air Sealing offerings, and 2% or fewer had any familiarity with the other offerings. Figure G-3 shows the distribution of awareness and participation in other Focus on Energy offerings.

Figure G-3. Awareness of Other Offerings – Appliance Recycling Offering

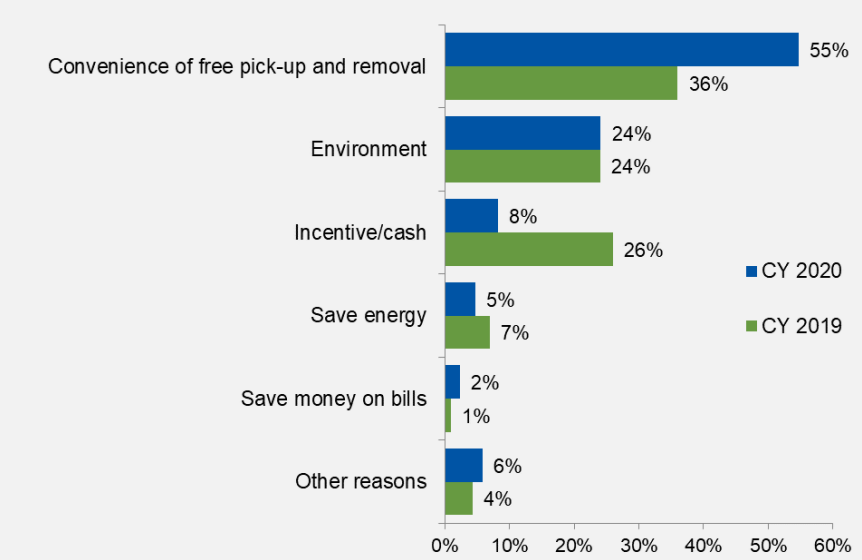


Source: CY 2020 Appliance Recycling Offering Participant Survey, Questions B5-B8. "Other than Focus on Energy's Appliance Recycling Offering, are you aware of any other Focus on Energy offerings or rebates?," "Which offerings or rebates are you aware of?," "Have you participated in any other Focus on Energy offerings?," "Which program(s) or offering(s) have you participated in?" Multiple responses allowed. (n=170) Note: Unlabeled segments represent 3% or less of measure respondents.

Motivations and Decision-Making

Most respondents cited the convenience of free pick-up and removal (55%) as their main motivation for recycling appliances through Focus on Energy, as shown in Figure G-4. This was an increase from CY 2019, corresponding to a decrease in the number of respondents who cited the incentive payment in CY 2020 compared to CY 2019. Though the incentive was discontinued at the beginning of CY 2020, 8% of respondents still mentioned it as their main reason for participating. Very few survey respondents were motivated to participate in CY 2020 because of energy savings (5%) or bill savings (2%), consistent with findings from CY 2019. Environmental concerns (24%) was the second most mentioned motivation for recycling in CY 2020, consistent with the previous year.

Figure G-4. Motivation for Participating – Appliance Recycling Offering



Source: CY 2020 Appliance Recycling Offering Participant Survey, Question B4. "What factor was the most important motivation for you to recycle your [APPLIANCE] through Focus on Energy?" (n=170)
CY 2019 Appliance Recycling Program Participant Survey.
Question B4: "What motivated you to participate in the Program?" (n=163)

Suggestions for Improvement

More than a third of survey respondents (66 of 173) provided suggestions for improving the Appliance Recycling offering. These have been coded into 75 suggestions that are sorted into the six categories below. In CY 2020, suggestions were dominated by three topics: rebates, communications, and promoting the offering.

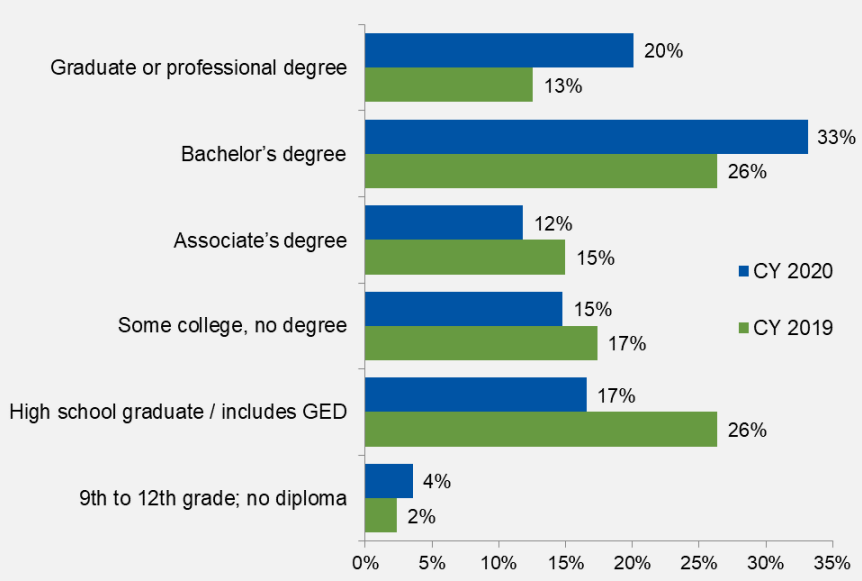
- **Pay rebates for recycling appliances (n=22).** Respondents wanted the incentive restored or increased.
- **Improve communications (n=19).** Many comments were about finding out after enrollment that the rebate had been discontinued; the rest were requests for more or better communication from Focus on Energy staff and contractors during the scheduling or pick-up process.
- **Promote the offering (n=18).** Most of these respondents suggested more advertising to increase awareness, some suggested partnerships with appliance retailers.
- **Improve scheduling (n=9).** Respondents suggested shorter waits for pick-up, more scheduling options, and narrower pick-up windows.
- **Change offering requirements (n=6).** Most comments related to moving appliances outdoors for contactless removal, though some respondents would still like contractors to come into their homes.
- **Recycle additional equipment (n=1).** One respondent suggested the offering should also recycle televisions.

Demographics

Similar to survey results from previous years, most CY 2020 Appliance Recycling respondents lived in single-family homes (90%) and were homeowners (93%) rather than renters. Only 6% of respondents used electricity to heat their homes, while 72% used gas and 14% propane.

Figure G-5 shows the highest level of education completed by respondents. More than half of CY 2020 respondents (53%) completed a bachelor's or more advanced degree, an increase from 39% in CY 2019.

Figure G-5. Highest Level of Education – Appliance Recycling Offering



Source: CY 2020 Appliance Recycling Offering Participant Survey, Question E7.
"What is the highest level of school that you have completed?" (n=169)
Identical question E7 from CY 2019 Appliance Recycling Program Participant Survey (n=167)

Direct to Customer Solution: Online Marketplace

In November 2020, the evaluation team contacted a random sample of CY 2020 Online Marketplace participants to assess their experiences with this Focus on Energy offering. Where a single individual purchased multiple measure types from the Online Marketplace, the team selected one on which to focus the survey questions.[11] Measure types with less participation, and fewer participants to sample, were prioritized over more common measure types.

Of the 4,200 participants contacted, 576 participants completed the survey for a 14% response rate. CY 2020 marked the first full year of the Online Marketplace offering, so this was the first survey the evaluation team has conducted with these participants.

[11] Measure type is a higher-level categorization used to group similar measures. For example, "Showerhead, Handheld, 1.5 GPM, Online Store" is a specific measure, while "Showerhead" is the measure type.

Participation Experience

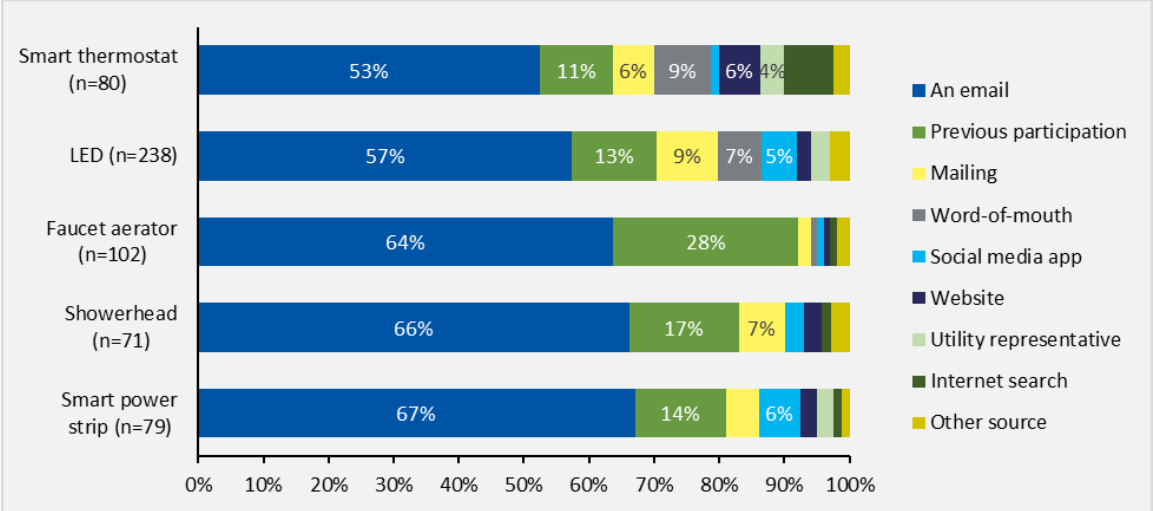
The survey assessed participants' experience with the Online Marketplace and their satisfaction with various aspects of the offering.

Awareness

Across all respondents, the majority most recently heard about the Focus on Energy Online Marketplace through an email. Of these respondents, 57% reported who sent the email; of these, 88% said the email came from Focus on Energy and 12% said it came from their utility. The second most common source was previous participation in another Focus on Energy offering. Less common were a mailing (including bill inserts and other promotional material), word of mouth, social media, and other sources.

Figure G-6 shows the distribution of the most recent source of information about the offering by the type of measure purchased. Though overall trends were similar across measures, there were statistically significant differences in the proportion of respondents reporting a particular source. For example, smart power strip and faucet aerators participants were the most likely to have learned about the offering through email (67% and 64%, respectively) while smart thermostat participants were the least likely (58%). Faucet aerator participants were also the most likely to have learned about the offering through previous participation (28%). Smart thermostat participants were the most likely to have learned about the offering through an internet search. Smart thermostat participants (9%) and LED participants (7%) were the most likely to have learned about the offering through word of mouth.

Figure G-6. Most Recent Sources of Information – Online Marketplace Offering

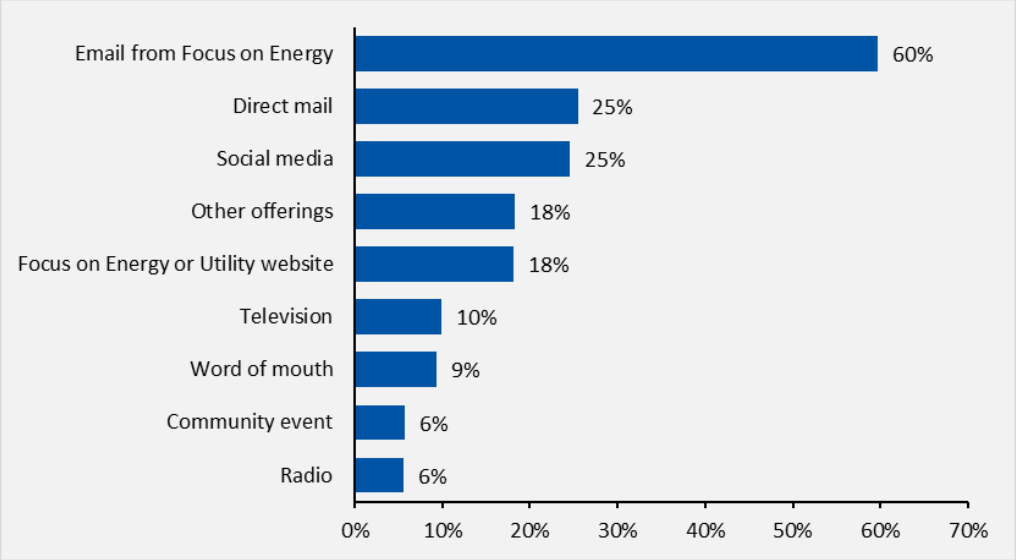


Source: CY 2020 Online Marketplace Offering Participant Survey, Question B1. "Where did you most recently hear about Focus on Energy discounts for [MEASURE]s available through the Online Marketplace?"
Note: Unlabeled segments represent 3% or less of measure respondents.

Across all measures, 37% (n=526) of respondents said they had not learned about the Focus on Energy rebates in any other way. Others responded that, in addition to the most recent source of information, they had learned through previous participation (18%), an email (13%), or a mailing (13%).

When asked how Focus on Energy should inform people about energy efficiency offerings, 60% of respondents said email from Focus on Energy, followed by direct mail or social media. These suggestions aligned fairly well with how respondents most recently heard about the offering (Figure G-6). The distribution of respondents' most commonly mentioned methods of how Focus on Energy should inform people about offerings is shown in Figure G-7.

Figure G-7. Best Ways to Inform About Energy Efficiency Offerings – Online Marketplace Offering

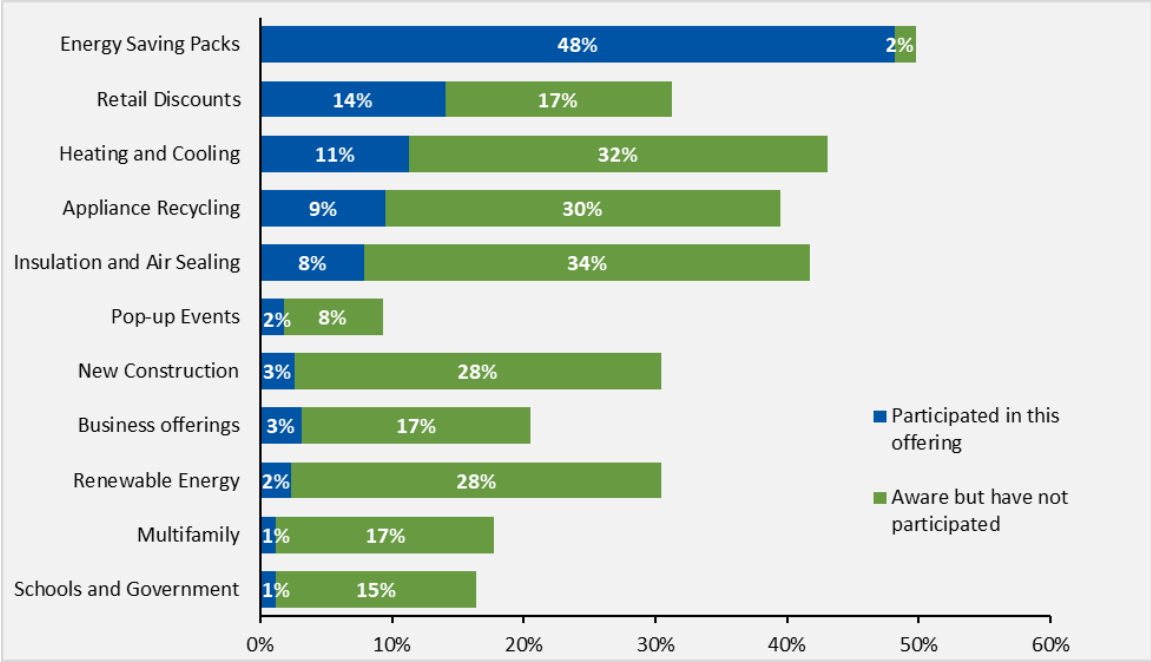


Source: CY 2020 Online Marketplace Offering Participant Survey, Question B3. "What is the best way for Focus on Energy to inform people about energy efficiency offerings?" Multiple responses allowed. (n=558)

Just over half (51%, n=506) of Online Marketplace respondents were familiar with some other Focus on Energy offering. The most well-known was the Packs offering, which 50% of Online Marketplace respondents were familiar with and in which 48% had participated. A lower percentage, 8% to 14%, had also participated in other offerings available to all residential customers. All four of these broadly marketed residential offerings—Retail, Heating and Cooling, Appliance Recycling, and Insulation and Air Sealing—differed from the Packs offering in that respondents were more likely to be aware of them but not to have participated.

Figure G-8 shows the percentage of respondents who had participated in or were aware of various Focus on Energy offerings or were not aware of any other offerings. In total, 51% of respondents (n=506) had participated in, or were aware of, at least one other Focus on energy offering.

Figure G-8. Awareness of Other Offerings – Online Marketplace Offering



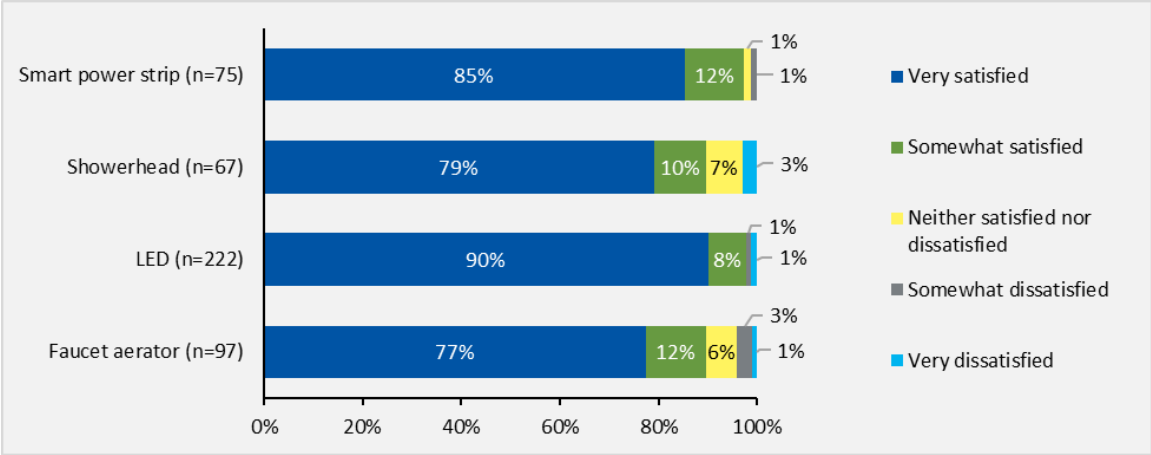
Source: CY 2020 Online Marketplace Offering Participant Survey, Question B4. "Other than Focus on Energy's Online Marketplace, are you aware of any other Focus on Energy programs or incentives?" Multiple responses allowed. (n=506)

Satisfaction

Respondents who purchased a smart power strip, showerhead, LED, or faucet aerator through the Online Marketplace were asked to report their satisfaction with these products.[12] As shown in Figure G-9, at least 90% were either *very satisfied* or *somewhat satisfied* with their measures. LED participants were the most likely to be *very satisfied* (90%), and faucet aerator participants were the least likely (77%).

[12] Cadmus did not assess satisfaction with smart thermostat to relieve some survey burden for those participants because this measure usually involves more questions than do other measures and because past results from other program surveys have always indicated very high satisfaction rates.

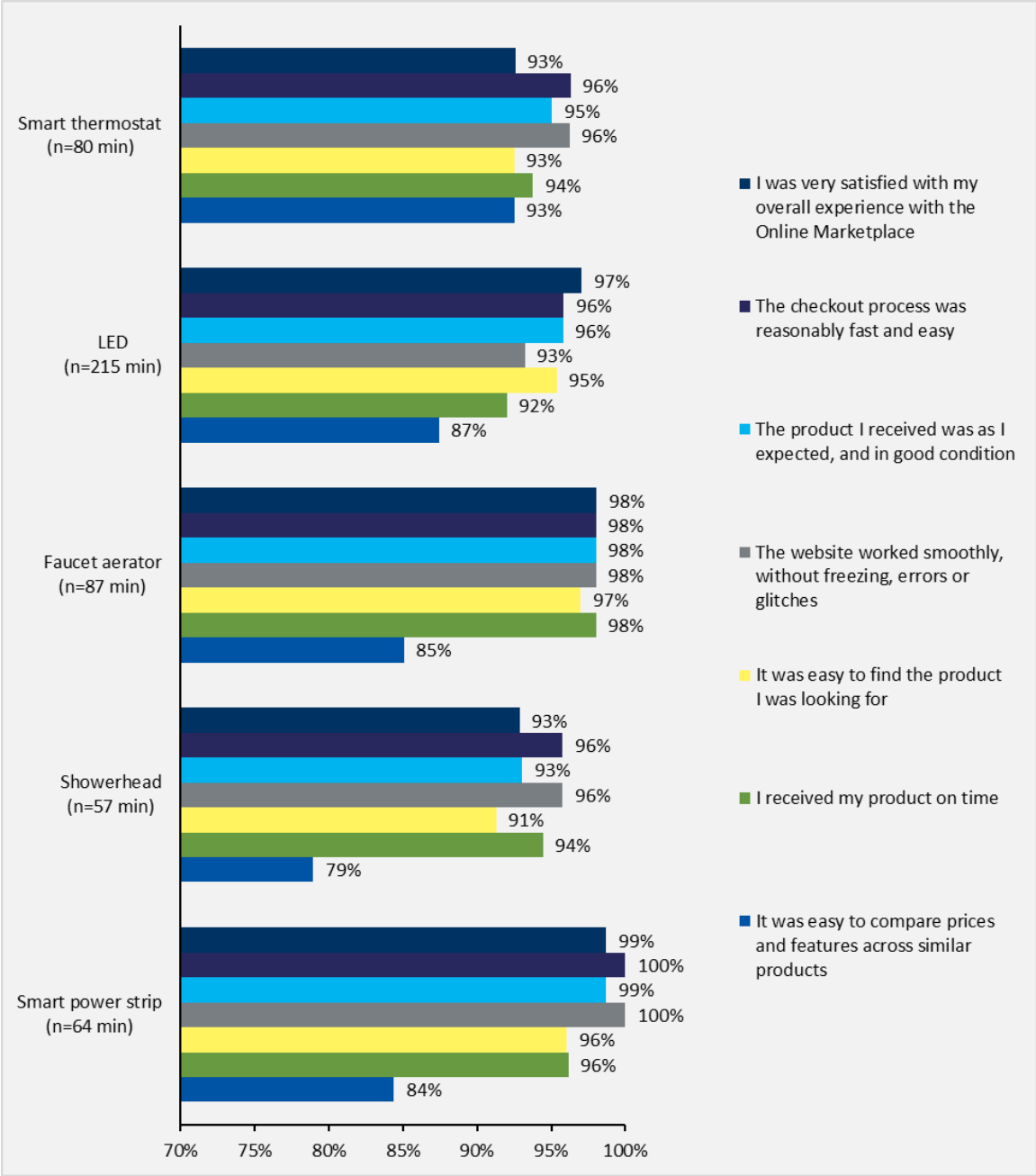
Figure G-9. Satisfaction with Measure – Online Marketplace Offering



Source: CY 2020 Online Marketplace Offering Participant Survey, Question D10, F7, J7, K7. "How satisfied are you with the [MEASURE] you purchased?"

To gauge participants' experience navigating the website and receiving their order, the survey presented a series of positive statements about the Online Marketplace experience and asked respondents to indicate the extent to which they agreed or disagreed with the statement using a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Figure G-10 shows the percentage of respondents who gave the statement either a 4 or a 5, disaggregated by measure. Responses varied by measure type and by the specific experience. For all measures, 93% or more were *very satisfied* with their overall experience. For all measures, respondents were least likely to agree it was easy to compare prices and features across items on the website, with showerhead respondents the least likely to rate agreement as a 4 or 5.

Figure G-10. Respondents Agreeing with Experience Statements – Online Marketplace Offering



Source: CY 2020 Online Marketplace Offering Participant Survey, Question C4. "Please rate your agreement with the following statements about the Online Marketplace on a scale from 1 to 5 with 1 being "Strongly disagree" and 5 being "Strongly agree.""
Number of responses varied for each experience statement. The n-value indicates the lowest number of responses (minimum) for a given measure for any of the experience statements.
Note: Scale adjusted to emphasize differences across response categories.

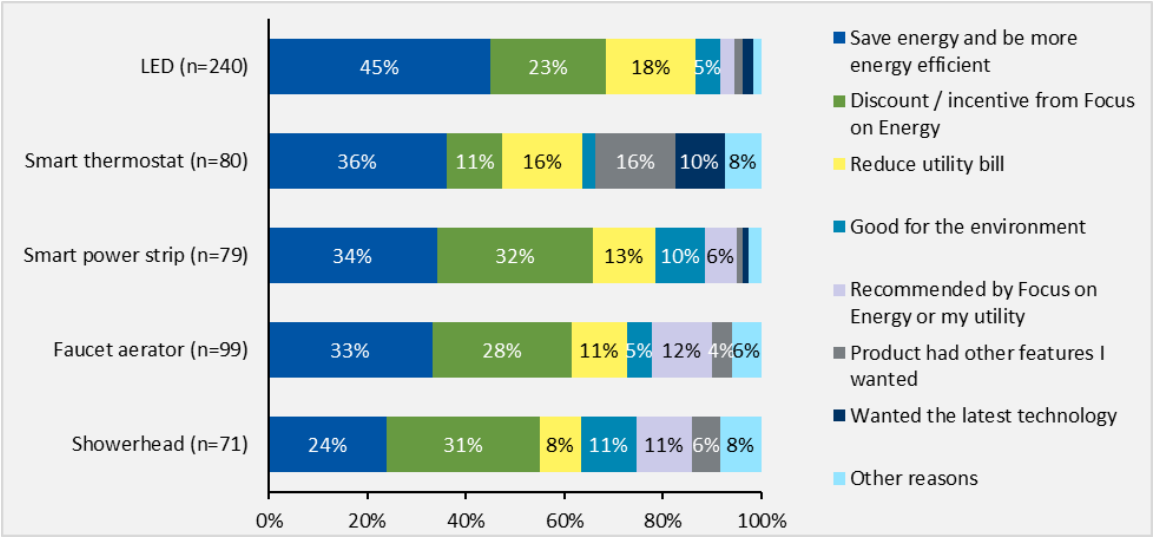
Motivations and Decision-Making

Respondents' motivation for purchasing the product varied by measure type. Across all measures, respondents most commonly reported purchasing measures to save energy and be more energy efficient, followed by to receive the Focus on Energy discount and to reduce their utility bill.

Smart thermostat respondents were three times as likely and LED respondents two times as likely to want to save money and be energy-efficient than to want the Focus on Energy discount. Showerhead respondents were most likely to want the discount. Faucet aerators and smart power strip respondents were almost equally motivated to save energy and be energy-efficient and to receive the discount.

Smart thermostat respondents were also more likely than others to choose their measure because it had other features they wanted or because they wanted the latest technology. Smart power strip and showerhead respondents were more likely than others to choose the item because it is good for the environment. Figure G-11 shows the distribution of motivations by measure type.

Figure G-11. Motivation for Selecting Measure – Online Marketplace Offering

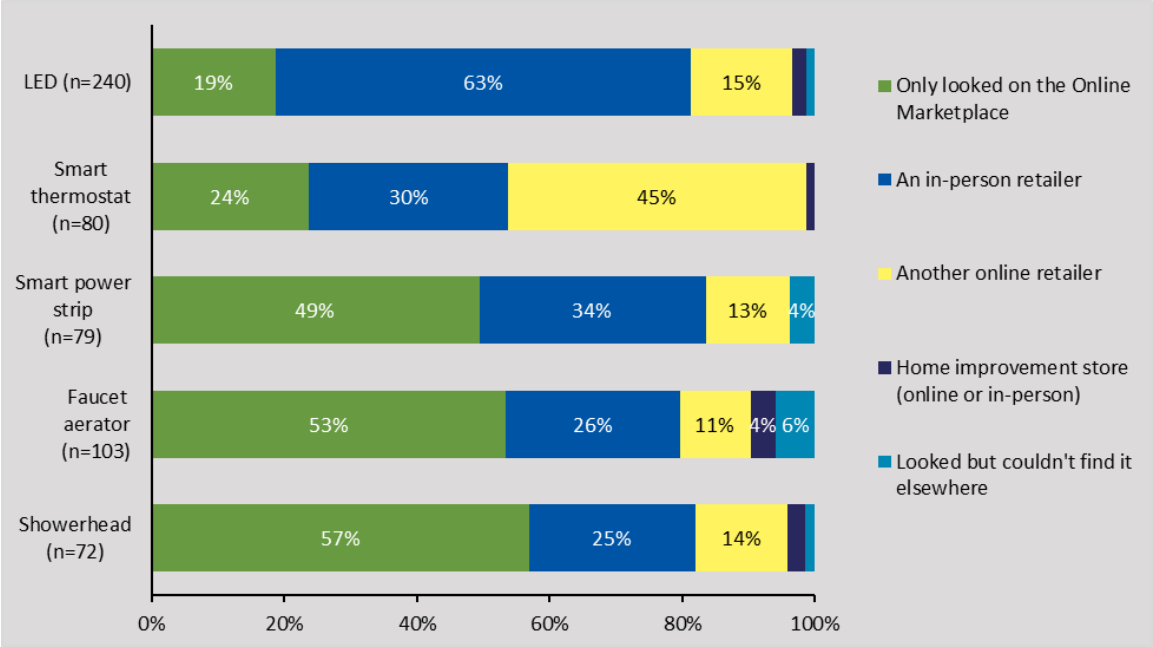


Source: CY 2020 Online Marketplace Offering Participant Survey, Question C1. "What was the most important reason you purchased your [MEASURE](s)?"

Note: Unlabeled segments represent 3% or less of measure respondents.

To understand at what point in their shopping process people visited the Online Marketplace, the survey asked respondents where else they had considered shopping for the measure they purchased. As shown in Figure G-12, respondents who purchased faucet aerators, showerheads, and smart power strips mostly considered shopping only on the Online Marketplace. Respondents who purchased LEDs also considered an in-person retailer, while smart thermostat participants were most likely to have considered another online retailer.

Figure G-12. Other Retailer Outlets Considered – Online Marketplace Offering

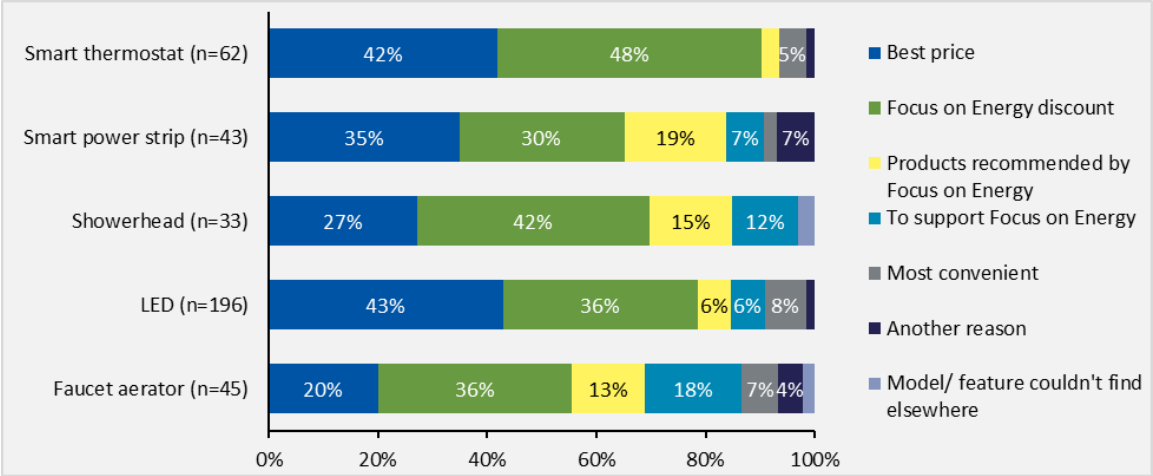


Source: CY 2020 Online Marketplace Offering Participant Survey, Question C2. "Before you purchased your [MEASURE] from the Online Marketplace, where else did you consider purchasing this item?"

Note: Unlabeled segments represent 3% or less of measure respondents.

The survey asked respondents who had considered shopping at other retailers why they decided to purchase from the Online Marketplace. Smart thermostat, smart power strip, and LED respondents most often wanted the best price. Showerhead and faucet aerator respondents most often wanted the Focus on Energy discount. Smart power strip, showerhead, and faucet aerator respondents were more likely than smart thermostat and LED respondents to want products recommended by Focus on Energy. Faucet aerator and showerhead respondents were more likely than others to want to support Focus on Energy. For faucet aerator participants, supporting Focus on Energy was almost as important as getting the best price. Figure G-13 shows the reasons for purchasing from the Online Marketplace.

Figure G-13. Reasons for Purchasing from the Online Marketplace



Source: CY 2020 Online Marketplace Offering Participant Survey, Question C3. "What's the primary reason you decided to purchase from the Online Marketplace?"

Note: Unlabeled segments represent 3% or less of measure respondents.

Suggestions for Improvement

Most respondents reported having no issues or a positive experience with the Online Marketplace website and their order. Almost 10% of respondents suggested improvements. Their most frequently mentioned suggestions or concerns related to order delivery. Most comments were minor, and several respondents reported their issue was resolved by customer support. Table G-1 shows the categories of suggestions or concerns reported by respondents, the percentage of total respondents providing a suggestion in that category, and an example of a suggestion for the category.

Table G-1. Suggested Improvements for Online Marketplace

Suggestion/Concern	Percent of Total Respondents (n=576)	Example Verbatim Responses
Delivery/tracking	2.1%	"One of my orders was incomplete but I contacted the company and they sent the item in a timely fashion"
Product choices	1.4%	"Some of the multi packages where the discount was greater for variety, didn't match my needs."
Checkout process	1.2%	"The site seemed to delete my order before it finally went through."
Site navigation	1.2%	"Cellphone versus laptop."
Product information/ specifications	0.9%	"Info about the power strips was confusing - our TV shuts off automatically after about 1.5 hrs. I ended up NOT using it."
Eligibility/quantity limits	0.7%	"Wish that it was less limited on quantity"
Product comparison	0.3%	"Comparing products and features could have been easier. Also product rating/reviews would have helped."
Product quality	0.3%	"Two of my led bulbs tripped a circuit so, and I called [Focus on Energy] and they replaced them right away. I am now very happy with my [Focus on Energy] light bulbs."
Website glitches	0.3%	"I recall being logged out frequently, and the site links taking me to spots I didn't anticipate."
Other	0.3%	"Can be better"
Total	**9.7%**	

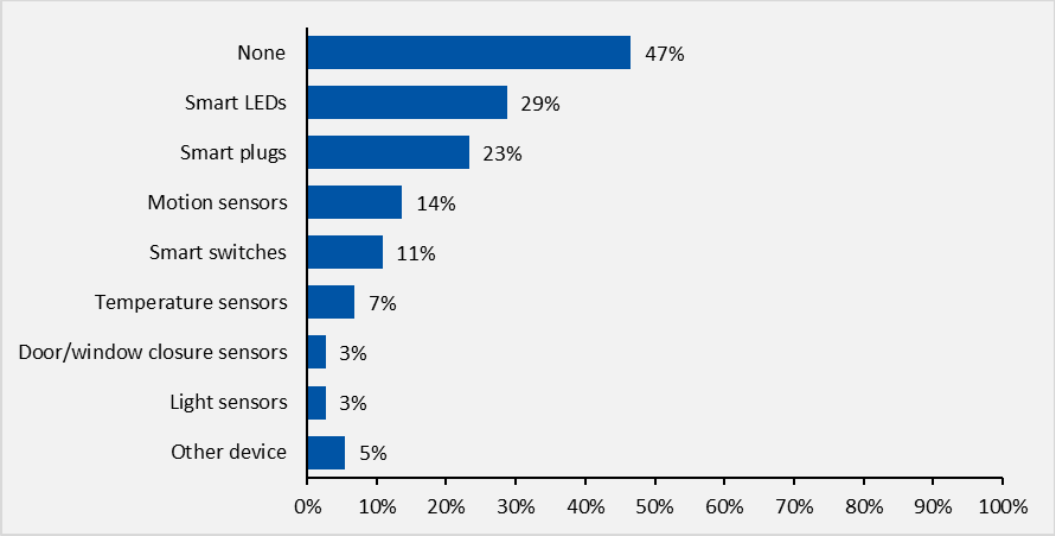
Demographics

Online Marketplace participants primarily live in single-family homes (84%) and are homeowners (93%). The majority use natural gas for space heating (76%) and water heating (64%), with 11% and 22%, respectively, using electricity. The remainder use a different fuel. Forty-nine percent have a bachelor's degree or higher level of education, and 16% have a high school diploma or less education.

Response patterns for measures types were similar. Showerhead (32%) and faucet aerator (27%) respondents were the most likely to use electricity for water heating. Smart power strip respondents were more likely to live in a multifamily home than other respondents (10%, highest share of multifamily participants) and less likely to live in a single-family home (76%, lowest share of single-family participants). They were also the most likely to have a bachelor's degree or more education (55%). Faucet aerator and showerhead participants were least likely to have a bachelor's degree or more education, reported by 41% of respondents for both measure types.

The survey asked smart thermostat respondents to indicate what other smart energy savings devices they have installed in their homes. As shown in Figure G-14, 47% of respondents had no other smart devices, but other respondents listed at least one. Smart LEDs were the most common, reported by 29% of respondents, followed by smart plugs, installed by 23% of respondents.

Figure G-14. Other Smart Devices Used by Smart Thermostat Participants – Online Marketplace Offering



Source: CY 2020 Online Marketplace Offering Participant Survey, Question E19. "E19.What other wi-fi connected devices that help save energy do you have installed in your home?" Multiple response allowed. (n=73)

Direct to Customer Solution: Packs

In October and November 2020, the evaluation team contacted CY 2020 participants by email to assess their experiences with the Packs offering. The team drew random survey samples from single-family and multifamily participants for each of the six types of Energy Saver Packs distributed through the offering. Of 10,970 participants contacted, 884 completed the online survey for an 8% response rate.

The team asked survey respondents to provide feedback on awareness sources and their satisfaction with the elements in the offering, describe motivations for participation, offer suggestions for improvement, and provide demographic information.

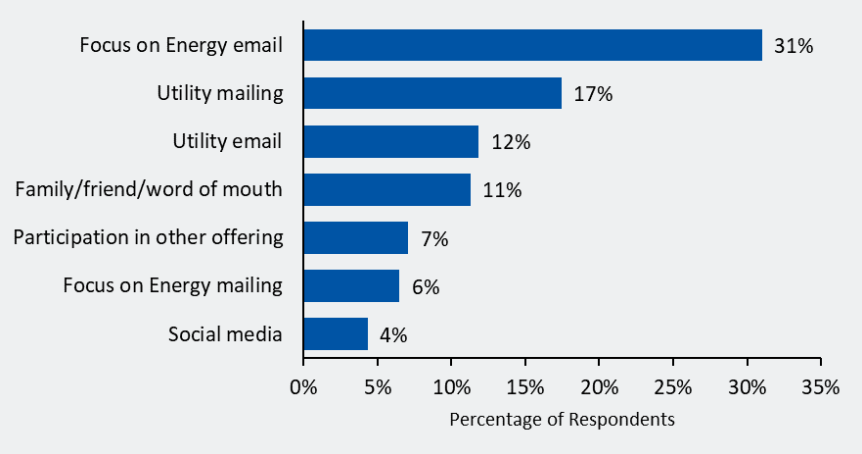
Participation Experience

Awareness

About 43% of all respondents most recently heard about the Packs offering from a Focus on Energy email (31%) or utility email (12%), as shown in Figure G-15. Another 23% heard about it through direct mail from their utility (17%) or Focus on Energy (6%).

When single-family participants were last surveyed in CY 2017, 40% learned of the offering through direct mail, followed by 21% from bill inserts,[13] and only 8% through email. In CY 2020, only 26% learned of the offering through direct mail whereas 47% learned of the offering via email.

Figure G-15. Most Recent Sources of Awareness – Packs Offering



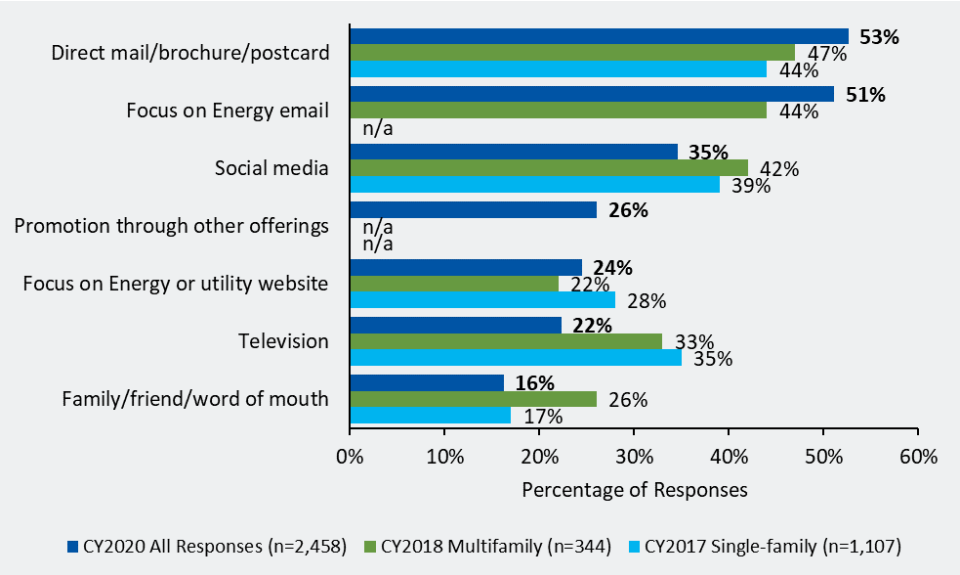
Source: CY 2020 Packs Offering Participant Survey, Question B1. "Where did you most recently hear about Focus on Energy's Energy Saver Packs?" (n=877)

[13] In the CY 2017 single-family survey, forms of email were not included as a response option. In addition, in the CY 2017 single-family survey and the CY 2018 multifamily survey, bill inserts were offered as a separate response option from direct mail, whereas these options were combined in CY 2020. Bill inserts were preferred most often as a source of awareness in CY 2017 (62%) and CY 2018 (51%).

Nearly two-thirds of respondents (62%) also heard about the Packs offering through at least one other source—typically an email or mailing from Focus on Energy or their utility (26% total) but also through utility or Focus on Energy direct mail (23% total), word of mouth (12%), and participation in other Focus on Energy offerings (14%).

The survey asked all participants about the best ways for Focus on Energy to inform the public about its energy efficiency offerings. As shown in Figure G-16, respondents have increasingly recommended direct mail or email and less likely to recommend television than in previous years. Consistent with past years, respondents are most likely to recommend direct mail, email, and social media in that order.

Figure G-16. Recommended Ways to Inform Public – Packs Offering



Source: CY 2017, CY 2018, CY 2020 Packs Offering Participant Surveys, Question B3. "What do you think is the best way for Focus on Energy to inform the public about energy efficiency offerings? Select all that apply." Multiple responses allowed.

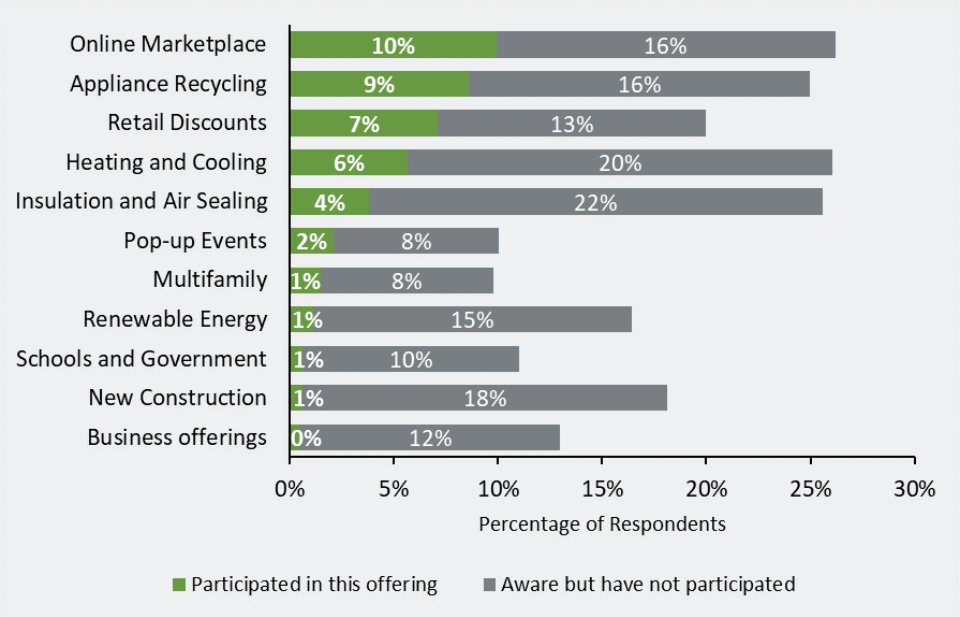
Single-family respondents recommended direct mail (52%), Focus on Energy emails (52%), and social media (34%) most often. These results align with CY 2017 single-family responses (44% direct mail, 39% social media) and CY 2018 multifamily responses (47% direct mail, 44% email, 42% social media).[14]

One-third of Packs offering respondents were aware of other Focus on Energy offerings or rebates.[15] At least 20% of all respondents had heard of and/or participated in the Online Marketplace (26%), Heating and Cooling (26%), Insulation and Air Sealing (26%), Appliance Recycling (25%), and Retail (20%) offerings. Among residential offerings, respondents were least likely to have heard of or participated in the Pop-Up Events (10%) and Multifamily (9%) offerings.

[14] In CY 2017, email was not provided as a response option.

[15] CY 2020 Packs Offering Participant Survey, Question B7. "Other than Focus on Energy's [Pack offering], are you aware of any other Focus on Energy offerings or rebates?" (n=817)

Figure G-17. Awareness of Other Offerings – Packs Offering



Source: CY 2020 Packs Offering Participant Surveys, Question B8. "For the Focus on Energy offerings listed below, please indicate which ones you are aware of and which you have participated in." Multiple responses allowed (n=817).

Satisfaction

Ninety-five percent of surveyed participants requested their packs through Focus on Energy's online web portal.[16] Of these, 98% said it was *very easy* (91%) or *somewhat easy* (8%) to fill out the online request for their Energy Saver Pack,[17] consistent with results in CY 2018 and CY 2017 (99% each). Eighty-seven percent of respondents received their packs in less than two weeks (35%) or between two and four weeks (52%) after requesting their packs,[18] up 15 percentage points from CY 2018 (72%). In between the CY 2018 and CY 2020 surveys, Focus on Energy transitioned to a different implementer that processed and shipped pack requests more frequently.

Eighty-eight percent of respondents were *very satisfied* (76%) with how long it took them to receive their Energy Saver Pack, consistent with CY 2017 results (77%). Only 13 respondents (2%) were either *somewhat dissatisfied* (n=12) or *very dissatisfied* (n=1), reporting waiting two to four weeks (n=3), four to six weeks (n=6), or more than six weeks (n=1). One respondent did not know how long the wait was.

When asked if they remembered receiving the pack, 43 of the CY 2020 respondents (5%, n=927) said they did not receive, or did not remember receiving, the pack they requested. Thirty additional

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16 CY 2020 Packs Offering Participant Survey, Question M1. "Did you request your Energy Saver Pack using the Focus on Energy website, or did you call the 1-800 number?" (n=855)

17 CY 2020 Packs Offering Participant Survey, Question M2. "How easy was it to fill out the online request for your Energy Saver Pack?" (n=807)

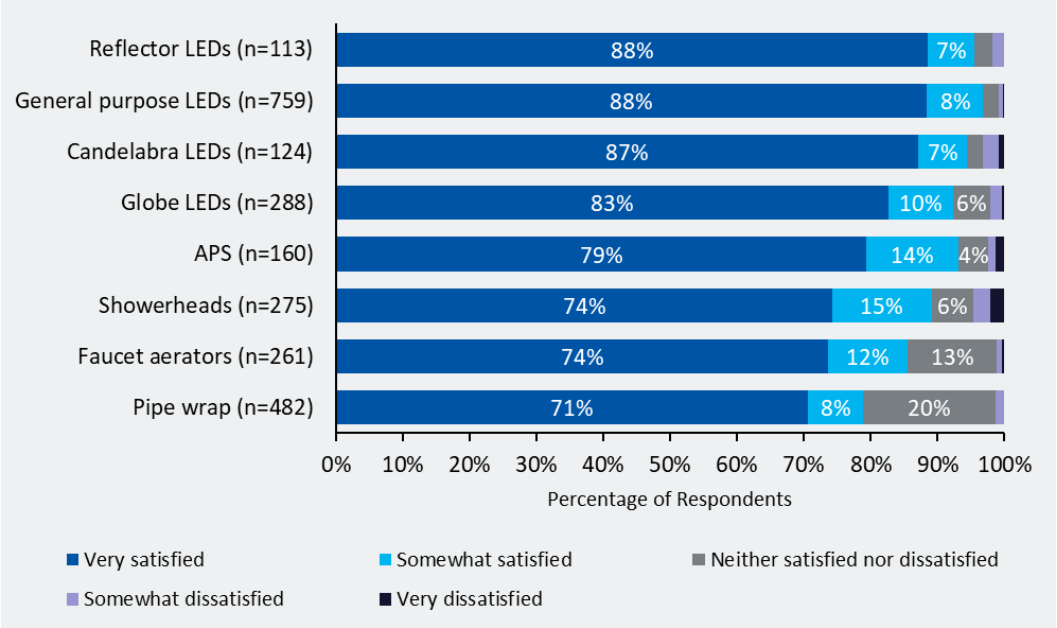
18 CY 2020 Packs Offering Participant Survey, Question M4. "After you submitted the request for your Energy Saver Pack, how long did it take to receive the pack in the mail?" (n=749)

participants emailed the survey administrator and said they could not take the survey because they did not receive their pack. These percentages appear to be increasing from CY 2017 and CY 2018, when about 1% to 4% of survey respondents reported not receiving their packs. The implementer investigated the 30 customers who emailed the survey administrator to say they had not received their pack and found that half had requested multiple packs and were denied after receiving the first pack because the offering is limited to one pack per home every three years.

The educational materials in the packs received high satisfaction ratings as well, with 91% of respondents either *very satisfied* (79%) or *somewhat satisfied* (12%). Only one respondent was *very dissatisfied* with the educational materials, reporting "Instructions were unclear/I had to consult additional sources (e.g., YouTube)."

Figure G-18 shows satisfaction ratings for all energy-efficient measures distributed through the Packs offering.[19] At least 71% of respondents were *very satisfied* for each pack measure. Consistent with previous surveys, respondents reported being more satisfied with general purpose and specialty LEDs than with water-saving measures.

Figure G-18. Measure Satisfaction – Packs Offering



Source: CY 2020 Packs Offering Participant Survey, Questions C4, C9, C14, C19, C24, C29, C34, C39, C44, D6, E5, F5, and G4. "How satisfied are you with the [MEASURE N/AME] you received?"

Satisfaction ratings were generally consistent between single-family and multifamily respondents. Two exceptions emerged when comparing multifamily survey responses in CY 2018 and CY 2020: multifamily participants were much more satisfied with advanced power strips (increase from 68% to 79% *very satisfied*) but less satisfied with the pipe wrap (decrease from 77% to 71% *very satisfied*). The lower satisfaction rating for pipe wrap may be attributable to the use of a 5-point scale in CY 2020 that

[19] For ease of interpretation, 9-watt and 11-watt LEDs were grouped as general purpose LEDs.

allowed a neutral response, *neither satisfied nor dissatisfied*, compared to the 4-point scale with no neutral option used in the CY 2018 survey.

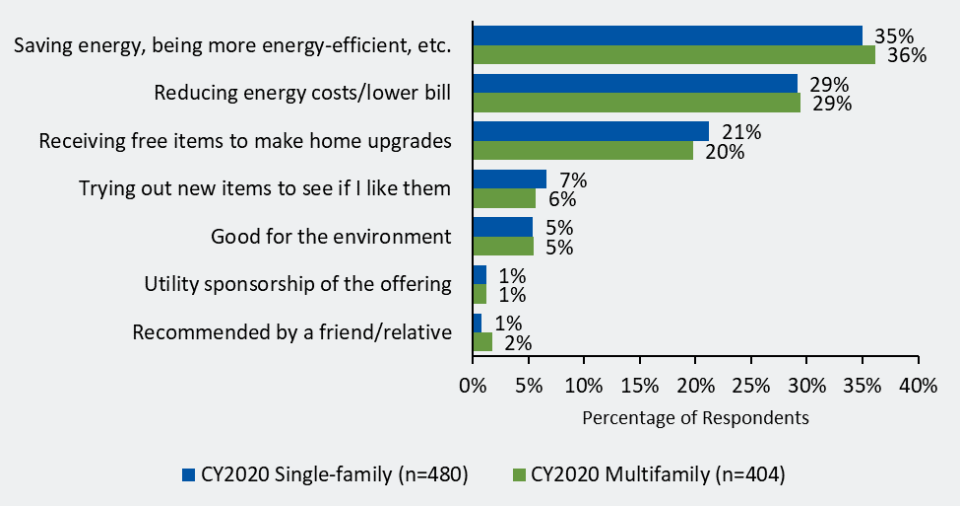
Among multifamily respondents, 13% said their property manager or owner would not allow them to install the pipe wrap from their packs. This contributed strongly to the large portion of respondents (20%) who were *neither satisfied nor dissatisfied* with their pipe wrap but did not affect pipe wrap satisfaction negatively (only 1% *somewhat dissatisfied*).

Only one multifamily respondent said the property owner or manager would not allow installation of the pack LEDs, showerhead, or faucet aerator.

Motivations and Decision-Making

As shown in Figure G-19, most survey respondents requested packs from Focus on Energy to save energy/be more energy-efficient (36%), followed by the desire to reduce energy costs (29%) and receive free items to make home upgrades (21%). Very few respondents were motivated to participate because of their utility's sponsorship of the Packs offering (1%) or a recommendation from family or friends (1%). Motivations for participation were not statistically significantly different between single-family and multifamily respondents.

Figure G-19. Motivation for Participating – Packs Offering



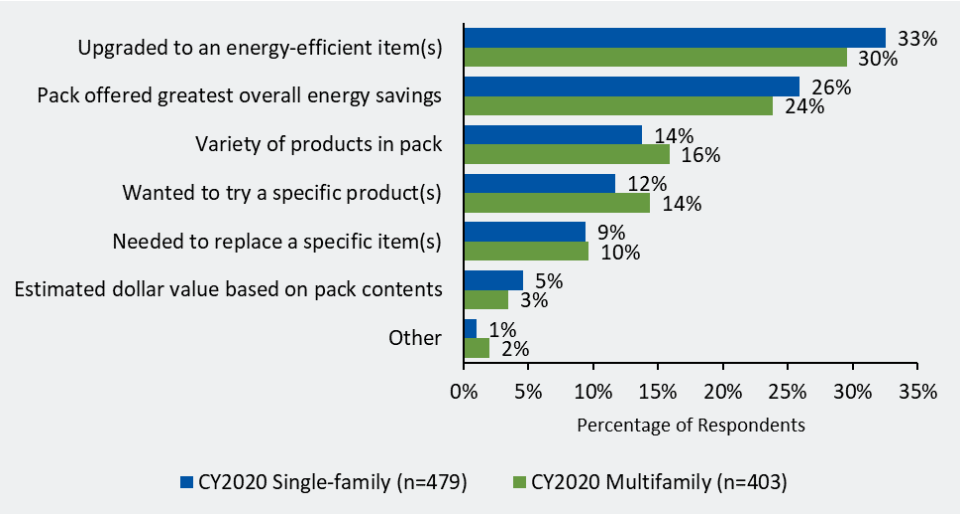
Source: CY 2020 Packs Offering Participant Survey, Question B4. "What factor was the most important motivation for you to order your Energy Saver Pack?"

Roughly two-thirds of respondents were motivated to request a specific pack type to upgrade existing items in their homes to energy-efficient versions (31%) because they thought the pack they ordered offered the greatest overall energy savings (25%) or because of the variety of products in the pack (15%). As shown in Figure G-20, single-family and multifamily respondents generally requested specific pack types for the same reasons.

Of the 13% of respondents who said they requested a specific pack type to try certain products, the evaluation team asked them to describe the items they most wanted to try. Respondents commonly

named items that were unique to the pack type they requested.[20] For example, respondents who requested a "Focus Pack with APS" typically wanted an advanced power strip over other energy-efficient measures in the pack. Respondents who requested a "Fixed Showerhead Pack" or "Hand Showerhead Pack" typically wanted a low-flow showerhead.

Figure G-20. Reasons for Requesting a Specific Pack Type – Packs Offering



Source: CY 2020 Packs Offering Participant Survey, Question B5. "What was the main reason you chose the specific pack you requested?"

Suggestions for Improvement

When prompted for additional feedback about the Packs offering at the end of the survey, nearly all respondents provided either positive feedback or no feedback. Just 2% (n=884) provided constructive criticism, including the following:

- **Ability to customize (n=4)**, or "mix and match," pack products
- **Annual participation (n=3)** in the Packs offering or, alternatively, a notification from Focus on Energy when a customer can participate again. Focus on Energy limits participation to once every three years.
- **More lighting options (n=6)**, including different wattages (or wattage equivalences) and color temperatures for general service and specialty LEDs
- Wider array of pack products (n=1)

[20] CY 2020 Packs Offering Participant Survey, Question B6. "Which specific products motivated you to choose the pack you requested? Select all that apply." Multiple responses allowed (n=484).

Demographics

Roughly 88% of respondents flagged as "single-family" in SPECTRUM reported living in single-family homes, while 81% of respondents flagged as "multifamily" reported living in multifamily residences, attached homes, university housing, or cooperative living or retirement communities.[21] This suggests that around 12% to 19% of participants may not be correctly identified in SPECTRUM. Though some respondents may have moved between when they received their packs and when they responded to the survey, it is not likely that such a large fraction would have done so.

As expected, home ownership varies widely by residence type: nearly twice as many single-family participants (95%) as multifamily participants (48%) own their homes.[22]

Most respondents use natural gas water heaters (63%). Multifamily respondents were significantly more likely to have electric water heaters (37%) than were single-family respondents (24%), whereas single-family respondents were significantly more likely to use natural gas (66%) or propane (9%) than were multifamily respondents (60% and 2%, respectively).[23] Similarly, most participants use natural gas to heat their homes (75% single-family, 70% multifamily). However, single-family respondents were much more likely to use propane (12%) than were multifamily respondents (3%), and multifamily respondents were much more likely to use electricity (23%) than were single-family respondents (6%).[24]

Figure G-21 shows the highest level of education completed by respondent type. Results were not statistically different between single-family and multifamily participants. Eighty percent of both participant types completed at least some college. Across all respondents, 43% held a bachelor's degree or higher, down slightly from the 49% in the CY 2017 single-family participant survey but higher than the U.S. Census Bureau's population estimate of 30% for Wisconsin in 2019.[25]

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[21] CY 2020 Packs Offering Participant Survey, Question Q3. "What type of home do you live in?" (n=883)

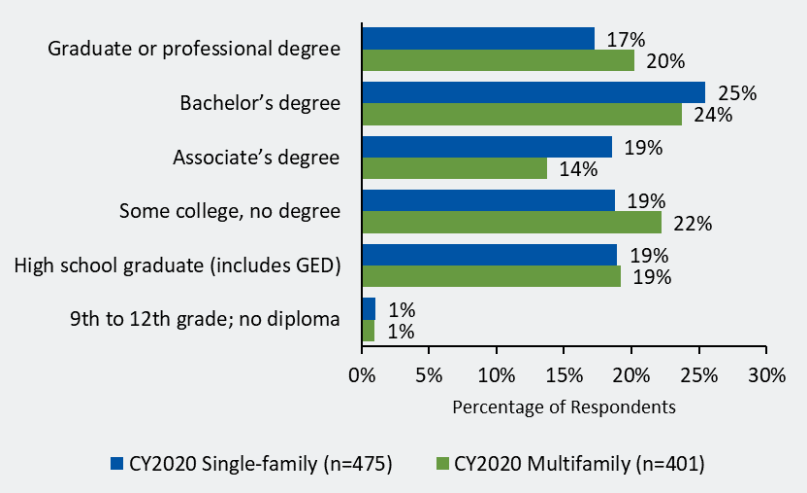
[22] CY 2020 Packs Offering Participant Survey, Question Q4. "Do you or members of your household own or rent this home?" (n=884)

[23] CY 2020 Packs Offering Participant Survey, Question Q1. "What type of fuel does your water heater use?" (n=827)

[24] CY 2020 Packs Offering Participant Survey, Question Q2. "What is the main type of fuel you use to heat your home?" (n=855)

[25] U.S. Census Bureau. "QuickFacts: Wisconsin." Accessed January 8, 2021. https://www.census.gov/quickfacts/WI.

Figure G-21. Highest Level of Education – Packs Offering



Source: CY 2020 Packs Offering Participant Survey, Question Q5. "What is the highest level of school that you have completed?" (n=876)

Direct to Customer Solution: Retail

In January 2021, the evaluation team surveyed Retail offering participants with valid email addresses who purchased a smart thermostat or e-tail (pop-up retail event) measures in CY 2020. E-tail customers purchased one of two types of bundled measures:

- LED 6-pack containing reflectors, candelabras, or globe LEDs
- LED Starter Kit (containing a variety of LEDs) or Energy and Water Saving Kit (containing LEDs, faucet aerators, and a showerhead)

Survey questions assessed respondents' experience with the offering and collected data to inform the NTG analysis. Of the 4,668 participants contacted, 777 completed the survey for a 17% response rate.

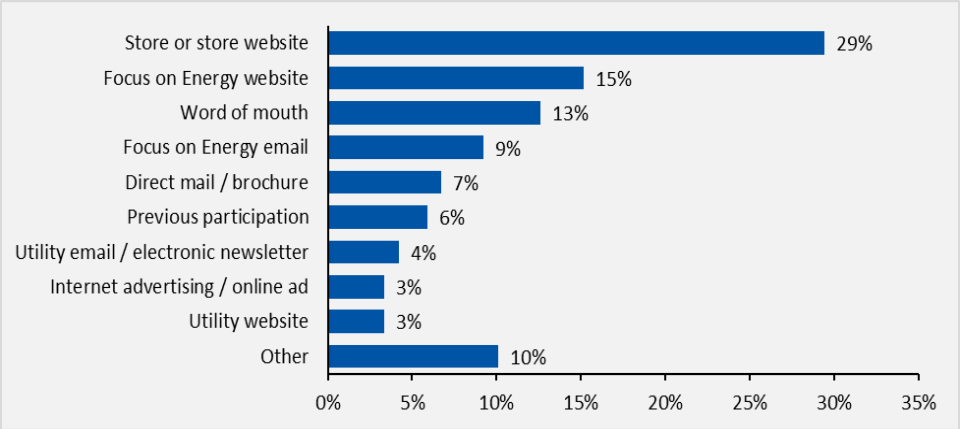
Participation Experience

Awareness

The survey asked smart thermostat participants how they learned about the offering's discounts.[26] As envisioned in the offering design, respondents most commonly learned about the discount from a retailer (29%, n=119). The second most common source was the Focus on Energy website (15%), which implies respondents were actively looking for offers. Figure G-22 shows the distribution of responses across smart thermostat respondents.

[26] E-tail respondents were not asked how they learned about the offering because they could only have been made aware of it by the event sponsor.

Figure G-22. Most Recent Sources of Offering Information (Smart Thermostat) – Retail Offering

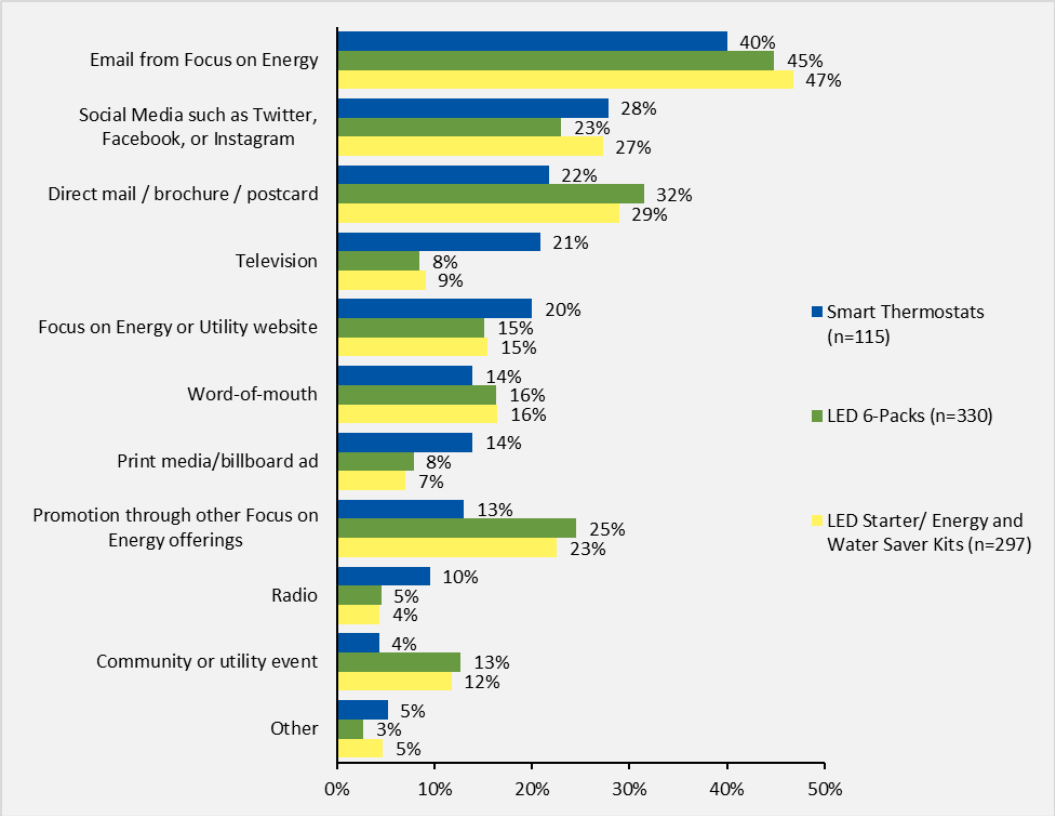


Source: CY 2020 Retail Offering Participant Survey, Question B1. "Where did you most recently hear about Focus on Energy's rebates for smart thermostats?" (n=119)

When asked about other sources of information about the offering, smart thermostat respondents most commonly indicated no other ways (40%, n=115) or a Focus on Energy website (12%) or utility website (9%).

The survey also asked all Retail offering respondents about the best way for Focus on Energy to inform them of energy efficiency offerings. Figure G-23 shows that the most preferred way was email from Focus on Energy.

Figure G-23. Best Method to Inform About Energy Efficiency Offerings – Retail Offering

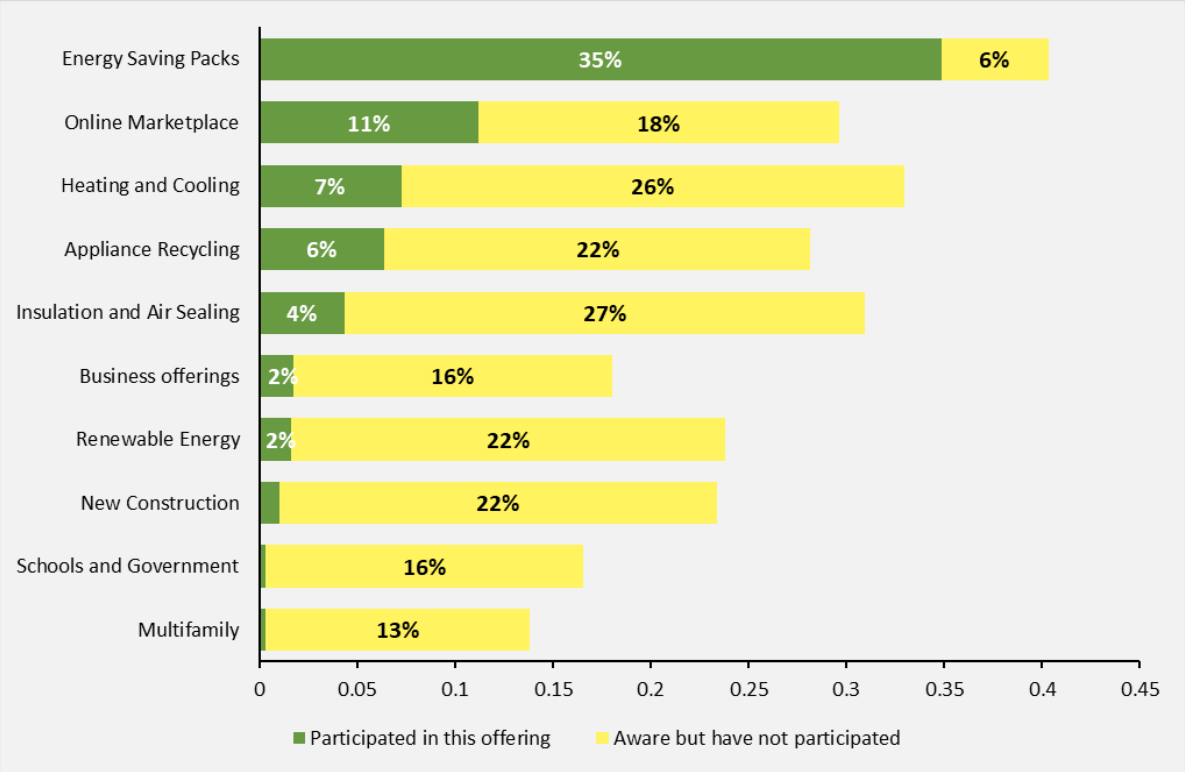


Source: CY 2020 Retail Offering Participant Survey, Question B3. "What is the best way for Focus on Energy to inform people about energy efficiency offerings?" Select all that apply.

When asked if they were aware of other Focus on Energy offerings, most Retail offering respondents (58%, n=689) said they were not familiar with any. Among those who were aware of other offerings, the Packs offering was the most familiar by far, with 35% of all respondents having participated, and another 6% aware of it but not having participated. Respondents were less familiar with other offerings. Between 28% and 31% reported they had participated in, or were aware of, the Online Marketplace, Heating and Cooling, Appliance Recycling, or Insulation and Air Sealing offerings, and between 14% and 24% were aware of the renewable and nonresidential offerings.

Figure G-24 shows the distribution of awareness and participation in other Focus on Energy offerings, including the percentage of Retail respondents not aware of any other offerings. In total, 42% of respondents (n=689) had participated in, or were aware of, at least one other Focus on energy offering.

Figure G-24. Awareness of Other Offerings – Retail Offering



Source: CY 2020 Retail Offering Participant Survey, Question C3. "For the Focus on Energy offerings listed below, please indicate which ones you are aware of and which you have participated in." Multiple responses allowed. (n=689) Note: Unlabeled segments represent 3% or less of measure respondents.

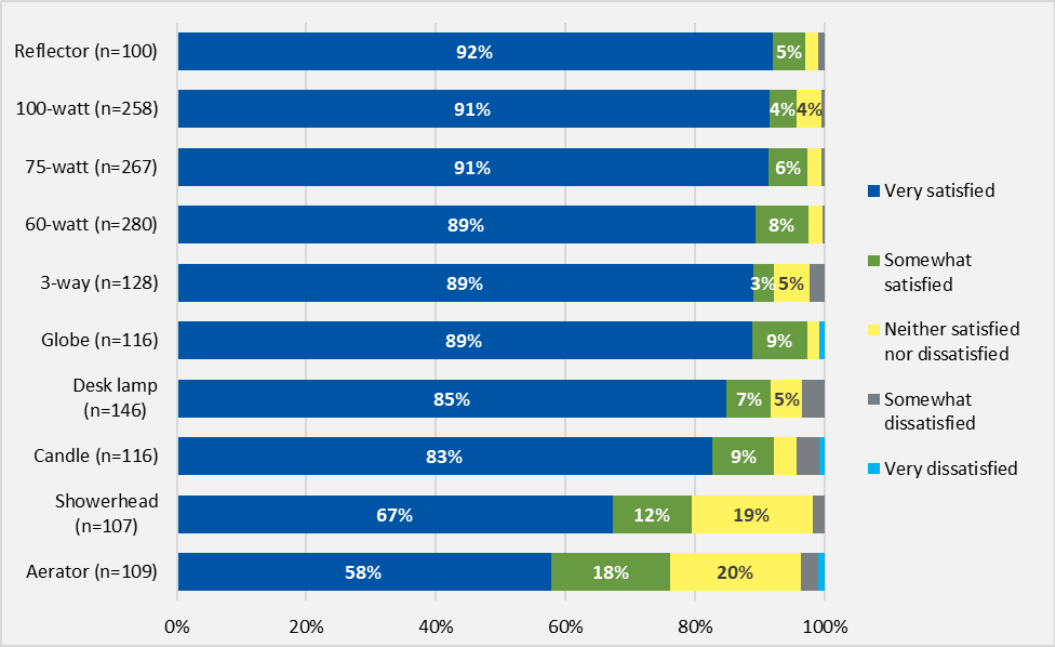
Satisfaction

Cadmus asked e-tail respondents about their satisfaction with the items they purchased through the online retail event. Overall, respondents were *very satisfied,* especially with LEDs, as shown in Figure G-25. Satisfaction ratings across reflectors, general purpose LEDs, and globe LEDs were not statistically different. The percentage of respondents who were *very satisfied* with desk lamps and candle LEDs was significantly less than for reflectors, 16-watt general purpose LEDs, and 11-watt general purpose LEDs.

The percentage of respondent who were *very satisfied* with either showerheads or faucet aerators was significantly less than for lighting measures. The difference in reported satisfaction across these two low-flow items was not statistically significant.

Few respondents reported issues with the products they received. For desk lamps, the most common was not liking the desk lamp design (4%, n=146). All but one respondent was *somewhat satisfied* with the lamp. The most common issues for candle LEDs were that the bulbs did not fit well in fixtures (5%, n=116) and did not work properly or broke (5%). Showerhead and faucet aerator participants mostly reported not liking the water pressure (9%, n=107 and 11%, n=109, respectively.)

Figure G-25. Satisfaction with Measures – Retail Offering

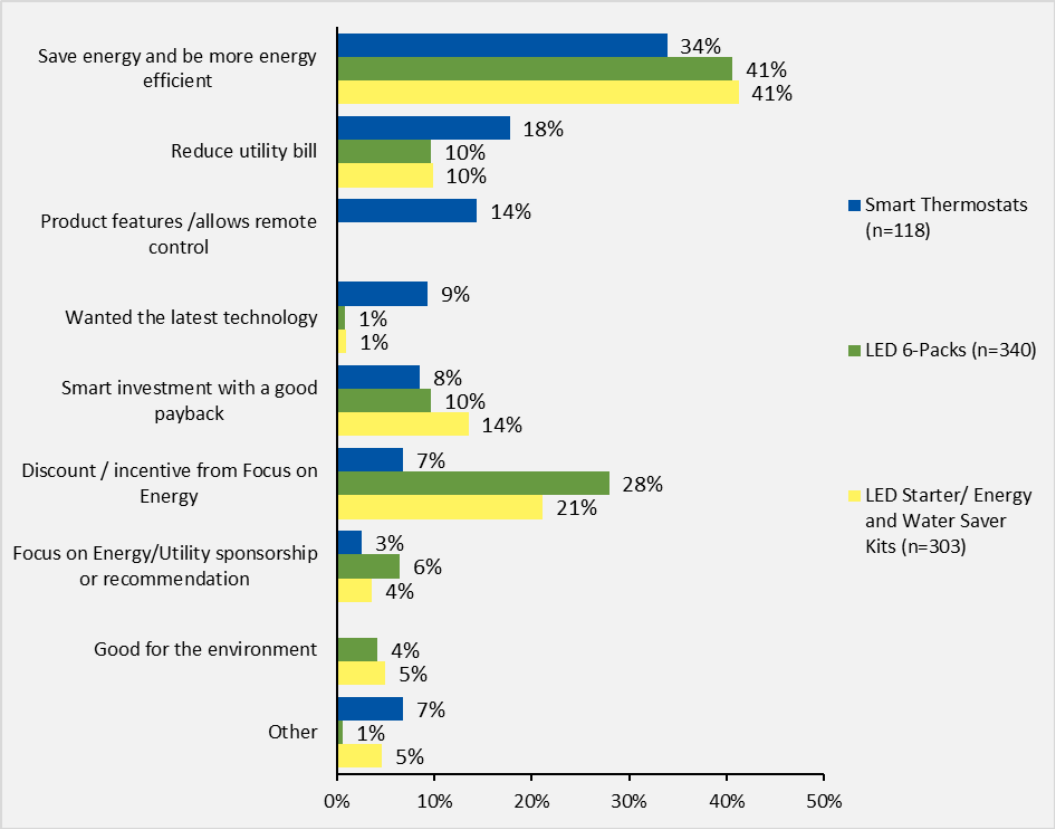


Source: CY 2020 Retail Offering Participant Survey, Question F5, F11, F17, F23, F29, G6, H5. "How satisfied are you with the [MEASURE] you received?" Note: Unlabeled segments represent 3% or less of measure respondents.

Motivations and Decision-Making

Motivations for purchasing a smart thermostat differed significantly from motivations for purchasing the e-tail kits or LED 6-packs, as shown in Figure G-26. Though respondents across all measures were most motivated to save energy and be more efficient, this was more common among e-tail respondents (41%) than smart thermostat respondents (34%). Smart thermostat respondents were more likely than e-tail respondents to want to reduce their utility bill and obtain the latest technology. E-tail respondents were more likely than smart thermostat respondents to want the Focus on Energy discount.

Figure G-26. Motivation for Selecting Measure – Retail Offering



Source: CY 2020 Retail Offering Participant Survey, Question C1.
"What was the most important reason you purchased your [MEASURE]?"

Smart Thermostat Experience

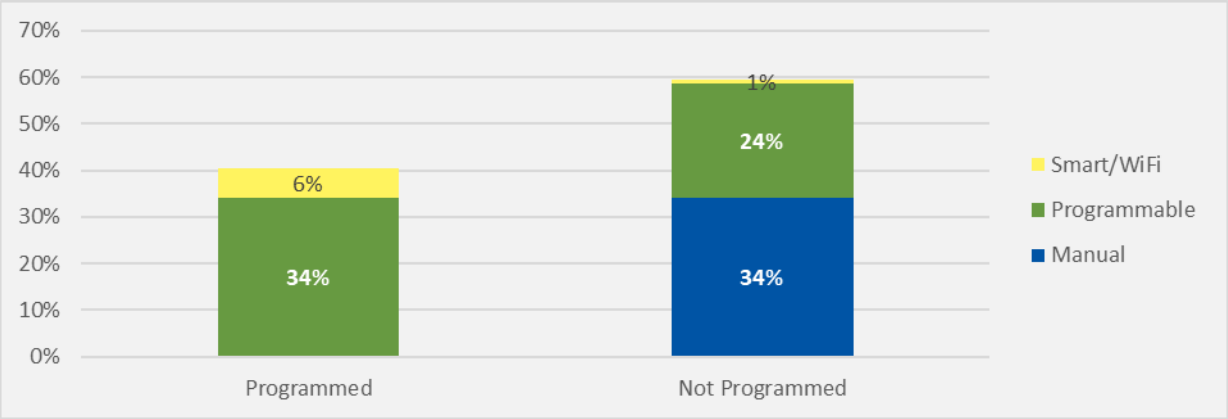
The survey asked smart thermostat participants a number of additional questions to better understand their experience purchasing, installing, and using these devices.

Most respondents installed the smart thermostat themselves (85%, n=113), 10% said a nonparticipating contractor helped them install it, and 4% used a participating trade ally. Respondents experienced few problems with installation; 94% (n=119) said they had no problems with the physical installation, and 96% (n=117) said they had no problems downloading or installing the app. Seventy-six percent (n=114) controlled the thermostat with an electronic device, and the remainder controlled it manually.

Most respondents used the smart thermostat with a furnace (92%, n=114), and 71% used it with a furnace and central air conditioner. Most furnaces controlled by smart thermostats used natural gas (92%, n=99). Eleven percent of respondents reported using other equipment, such as a boiler, air-source heat pump, or baseboard heat. One respondent said the thermostat controlled the humidifier.

As shown in Figure G-27, most Focus on Energy smart thermostats (60%, n=112) replaced a nonprogrammed thermostat, though 66% of replaced thermostats had some kind of programming capability.

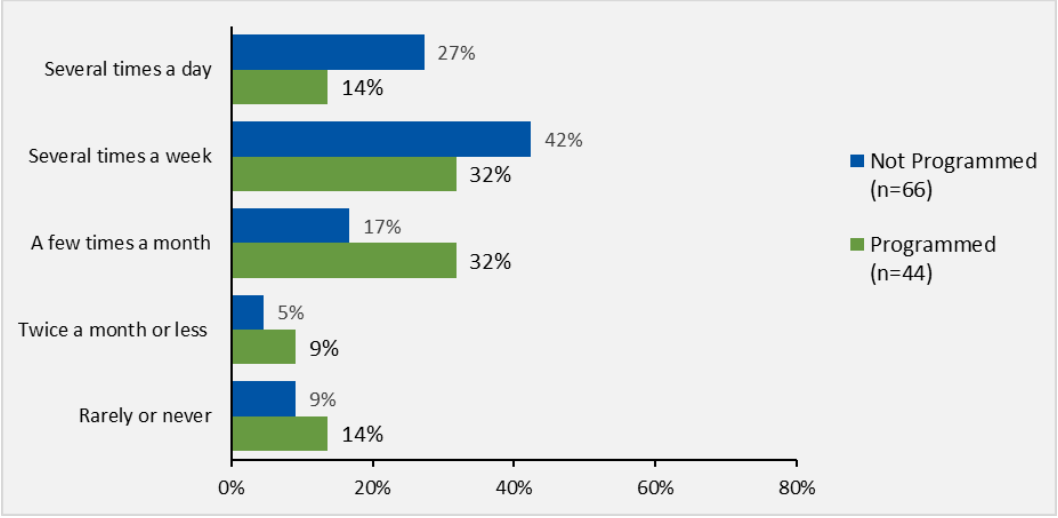
Figure G-27. Programming of Previous Thermostat – Retail Offering



Source: CY 2020 Retail Offering Participant Survey, Question D8, "D8. What kind of thermostat did you use before you purchased your smart thermostat?" and Question D9, "Was your previous thermostat programmed to adjust your home's temperature based on your daily schedule?" n=111.

Most respondents (70%, n=66) who had not programmed their previous thermostat manually adjusted it several times a week or more. In comparison, 45% of respondents who reported programming their previous thermostat also manually adjusted it several times a week or more (Figure G-28).

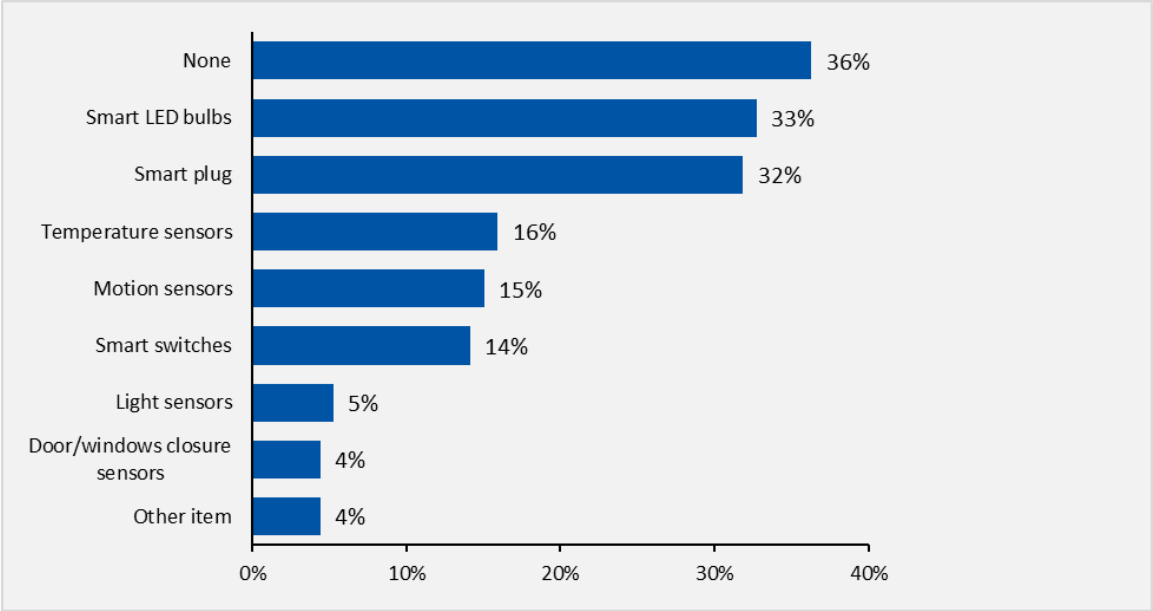
Figure G-28. Frequency of Manual Adjustments of Replaced Thermostats – Retail Offering



Source: CY 2020 Retail Offering Participant Survey, Question D10.
"How often did you manually adjust your previous thermostat to control the temperature?"

Thirty-six percent of respondents (n=113) were not using any other Wi-Fi–enabled devices to save energy, but the remainder used at least one type of device (Figure G-29). The most common devices were smart LED bulbs and smart plugs. The least common included motorized shades, laundry appliances, kitchen appliances, and doorbell (combined in Other item).

Figure G-29. Wi-Fi–Enabled Devices Used by Smart Thermostat Participants – Retail Offering

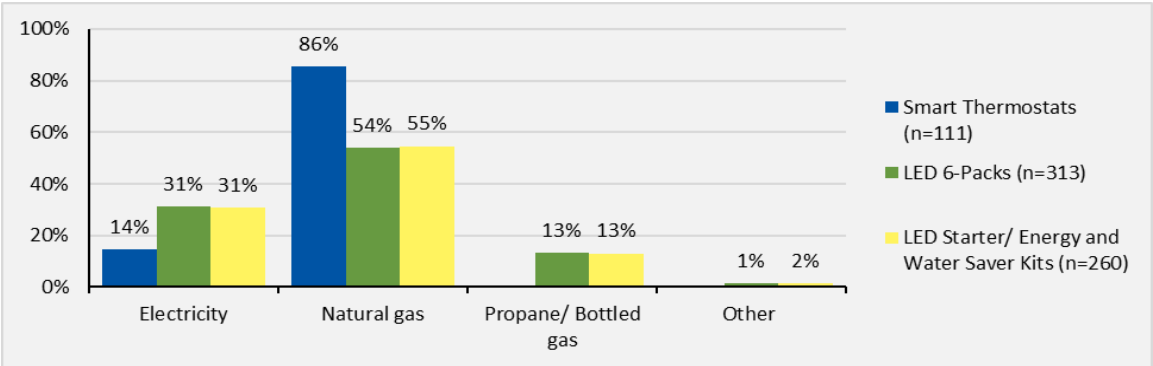


Source: CY 2020 Retail Offering Participant Survey, Question D16. "What other Wi-Fi connected devices that help save energy do you have installed in your home?" n=113.

Demographics

As shown in Figure G-30, natural gas was the most common water heating fuel across all respondents. Natural gas water heaters were more common for smart thermostat respondents than for other respondents. Other fuels to heat water were primarily electric, followed by propane.

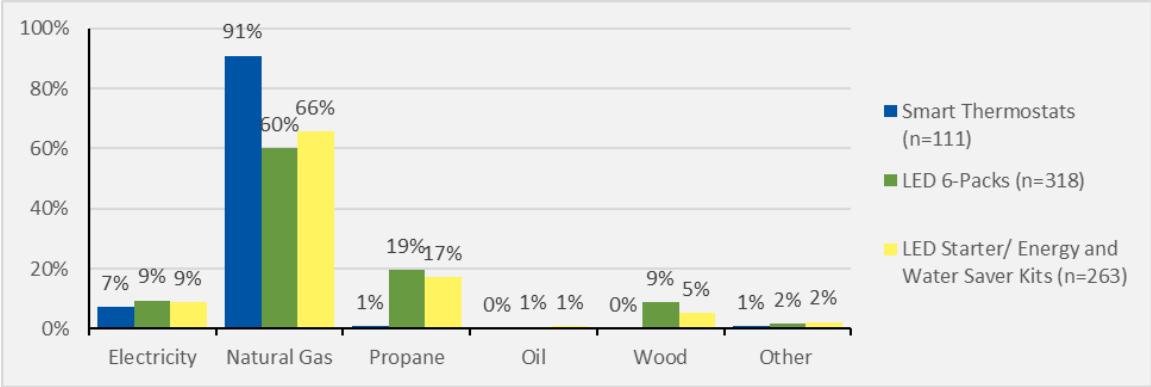
Figure G-30. Water Heating Fuel Type – Retail Offering



Source: CY 2020 Retail Offering Participant Survey, Question N1. "What type of fuel does your water heater use?"

Figure G-31 shows the distribution of fuel for space heating. Again, natural gas was the most common fuel across all participants but more common for smart thermostat respondents. Other respondents used propane heaters, followed by electricity or wood.

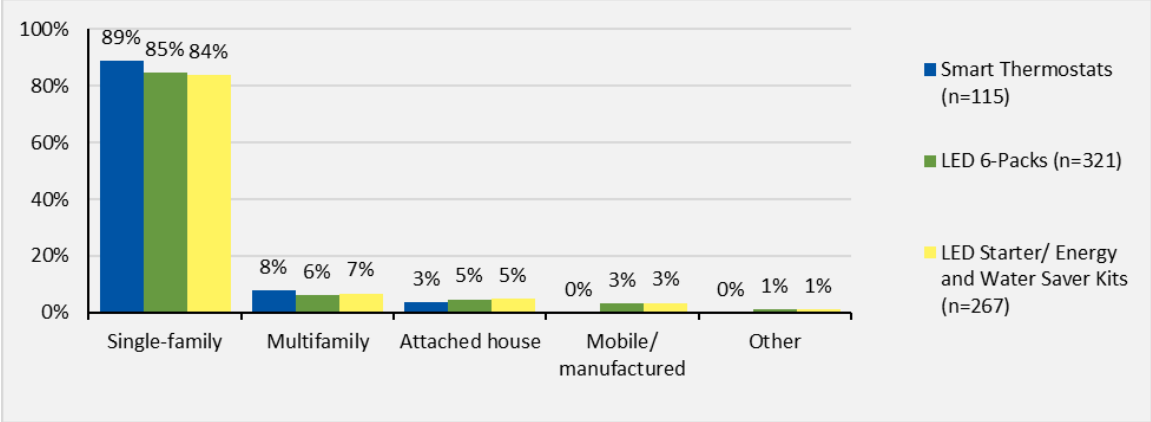
Figure G-31. Space Heating Fuel Type – Retail Offering



Source: CY 2020 Retail Offering Participant Survey, Question N2. "What is the main type of fuel you use to heat your home?"

Across all three types of retail participants surveyed, 84% or more lived in a single-family home. Distribution across home types was not statistically different by measure (Figure G-32).

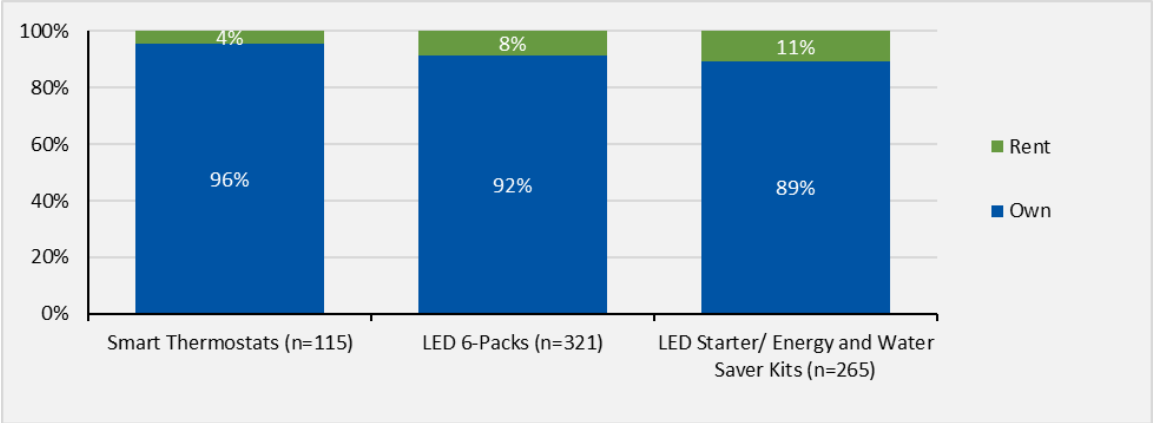
Figure G-32. Home Type – Retail Offering



Source: CY 2020 Retail Offering Participant Survey, Question N3. "What type of home do you live in?"

Respondents who purchased LED Starter and Energy and Water Saving kits were slightly more likely to say they rent their home than respondents who purchased an LED 6-pack or smart thermostat, but the differences were not statistically significant. Across all measures, most respondents owned their home (Figure G-33).

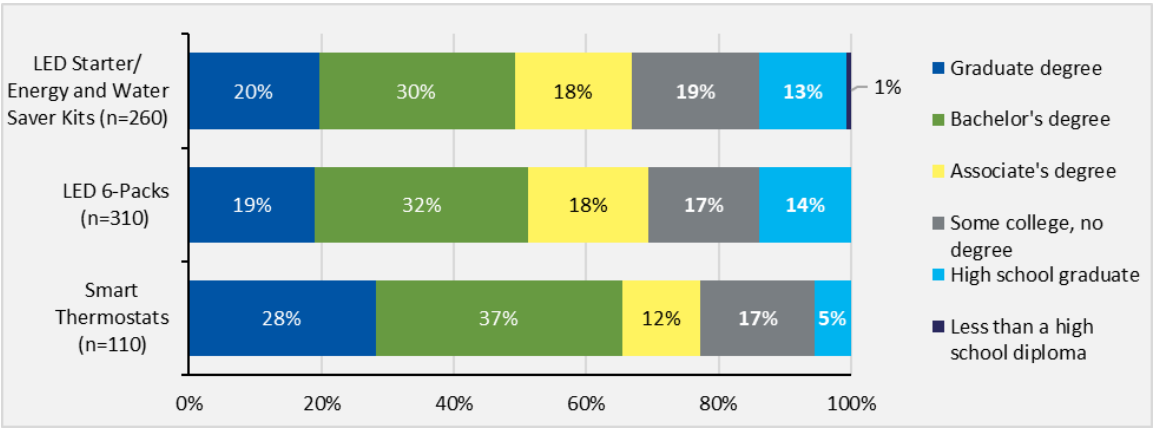
Figure G-33. Home Ownership – Retail Offering



Source: CY 2020 Retail Offering Participant Survey, Question N4.
"Do you or members of your household own or rent this home?"

Smart thermostat respondents were more likely to have a bachelor's degree or more education compared to respondents who purchased the e-tail measures. Distribution of education was similar across the e-tail measures types (Figure G-34).

Figure G-34. Highest Level of Education – Retail Offering



Source: CY 2020 Retail Offering Participant Survey, Question N4.
"What is the highest level of school that you have completed?"

Trade Ally Solution: Heating and Cooling

In December 2020, the evaluation team contacted a random sample of CY 2020 Heating and Cooling offering participants to assess their experience. Of the 2,573 participants contacted, 446 participants (286 Tier 1 and 160 Tier 2) completed the survey for a 17% response rate.[27]

[27] Tier 1 offers incentives to all homeowners. Tier 2 offers enhanced incentives to homeowners with a household income at or below 80% of the state median income.

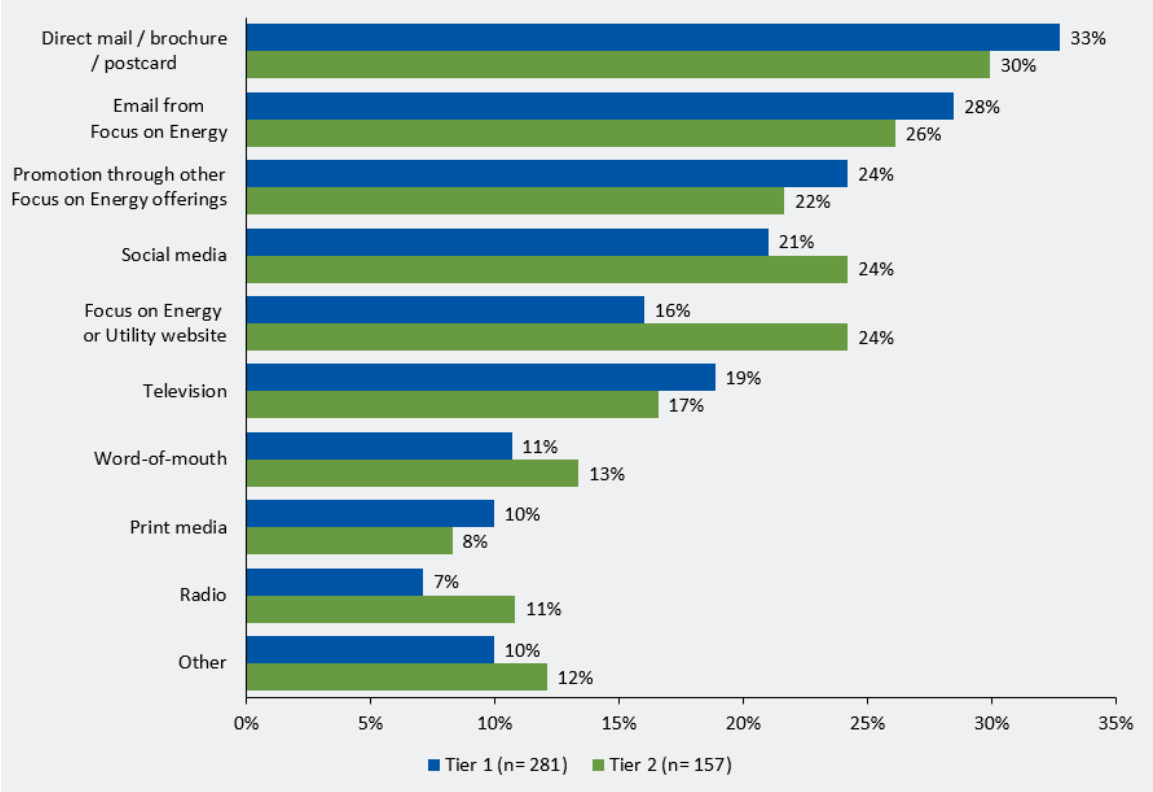
Participation Experience

Awareness

Cadmus asked respondents questions about their awareness of the offering. Both Tier 1 (58%, n=285) and Tier 2 (48%, n=160) participants said they most frequently heard about the Heating and Cooling offering through an installer, contractor, or trade ally. The second and third most common sources were a Focus on Energy email (11% Tier 1, 9% Tier 2) and the Focus on Energy website (7% Tier 1, 12% Tier 2). Other less common sources included previous participation in another Focus on Energy offering, word of mouth, and a utility bill insert, direct mail, brochure, or postcard.

Respondents were also asked what they thought was the best way for Focus on Energy to inform people about energy efficiency offerings. Across all respondents, direct mail was the most preferred, followed by emails from Focus on Energy. Tier 1 respondents said the next best channels were promotion through other Focus on Energy offerings and social media, while Tier 2 participants next preferred social media and the Focus on Energy or utility website. Figure G-35 shows the breakdown of responses by customer type.

Figure G-35. Best Ways to Inform about Energy Efficiency Offerings – Heating and Cooling Offering



Source: CY 2020 Heating and Cooling Offering Participant Survey, Question QC6. "What is the best way for Focus on Energy to inform people about energy efficiency offerings?" Select all that apply. "Other" includes response options which were selected by less than 8% of total respondents.

Awareness of Other Offerings

Respondents were also asked about their awareness of other Focus on Energy offerings and what offerings they may have participated in. Fifty-nine percent of respondents said they were aware of other Focus on Energy offerings or rebates (n=425). As shown in Figure G-36, the most common offering respondents had previously participated in was the Energy Savings Packs offering (78%, n=247). Responses were generally similar between Tier 1 and Tier 2 participants.

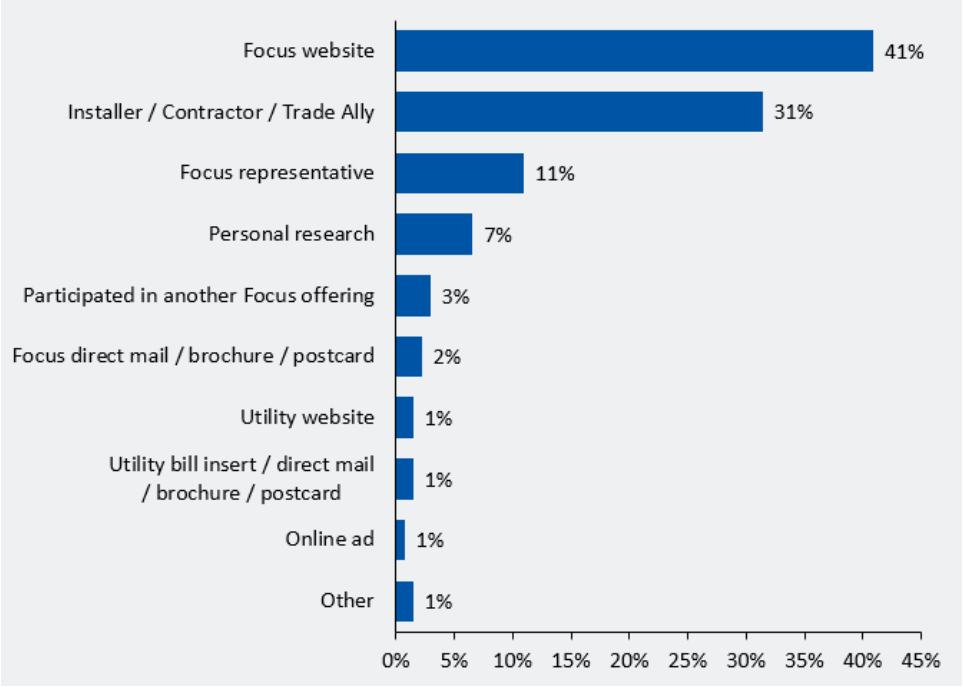
Figure G-36. Awareness of Other Offerings – Heating and Cooling Offering

Focus on Energy Offerings	Participated in this offering	Aware but have not participated	Not aware of this offering
Energy Saving Packs (n=247)	78%	18%	4%
Insulation and Air Sealing (n=241)	15%	62%	23%
New Construction (n=231)	2%	63%	35%
Online Marketplace (n=237)	16%	51%	32%
Multifamily (n=231)	1%	34%	65%
Renewable Energy (n=234)	3%	55%	43%
Appliance Recycling (n=243)	19%	51%	30%
Business offerings (n=226)	2%	36%	62%
Schools and Government (n=228)	1%	30%	69%
Pop-up Events (n=233)	3%	24%	73%
Retail Discounts (n=238)	18%	41%	42%

Tier 2 Awareness

Cadmus asked the 160 respondents identified as Tier 2 participants about their awareness that Tier 2 has a higher incentive than Tier 1. Eighty-eight percent of Tier 2 respondents said they were aware they received higher incentives before taking the survey (n=156). In addition, 92% said they were already interested in the Heating and Cooling incentives before they learned they were eligible for higher incentives (n=133). As shown in Figure G-37, respondents identified the Focus on Energy website as the most common source of awareness about Tier 2 incentives (n=137). Other sources were installers, contractors, trade allies, and Focus on Energy representatives (more than 10% of respondents each).

Figure G-37. Tier 2 Incentive Awareness Sources – Heating and Cooling Offering



Source: CY 2020 Heating and Cooling Offering Participant Survey, Question QE3. "How did you learn that you qualified for the higher incentives?" Selected Choice (n=137).

Impact of COVID-19

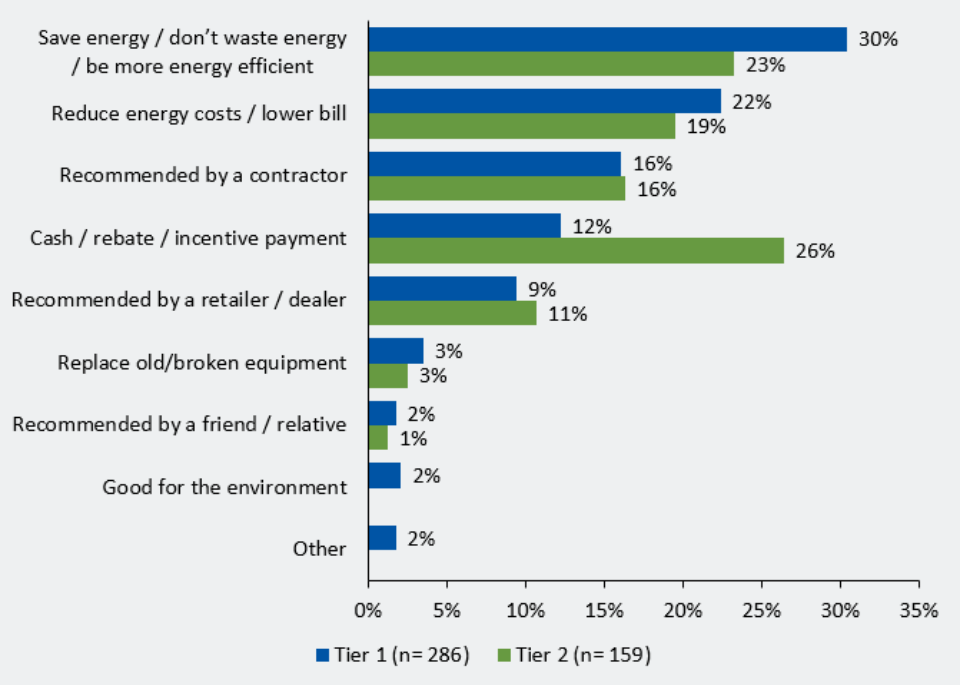
Cadmus asked all respondents about the impact of the COVID-19 pandemic on their energy usage and participation in the offering. Sixty-four percent said they did not notice an increase in their home energy usage due to COVID-19 guidelines of sheltering in place (n=393), and 75% said they were not motivated to participate in the Heating and Cooling offering as a result of a change in their home energy usage. Additionally, 98% of respondents reported no challenge in securing the model or brand of equipment they wanted to install (n=95 and n=284, respectively). Of the six respondents who did experience an issue securing the model or brand of equipment they wanted, five said they were aware the issue was due to a supply chain disruption caused by COVID-19.

When asked about their satisfaction with their contractor's sensitivity toward social distancing and contact, 93% of respondents said they were *very* or *somewhat satisfied* with their contractor's sensitivity (n=290). Only two respondents were *somewhat dissatisfied* with their contractor's sensitivity, and both said the contractor did not wear a mask and/or maintain physical distancing.

Motivations and Decision-Making

As shown in Figure G-38, Tier 1 respondents most frequently cited saving energy and reducing energy costs as their primary motivations for participating in the Heating and Cooling offering. Tier 2 respondents were most motivated by the incentive and saving energy.

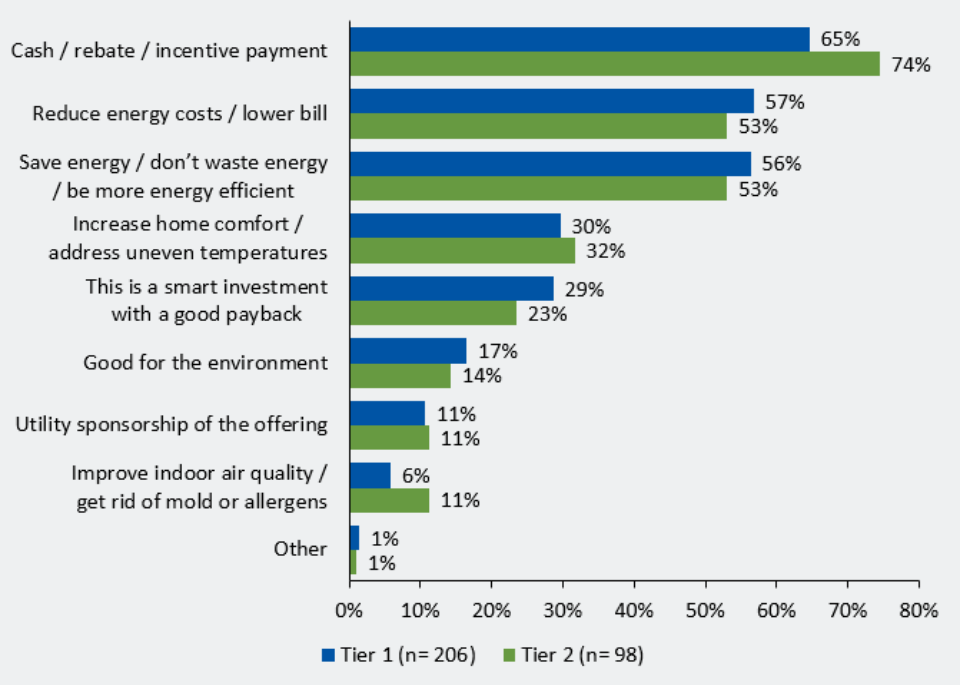
Figure G-38. Motivation for Participating – Heating and Cooling Offering



Source: CY 2020 Heating and Cooling Offering Participant Survey, Question QC2. "What factor was the most important motivation for you to participate in the Heating and Cooling Offering?" Selected Choice. Only responses that account for at least 1% are shown.

Respondents also reported the benefits their contractor or installer mentioned that convinced them to participate. The most commonly mentioned benefit by all participants was the incentive payment, followed by reducing energy costs and saving energy. All responses were similarly ranked by Tier 1 and Tier 2 participants. Figure G-39 shows the breakdown of responses by customer type.

Figure G-39. Benefits of Participation – Heating and Cooling Offering

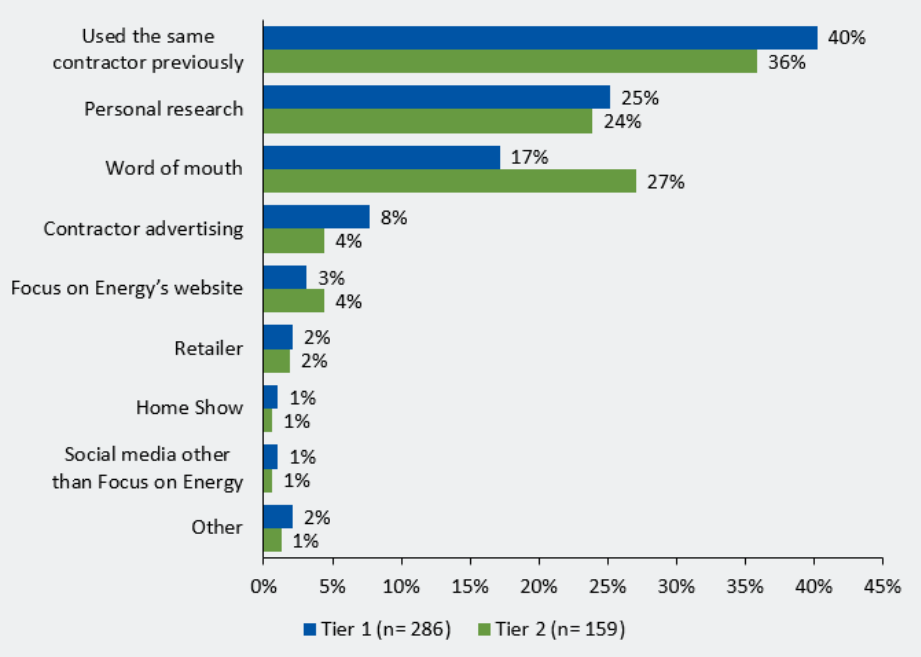


Source: CY 2020 Heating and Cooling Offering Participant Survey, Question QC5. "What benefits did the contractor or installer mention that convinced you to participate in the Heating and Cooling Offering?" Select all that apply.

Application Process and Trade Ally Involvement

When asked about how they found the contractor who installed their equipment, the most common response by all respondents was they had used the same contractor previously. Personal research and word of mouth were the next most common sources, though personal research was more common from Tier 1 participants and word of mouth was more common from Tier 2 participants. Figure G-40 shows the breakdown of responses by customer type.

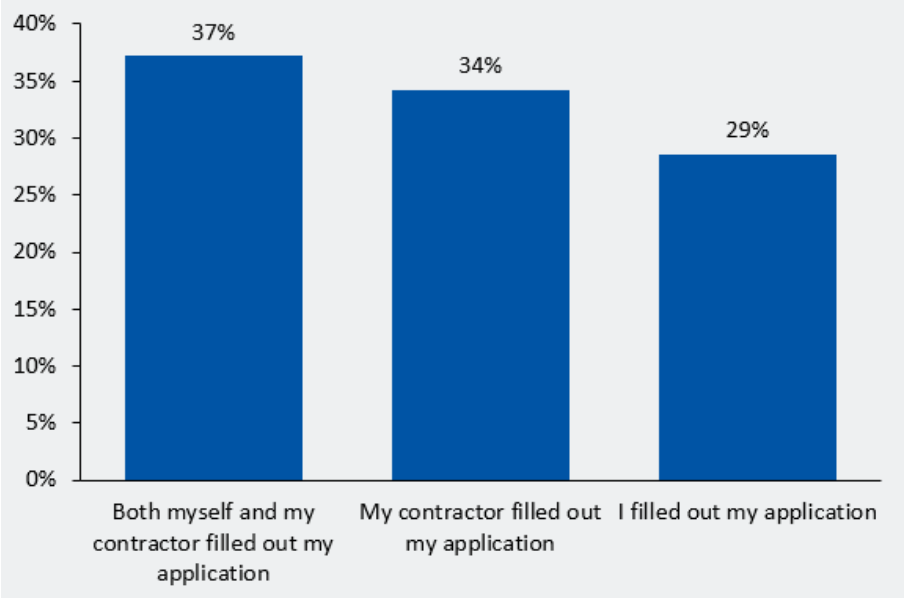
Figure G-40. Sources for Finding Contractor – Heating and Cooling Offering



Source: CY 2020 Heating and Cooling Offering Participant Survey, Question QD1. "How did you find the contractor who installed your new equipment?" Selected Choice. Only responses that account for at least 1% are shown.

As shown in Figure G-41, nearly the same number of respondents either filled out the rebate application with their contractor or the contractor filled out the application. A slightly lower percentage of respondents filled out the application alone.

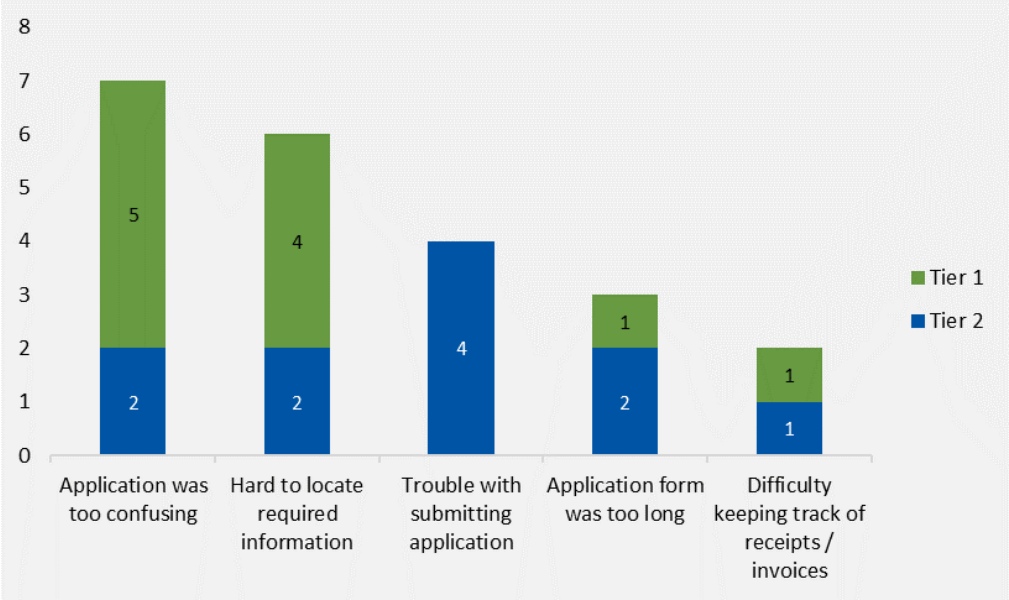
Figure G-41. Filling Out Rebate Application – Heating and Cooling Offering



Source: CY 2020 Heating and Cooling Offering Participant Survey, Question QD5. "Did you or your contractor fill out the application to receive your rebate?" Selected Choice (n=441).

Eighty-four percent of respondents who filled out or helped fill out the application said the application was either *very* or *somewhat easy* to fill out (42% each, n=290). Responses were similar across both tiers. Respondents who said filling out the application was either *somewhat* or *very difficult* were asked to specify what was difficult. As shown in Figure G-42, Tier 1 respondents were most likely to report that the application form was too confusing and they had difficulty locating the required information. Tier 2 respondents were more likely to report having trouble submitting the application.

Figure G-42. Application Process Difficulties – Heating and Cooling Offering



Source: CY 2020 Heating and Cooling Offering Participant Survey, Question QD7.
"Can you let us know why filling out the application was not very easy?" Select all that apply (n=17).

Energy Use Attitudes

Respondents were also asked to rate statements that express varying attitudes about energy use, using a 5-point scale ranging from *strongly agree* to *strongly disagree*. As shown in Figure G-43, most respondents agreed they try to save energy to lower their bill (92%, n=446). Respondents also indicated they are interested in improving their home's efficiency, with most disagreeing with the statement that they are not (83%, n=417). Responses were similar between Tier 1 and Tier 2 respondents with two exceptions:

- 49% of Tier 1 respondents (n=286) said they *strongly agree* with the statement, "I try to save energy to lower my energy bill," compared to 62% of Tier 2 respondents (n=160).
- 40% of Tier 1 respondents (n=278) said they *strongly disagree* with the statement, "It is too expensive to be efficient at home," compared to 28% of Tier 2 respondents (n=158).

Eighty-five percent of respondents reported feeling very or somewhat informed about all the ways they can save energy, including buying and using energy-efficient appliances and equipment (n=446). In addition, 76% of respondents said they pay either very close attention or a fair amount of attention to the amount of energy (gas or electric) they use in their home (n=446). Responses to these questions were similar between Tier 1 and Tier 2 participants.

Figure G-43. Energy Use Attitudes – Heating and Cooling Offering

Energy Use Attitudes	Strongly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree
I try to save energy to lower my energy bill (n=446)	53%	39%	5%	1%	2%
Keeping the home comfortable is more important than saving on my bill (n=446)	9%	35%	33%	19%	4%
I've tried a few things to save energy, but have not seen any real savings on my energy bill (n=431)	5%	20%	36%	22%	16%
It is important to conserve resources to be more environmentally friendly (n=444)	54%	32%	10%	2%	2%
I prefer to use the most advanced technologies available to control my energy use (n=441)	17%	42%	30%	9%	2%
I am willing to pay more for efficient products that will save me money in the long term (n=445)	40%	47%	9%	2%	2%
I am willing to pay more for efficient products that are more environmentally friendly (n=445)	26%	47%	19%	6%	2%
Energy efficient improvements increase my home's comfort (n=446)	39%	38%	19%	3%	1%
I'm not interested in improving my home's efficiency (n=417)	5%	6%	7%	16%	67%
I wish Focus on Energy would give me more options to help manage my energy usage (n=442)	21%	31%	43%	3%	2%
It is too expensive to be efficient at home (n=436)	2%	14%	23%	25%	36%

Suggestions for Improvement

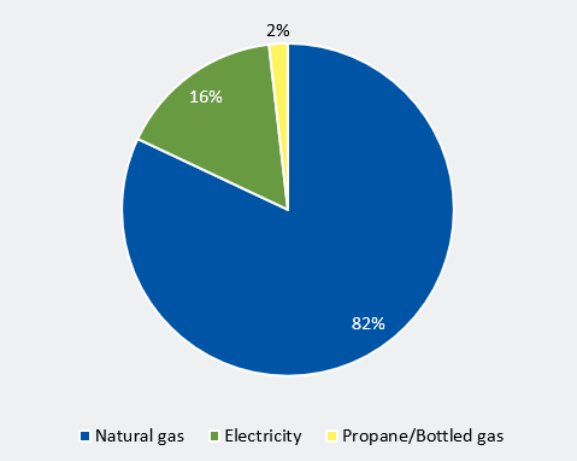
At the end of the survey, respondents were asked for additional feedback regarding the Heating and Cooling offering. Sixty-eight percent of respondents had either no feedback or positive feedback. Feedback from the other 32% of respondents is categorized as follows:

- **Additional measures (n=8)**, specific suggestions included additional ENERGY STAR water heaters, solar equipment, and additional smart thermostats
- **Higher rebates (n=8)**
- **Improve communication (n=6)**, including continuing to send information on rebates, making information readily available to customers, and expanding channels of awareness about the offering
- **Improve application process (n=3)**, especially in cases where the application has been rejected or not yet processed
- **Better quality equipment (n=3)**, specifically in relation to thermostats

Demographics

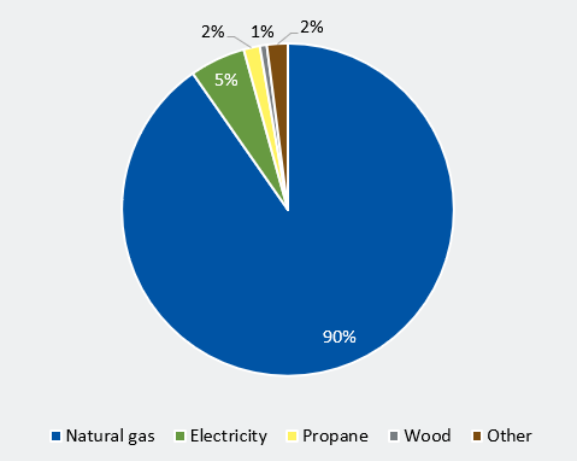
Lastly, participants were asked questions about their household. As shown in Figure G-44, most respondents used natural gas to fuel their water heater. Similarly, Figure G-45 shows that respondents also primarily used natural gas for heating their home (90%, n=443).

Figure G-44. Water Heater Fuel Type – Heating and Cooling Offering



Source: CY 2020 Heating and Cooling Offering Participant Survey, Question QJ1. "What type of fuel does your water heater use?" Selected Choice (n=441).

Figure G-45. Home Fuel Type – Heating and Cooling Offering

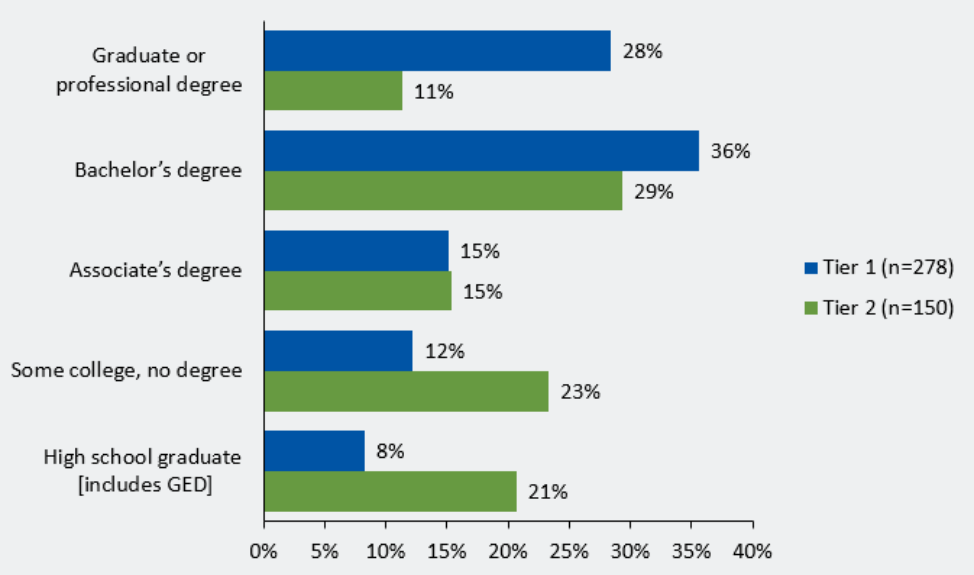


Source: CY 2020 Heating and Cooling Offering Participant Survey, Question QJ2. "What is the main type of fuel you use to heat your home?" Selected Choice (n=443).

Most respondents reported living in single-family detached houses (94%), followed by attached townhouses, row houses, or duplexes (3%) and other styles of homes (3%). All but two of the 446 respondents owned their home; two said they rented their home.

Participants reported the level of school they had completed. As shown in Figure G-46, a higher percentage of Tier 1 respondents completed a bachelor's or graduate or professional degree, while a higher percentage of Tier 2 respondents were a high school graduate or completed some college.

Figure G-46. Highest Level of Education – Heating and Cooling Offering



Source: CY 2020 Heating and Cooling Offering Participant Survey, Question QJ7.
"What is the highest level of school that you have completed?"
Selected Choice (n=428). Only responses that account for at least 1% are shown.

Trade Ally Solution: Insulation and Air Sealing

In October and November 2020, the evaluation team contacted a random sample of CY 2020 Insulation and Air Sealing offering participants to assess their experiences with the offering. Of the 1,148 participants contacted, 152 participants (123 Tier 1 and 29 Tier 2) completed the survey for a 13% response rate. Due to the number of completes for Tier 2 respondents, findings should be viewed as qualitative information and may not represent the population of participants.

Participation Experience

Awareness

The survey asked respondents questions about their awareness of the offering. Tier 1 respondents most commonly reported learning about the offering through installers, contractors, and trade allies (56%), followed by a Focus on Energy email (6%), and the Focus on Energy website (5%, n=118). Tier 2 respondents most commonly reported learning about the offering through word of mouth (29%), a utility bill insert, direct mail, brochure, or postcard (21%), and through installers, contractors, and trade allies (11%, n=28). When asked if there were other sources of awareness among respondents, 56% of Tier 1 respondents and 52% of Tier 2 respondents said that there were no other ways.

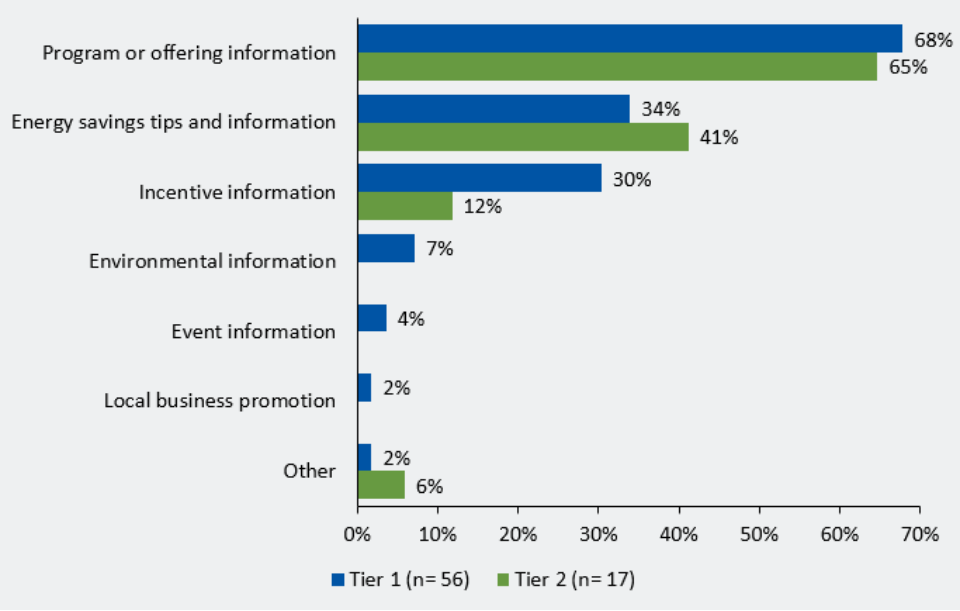
Marketing

Six percent of respondents said they had viewed Focus on Energy posts on social media (n=150). Of these respondents, 80% had viewed the posts on Facebook (n=5), and 100% said they found the social media content helpful or useful (n=8).

Respondents were also asked on what social media platforms they would prefer to see Focus on Energy content. Sixty percent identified Facebook as a preferred platform, followed by 12% preferring Instagram and 11% preferring other platforms (n=107). Twenty-three percent of respondents said there were no social media platforms they preferred to see content on.

When asked what type of content they would like to see more of on social media from Focus on Energy, both Tier 1 and Tier 2 respondents most preferred information about the offering. Tier 1 participants were about equally interested in also seeing energy-saving tips and information on the offering and the incentive, while Tier 2 respondents were more interested in seeing energy-saving tips than incentive information. Figure G-47 shows the breakdown of responses by tier type.

Figure G-47. Preferred Social Media Content – Insulation and Air Sealing Offering

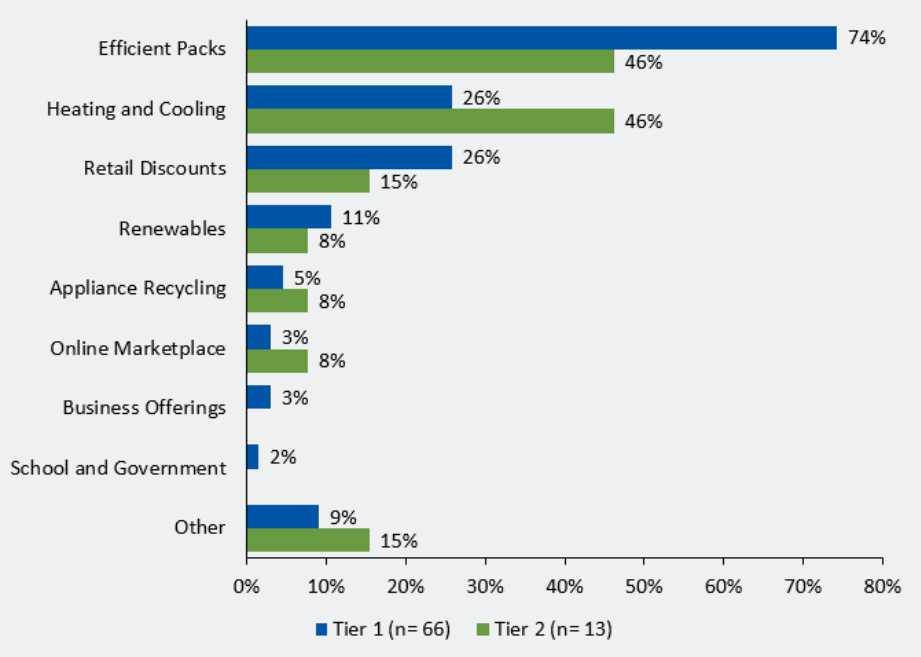


Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QB15. "What type of content would you like to see more of on social media from Focus on Energy?" Record all that apply.

Awareness of Other Offerings

Fifty-five percent of respondents said they were aware of other Focus on Energy offerings or incentives other than Insulation and Air Sealing (n=148). As shown in Figure G-48, the Packs offering was the most commonly identified other offering, followed by Heating and Cooling and Retail offerings.

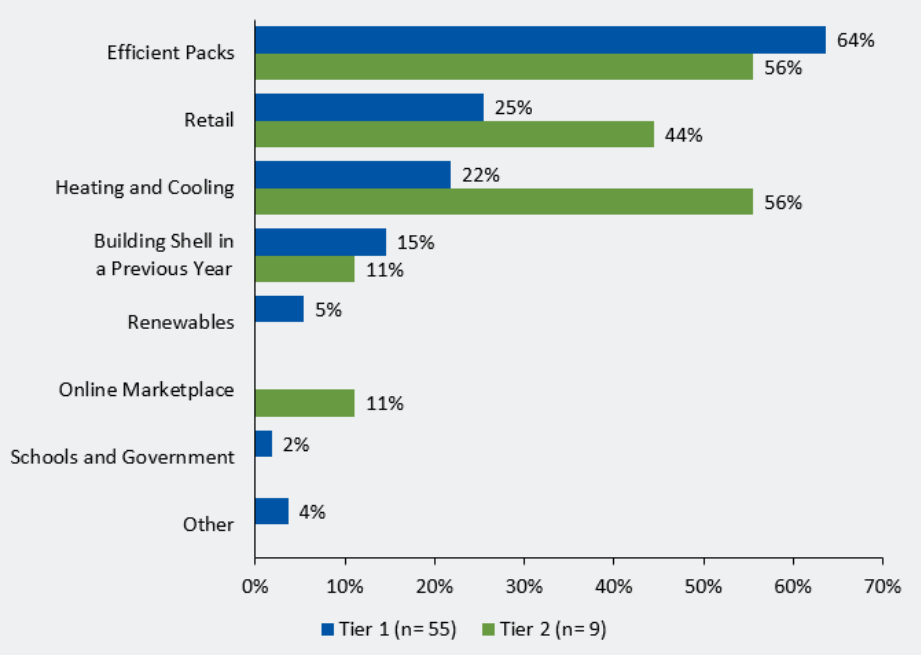
Figure G-48. Awareness of Other Offerings – Insulation and Air Sealing Offering



Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QB8.
"Which offerings or incentives are you aware of?" Record all that apply.

Additionally, 46% of respondents reported participating in other Focus on Energy offerings (n=144). As shown in Figure G-49, Packs, Retail, and Heating and Cooling had the most participation (n= 64).

Figure G-49. Other Offerings Participated In – Insulation and Air Sealing Offering



Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QB10.
"Which offerings have you participated in?" Record all that apply.

Tier 2 Awareness

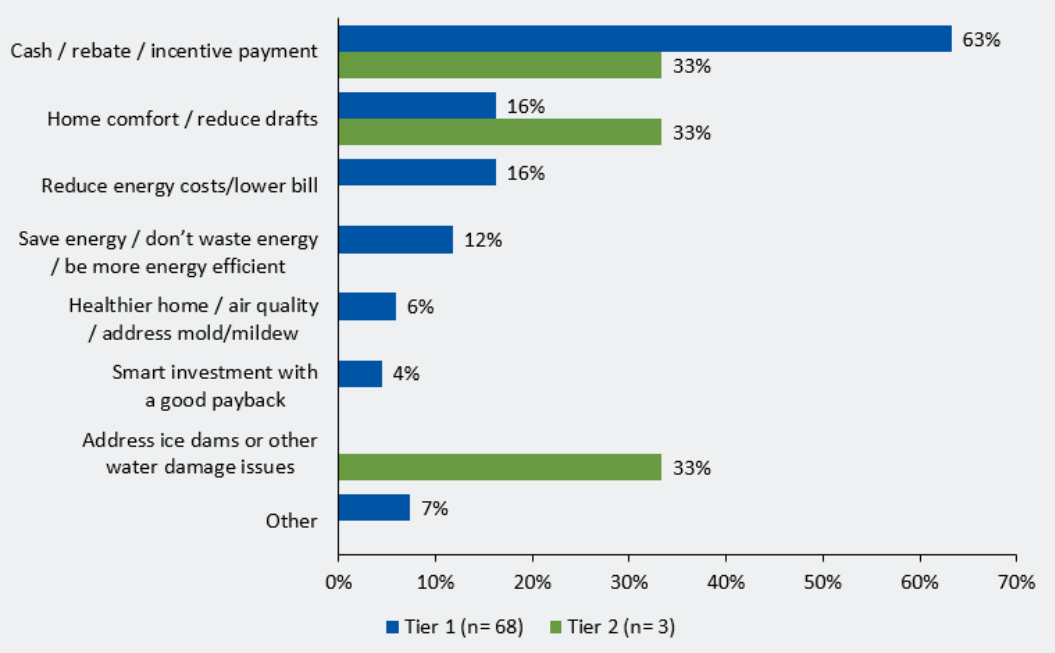
Cadmus asked the 29 customers who received Tier 2 incentives specific questions about their participation. Fifty-two percent of Tier 2 respondents said they were aware they received higher incentives before taking the survey. Of these respondents, 79% said they were interested in the Insulation and Air Sealing offering before they learned they were eligible for higher incentives (n=14). Installers, contractors, and trade allies were identified as the main source of awareness for customers who learned they qualified for higher incentives (n=10). Customers also learned about the offering through personal research, word of mouth, and their work.

Motivations and Decision-Making

Among respondents who heard about the offering through a contractor or installer, 63% of Tier 1 respondents said receiving an incentive payment helped convince them to participate (n=68). As noted above, Tier 2 respondents were not as likely to hear about the offering through a contractor or installer; therefore, only three Tier 2 participants answered this question. They said benefits included the incentive, improving home comfort, and addressing water damage issues (one respondent each).

Figure G-50 shows a breakdown of responses by tier type.

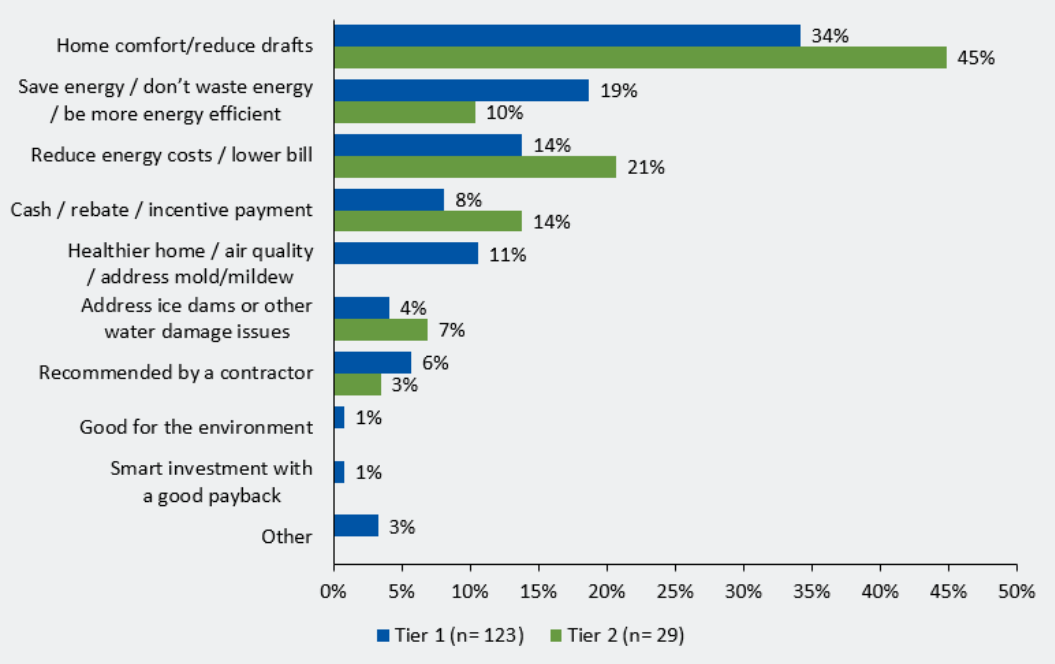
Figure G-50. Benefits Mentioned by Contractor or Installer – Insulation and Air Sealing Offering



Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QB5. "What benefits did the contractor or installer mention that convinced you to participate in the offering?" Record all that apply.

When asked about their primary motivation for participating in the Insulation and Air Sealing offering, all respondents said improving home comfort, as shown in Figure G-51. Other top motivations for Tier 1 respondents included saving energy and reducing energy bills, while Tier 2 respondents were more likely to be motivated by reducing energy bills and by the incentive. Improving home health was the next highest motivation for Tier 1 respondents but was not mentioned by any Tier 2 respondents.

Figure G-51. Motivation for Participating – Insulation and Air Sealing Offering

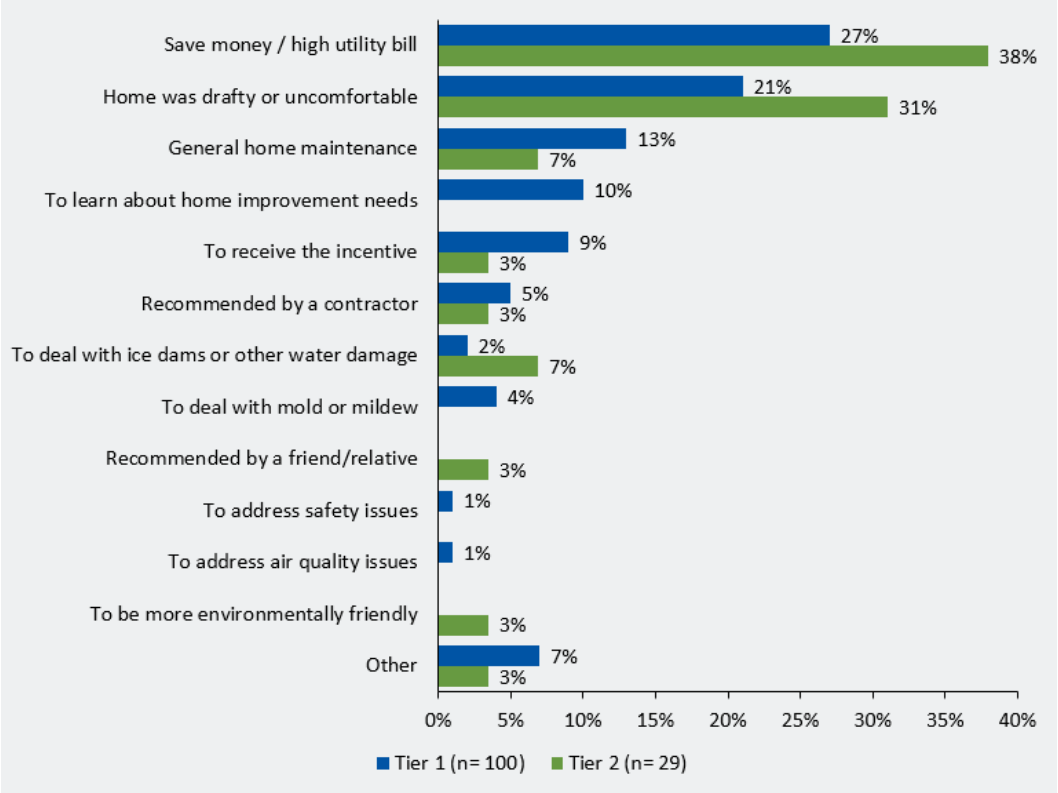


Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QB2. "What factor was the most important motivation for you to participate in the Insulation & Air Sealing Offering?" Selected Choice.

Home Energy Assessment Experience

Of the 152 survey respondents, 130 received a home energy assessment. Cadmus asked these respondents about their experience and satisfaction with the assessment. Across all respondents, the top motivations for receiving a home energy assessment were saving money and fixing drafts or improving home comfort. Figure G-52 shows the breakdown of responses by customer type.

Figure G-52. Motivation for Getting Home Energy Assessment – Insulation and Air Sealing Offering

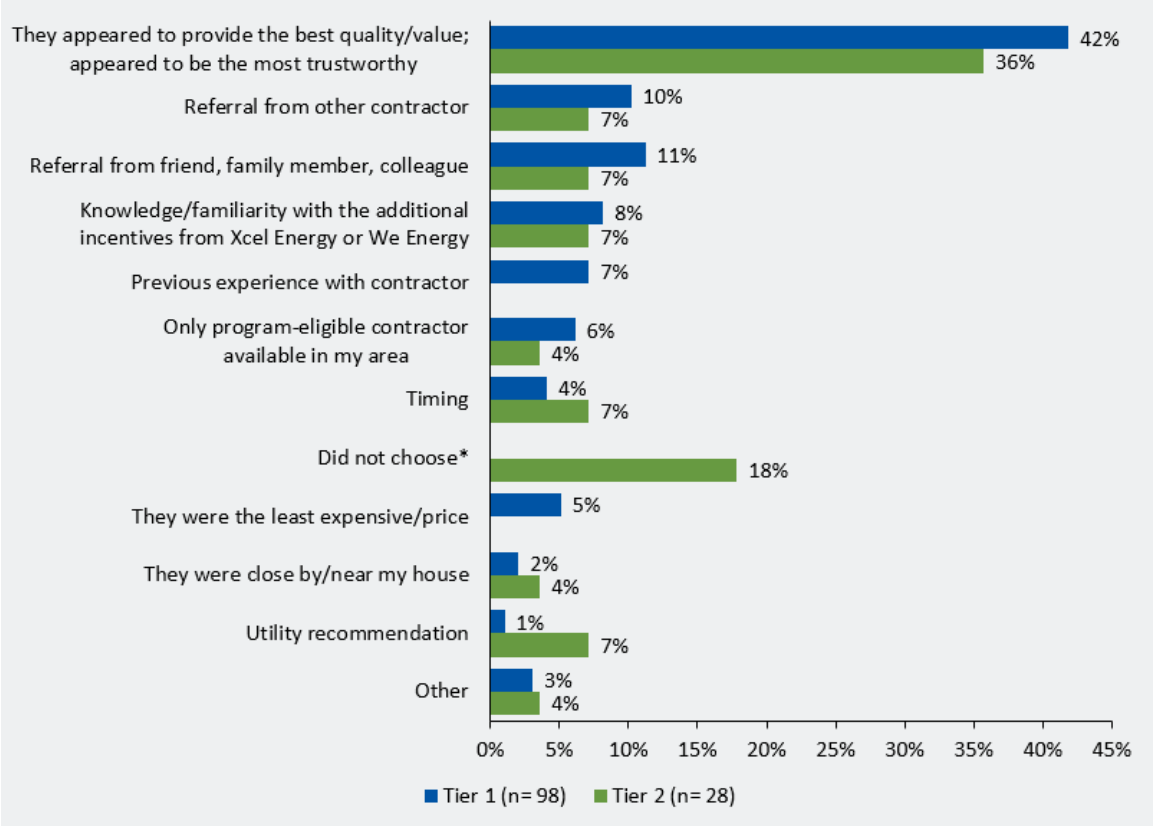


Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QD2. "Thinking back to when you first decided to receive a home energy assessment, what was your top motivation to have an assessment performed in your home?" Selected Choice.

When asked how they found the contractor who conducted their home energy assessment, respondents most commonly reported through an online key word search (21%), a referral from another contractor (18%), and Focus on Energy's website (16%, n=129). Other less common sources were word of mouth, previous experience with the contractor, and a Focus on Energy or utility representative.

Customers were also asked why they chose the contractor. The most common reason was that the contractor appeared to provide the best quality/value (n=126). Figure G-53 shows the breakdown of responses by customer type.

Figure G-53. Reasons for Choosing Assessment Contractor – Insulation and Air Sealing Offering



Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QD4. "Why did you choose the contractor that you did to perform the assessment?" Selected Choice.

* Multiple respondents reported they did not have a choice in their contractor.

Only 28% of respondents said they received their home energy assessment after the Safer at Home order went into effect on March 25, 2020 (n=113). Of these, 100% said they were either *very* or *somewhat satisfied* with their contractor's sensitivity toward social distancing and contact (n=32).

Of respondents who received a home energy assessment, most Tier 1 respondents (88%, n=98) and Tier 2 respondents (82%, n=28) said the contractor was either *very* or *somewhat helpful* in helping them understand how their home uses energy. Their experiences with these assessments varied by tier:

- 77% of Tier 1 respondents (n=88) and 59% of Tier 2 respondents (n=22) said their assessment contractor provided them with a written report on their home's energy use and information about incentives available from Focus on Energy.
- 9% of both Tier 1 and Tier 2 respondents said they received a report but no incentive information.
- 14% of Tier 1 respondents and 32% of Tier 2 respondents said they did not receive either a report or incentive information.

Tier 1 and Tier 2 respondents were similarly likely to report that their assessment contractor provided them with recommendations for energy efficiency equipment upgrades that could be made in their

home (74% Tier 1, n=72; 77% Tier 2, n=13). Respondents from both tiers were also likely to report that the assessment results were *very* or *somewhat important* in their decision to participate in the Insulation and Air Sealing offering (85% Tier 1, n=53; 90% Tier 2, n=10). However, Tier 2 respondents were more likely than Tier 1 respondents to report they completed all of the recommendations provided by their assessment contractor (51% Tier 1, n=53; 70% Tier 2, n=10). The remaining respondents said they completed some of the recommendations.

Of the respondents who completed only some of the recommendations provided by their assessment contractor, 32% (n=25) said they were not planning to make any of the remaining improvements because they could not afford them. Additionally, 24% said they did not believe the improvements would really save energy or improve home comfort and 24% said that making the improvements was too much of a hassle. Only one Tier 1 respondent reported having postponed completing the recommendations due to COVID-19.

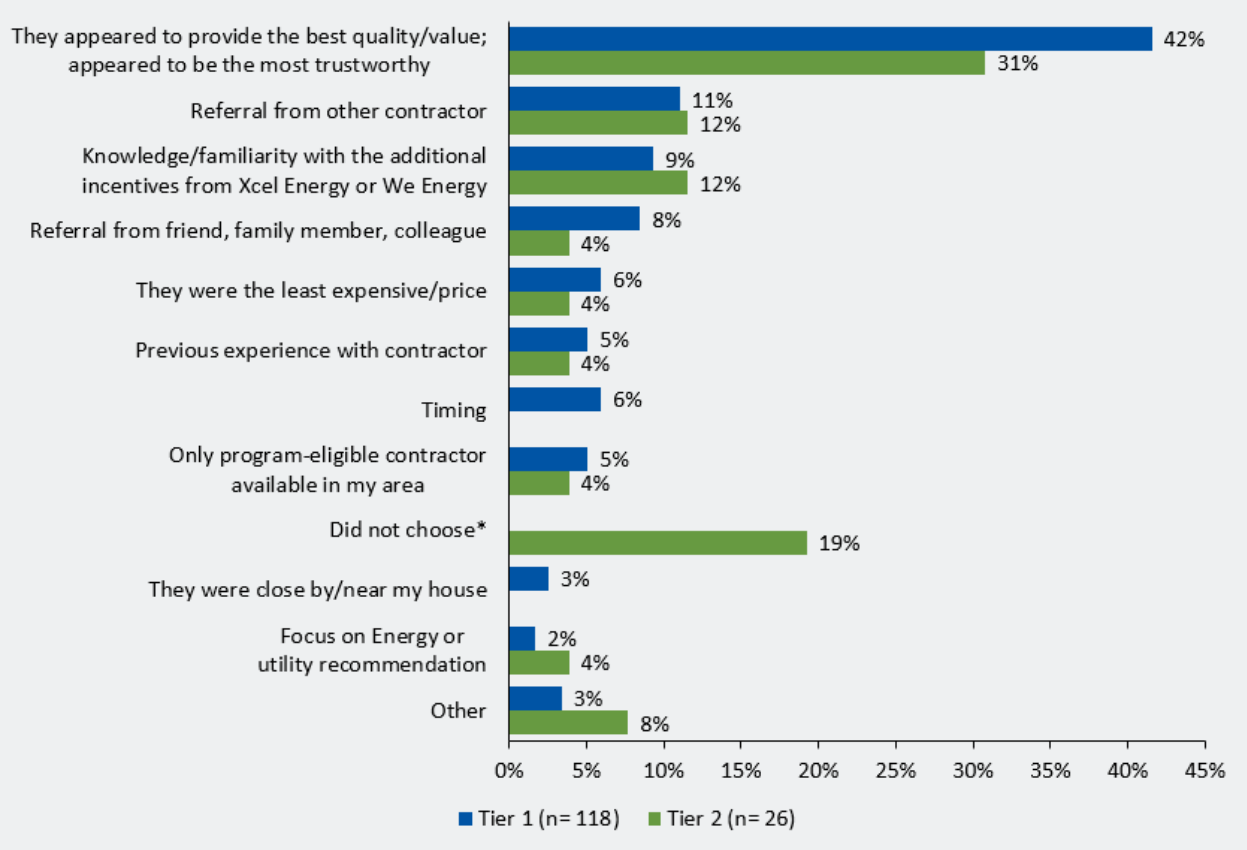
Installation Trade Ally Experience

Cadmus asked customers about their experience with the contractor who completed their efficiency upgrades. Tier 1 respondents were most likely to find their contractors using online keyword searches (24%), referrals from another contractor (20%), and Focus on Energy's website (14%, n=118). Tier 2 respondents most commonly found their contractor through a referral from another contractor (17%), word of mouth (17%), and online keyword searches (13%, n=23). Other less common sources included previous experience with the contractor, a Focus on Energy of utility representative, and print media such as a magazine, newspaper article, or advertisement.

Figure G-54 shows respondents' top reasons for choosing their installation contractor. Both Tier 1 and Tier 2 respondents chose the contractor who appeared to provide the best quality more often than they chose other reasons.

Ninety-five percent of respondents said they did not have any difficulty finding a contractor or auditor due to constraints from COVID-19. Sixty-six percent of respondents said their contractor filled out their incentive application (n=131), and 18% said both they and their contractor filled out the application. Sixteen percent said they filled out the application; of these, 91% said the application was either *very* or *somewhat easy* to fill out (n=43).

Figure G-54. Reasons for Choosing Installation Contractor – Insulation and Air Sealing Offering



Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QE3. "What was the top reason you chose the contractor who installed your measure?" Selected Choice.

* Multiple respondents noted they did not have a choice in their contractor.

Energy Use Attitudes

Respondents were also asked to rate statements that express varying attitudes about energy use, using a 5-point scale ranging from *strongly agree* to *strongly disagree*. Figure G-55 shows the specific breakdown of responses for each statement across all respondents. Responses were typically similar between Tier 1 and Tier 2 respondents with a few notable exceptions:

- 95% of Tier 1 (n=123) and 83% of Tier 2 (n=29) respondents agreed with the statement that they try to save energy to lower their bill.
- 61% of Tier 1 and 38% of Tier 2 respondents disagreed with the statement that they have tried to save energy but have not seen any real savings.
- 70% of Tier 1 and 48% of Tier 2 respondents agreed with the statement that they prefer to use the most advanced technologies available to control their energy use.
- 89% of Tier 1 and 66% of Tier 2 respondents agreed with the statement that they are willing to pay more for efficient products that are more environmentally friendly.

Figure G-55. Energy Use Attitudes – Insulation and Air Sealing Offering

Energy Use Attitudes	Strongly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree
I try to save energy to lower my energy bill (n=152)	70%	22%	4%	3%	3%
Keeping the home comfortable is more important than saving money on my bill (n=152)	16%	36%	24%	17%	7%
I've tried a few things to save energy, but have not seen any real savings on my energy bill (n=152)	6%	20%	17%	34%	23%
It is important to conserve resources to be more environmentally friendly (n=152)	76%	18%	3%	1%	1%
I prefer to use the most advanced technologies available to control my energy use (n=152)	24%	42%	17%	14%	3%
I am willing to pay more for efficient products that will save me money in the long term (n=152)	48%	37%	7%	4%	4%
I am willing to pay more for efficient products that are more environmentally friendly (n=152)	41%	44%	9%	3%	3%
Energy efficient improvements increase my home's comfort (n=152)	72%	19%	4%	2%	3%
I'm not interested in improving my home's efficiency (n=152)	3%	5%	2%	14%	76%
I wish Focus on Energy would give me more options to help me manage my energy usage (n=152)	28%	34%	24%	11%	4%
It is too expensive to be efficient at home (n=152)	7%	9%	7%	30%	47%

Suggestions for Improvement

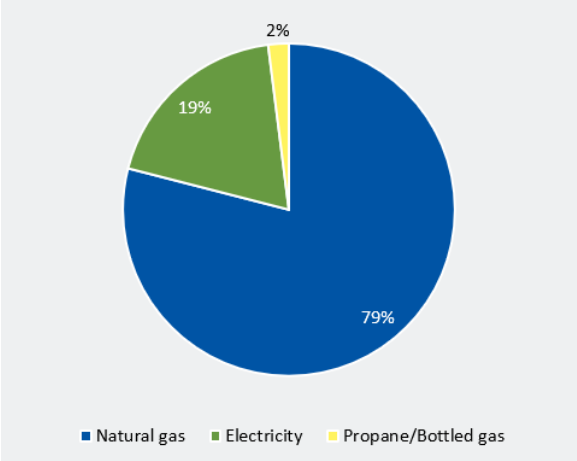
At the end of the survey, respondents were asked for additional feedback regarding the Insulation and Air Sealing offering. Ninety percent had either no feedback or positive feedback regarding the offering. Feedback from the other 10% (15 respondents, n=152) is categorized as follows:

- **Better communication from Focus on Energy (n=2),** specifically abut incentive or project status
- **Contractor improvements (n=3),** ensuring any damage caused by contractors is fixed in a timely manner, allowing customers to provide contractor reviews through the offering website, better explanations to participants about what work is being done
- **Increase Incentives (n=1)**
- **Use contractors more to increase offering awareness (n=1)**
- **More relevant or targeted information (n=2),** for people who are interested but do not know what is useful or relevant for them
- **Other communication options (n=1),** more specifically having someone call in Spanish
- **Wider range of services (n=4),** additional upgrades in special circumstances, energy audit opportunities before the purchase of a home, additional tests, explanations of home energy usage

Demographics

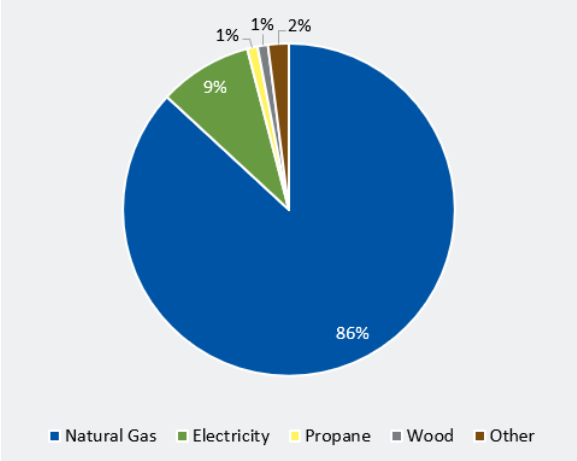
Participants were asked questions about their household information. As shown in Figure G-56 and Figure G-57, most respondents used natural gas to heat their water and their homes. Responses were similar across Tier 1 and Tier 2 customers.

Figure G-56. Water Heater Fuel Type – Insulation and Air Sealing Offering



Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QH1. "What type of fuel does your water heater use?" Selected Choice (n=145).

Figure G-57. Home Fuel Type – Insulation and Air Sealing Offering

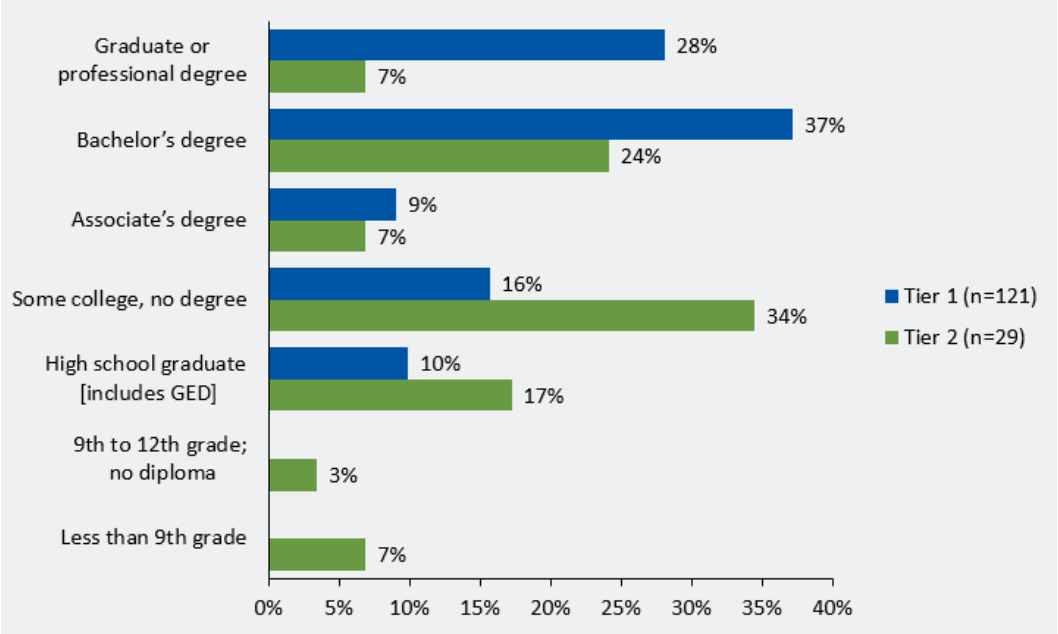


Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QH2. "What is the main type of fuel you use to heat your home?" Selected Choice (n=148).

Across all respondents, most respondents reported living in single-family detached houses (89%), followed by attached townhouses, row houses, or duplexes (8%), and other styles of homes (3%). Nearly all respondents owned their homes (99%, n= 149). One respondent selected "Other" for owning or renting their home and stated "Own, but rent to others" and that the tenants pay the utility bills.

Participants reported the level of school they had completed. As shown in Figure G-58, a higher percentage of Tier 1 respondents had completed bachelor's and graduate or professional degrees, while a higher percentage of Tier 2 respondents were high school graduates or completed some college.

Figure G-58. Highest Level of Education – Insulation and Air Sealing Offering



Source: CY 2020 Insulation and Air Sealing Offering Participant Survey, Question QH7. "What is the highest level of school that you have completed?" Selected Choice.

Appendix H. Cost-Effectiveness and Emissions Methodology and Analysis

When developing potential offerings, APTIM, the Focus on Energy administrator, assesses the cost-effectiveness of offering designs prior to their implementation. The administrator, in collaboration with the Public Service Commission of Wisconsin (PSC) and the evaluation team, developed a cost-effectiveness calculator tool. Because maintaining consistency between planning and evaluation approaches is critical to understanding offering performance compared with expectations, the evaluation team used the same calculator to evaluate cost-effectiveness in CY 2020. Its findings are presented in this appendix.

The PSC considers the modified total resource cost (TRC) test to be the primary test in assessing the cost-effectiveness of both individual offerings and the entire Focus on Energy portfolio.[28] The PSC also directs that four additional tests be conducted for advisory purposes. These are an expanded TRC test that also includes net economic benefits, the utility administrator cost test (UAT), the ratepayer impact measure (RIM) test, and the societal test. Additionally, for CY2020 and future years in this quadrennium, the PSC has asked that results include the avoided costs associated with reduced needs for transmission and distribution (T&D) infrastructure.[29]

Net-to-gross (NTG) ratios can be a significant driver in the results of the tests. NTG ratios are applied to adjust the impacts of the offerings so they reflect only the net gains that result. Therefore, NTG ratios correct for energy savings that would have been achieved without the efficiency offerings as well as participant spillover (that is, when NTG is less than 1, savings are removed; when NTG is greater than 1, savings are added). In all cases, the savings are multiplied by NTG.

On the cost side, expenditures that would have occurred without the efficiency effort are also removed. Costs that would not have occurred in the absence of the offerings—such as delivery and administrative costs—are not impacted by NTG.

Test Descriptions

The evaluation team—as well as the administrator in developing its cost-effectiveness calculator—uses methods adapted from the California Standard Practice Manual, the conventional standard of cost-

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[28] The use of the modified TRC test as the primary cost-effectiveness test is directed by the PSC. Public Service Commission of Wisconsin. September 3, 2014. *Quadrennial Planning Process II – Scope.* Order PSC Docket 5-FE-100, REF#: 215245. Order was updated on June 6, 2018. *Quadrennial Planning Process III.* Order PSC Docket 5-FE-101, REF#: 343509. http://apps.psc.wi.gov/vs2015/ERF_view/viewdoc.aspx?docid=343909.

[29] The calculation method and inclusion of avoided transmission and distribution costs is directed by the PSC. Public Service Commission of Wisconsin. March 10, 2021. *Quadrennial Planning Process III .* Order PSC Docket 5-FE-101, REF#: 406591. https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=406591.

effectiveness analysis for energy efficiency programs in the United States.[30] Five tests—the modified TRC test, the expanded TRC test, the UAT, the RIM test, and the societal test—are described in the next sections.

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 test, which expands the test inputs to account for a more holistic societal perspective. Modifications to the standard TRC test often involve reducing the discount rate or including various environmental and non-energy benefits. The test includes total participant and administrator costs. The test also includes some non-energy benefits (such as emission reduction benefits).

The modified TRC test used for the CY 2020 evaluation determines if the offerings are cost-effective from a regulatory perspective (as directed by the PSC) and is intended to measure the overall impacts of the benefits and costs of these offerings on the state of Wisconsin. The test compares all benefits and costs 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 test's purpose here is to determine if the total costs incurred by residents, businesses, and Focus on Energy for operating the offerings are outweighed by the total benefits they receive.

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

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

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

Where:

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

Expanded Total Resource Cost Test with Net Economic Benefits

The evaluation team investigated the impact of expanding the TRC to include net economic benefits for the CY 2020 offerings. The analysis of economic benefits is conducted every two years, and the evaluation team issues the results separately from the evaluation reports.

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

This is the benefit/cost equation used for the expanded TRC test with net economic benefits:

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

Utility Administrator/Offering Administrator Cost Test

The evaluation team also assessed the portfolio's cost-effectiveness using the UAT, which measures the net benefits and costs of the offerings as a resource option from the perspective of the Focus on Energy offering administrator. In Wisconsin, the UAT effectively represents the collective perspectives of the participating utilities that hire and fund the administrator.

The UAT, previously called the revenue requirements test, effectively estimates the impacts on utility revenue requirements (the costs of providing service) by comparing the benefits of avoided utility costs from avoided energy consumption to the combined costs of operating the offering, such as incentive payments, administrative costs, and delivery costs. A positive benefit/cost ratio, therefore, indicates that the offering improves an energy system's overall efficiency.

For this evaluation, the UAT's benefit/cost value indicates whether the combined revenue requirements from all participating utilities increase or decrease as a result of the Focus on Energy offerings. The net benefits determined with the UAT indicate the estimated dollar value of the change in the combined revenue requirements from all participating utilities. The NTG ratio impacts only the benefit side of the UAT because none of the costs would have occurred absent the effort and, therefore, all are kept in the test (not subtracted from denominator).

The benefit/cost equation used for the UAT is:

$$UAT\,\frac{B}{C} = \frac{[Value\ of\ Gross\ Saved\ Energy * NTG]}{[Participant\ Incentives +\ Adminstrative\ Costs\ +\ Delivery\ Costs]}$$

Ratepayer Impact Measure Test

Generally, the RIM test indicates the isolated and marginal effect on utility energy rates from changes in revenues and operating costs caused by energy efficiency and renewable resource programs, all else being equal. It does not, however, provide a comprehensive picture of ratepayer impacts. The RIM test's estimated effects are theoretical and assume annual rate cases that may, in fact, not take place. Furthermore, the RIM test does not account for non-energy benefits enjoyed by ratepayers, nor does it clearly distinguish the difference between rate and total bill impacts.

From the RIM test perspective, the relatively expansive view of program costs, particularly the inclusion of lost revenues—which are foregone revenues as opposed to new costs—from avoided energy consumption, leads most energy efficiency and renewable energy programs to not be cost-effective. Exceptions include demand response programs or programs targeted to the highest marginal cost hours (when marginal costs are greater than rates). In simple terms, the RIM test benefit/cost value is the ratio of avoided utility costs and the combination of participant incentives, administrative costs, and lost utility revenue.

The benefit/cost equation used for the RIM test is:

$$RIM\,\frac{B}{C} = \frac{[Value\ of\ Gross\ Saved\ Energy * NTG]}{[Participant\ Incentives + Adminstrative\ Costs\ +\ Lost\ Revenue * NTG]}$$

For this evaluation, a RIM test benefit/cost value less than 1 indicates that Focus on Energy will induce theoretical upward pressure on rates because the decrease in utility revenues caused by its offerings is greater than the avoided utility costs (net benefits are negative) and *vice versa*. Conversely, a value greater than 1 indicates that Focus on Energy will induce theoretical downward pressure on rates because the decrease in revenues is less than the avoided utility costs.

Results from the RIM test are better understood within the context of UAT results. The most common combination of results involves a UAT benefit/cost value greater than 1 and a RIM test benefit/cost value less than 1. Passing the UAT means that revenue requirements (revenue needed to operate the utility business and deliver energy services) will decrease as a result of the programs; in other words, the utilities are running more efficiently because of their programs.

However, if the programs do not pass the RIM test, it means the improvement in efficiency and the associated decrease in revenue requirements were not sufficient to offset the lost revenues. As a result, the programs will put upward pressure on rates. Rates are roughly estimated as in this formula:

$$\frac{revenue\ requirement}{sales\ (kWh\ or\ therms)}$$

The numerator (revenue requirement) decreases, but so does the denominator (sales). If the denominator decreases more than the numerator, the ratio of the two will increase. In this scenario, although all *rates* may theoretically increase, the energy *bills* for participants will decrease and the energy *bills* for nonparticipants will increase. The decrease in revenue requirement means that the decrease in participant bills will exceed the increase in nonparticipant bills such that the average bills across the two customer groups will decrease.

In essence, the RIM test is not a cost-effectiveness (efficiency) test in an economic sense but, rather, an analysis of the distributional (equity) impacts on energy bills.[31] Because Focus on Energy offerings are designed to meet a statutory requirement to make offering benefits available to all ratepayers, the RIM test results for Focus on Energy are influenced by the success of its offerings in meeting that requirement, its ability to meet that requirement within existing resources, and its customers' individual willingness to participate.

[31] The RIM test assumes annual rate cases that may not take place. If there is not an annual rate adjustment, there is a transfer payment to participants from utility shareholders rather than from nonparticipants.

The RIM test assumes that a true-up will occur every year through rate cases. The test as applied could be considered the worst-case scenario. The RIM test also does not consider any societal or system benefits that accrue to *all* customers.

Societal Test

In addition to the expanded TRC, the evaluation team investigated the impact of several non-energy benefits such as health, water, purchase deferral, property value, and arrearage benefits that are included in the CY 2020 offerings.

The benefit/cost equation used for the societal test is:

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

A more detailed discussion of the various non-energy benefits in the societal test are presented below.

Non-Energy Benefits

Health Benefits

The evaluation team estimated the value of health benefits accumulated by reduced emissions attributable to program activity using the method recommended by the U.S. Environmental Protection Agency (EPA) using the benefits per kilowatt-hour (BPK) tool. This tool, recently developed to help interested parties estimate health benefits from reduced emissions, was introduced in late fall 2019. The tool relies on the AVoided Emissions and geneRration Tool (AVERT) regional inputs, which specify the blend of electric generation sources (coal, natural gas, hydroelectric, other renewables, etc.) and the downstream effects of particulate generation from those sources as determined in the Co-Benefits Risk Assessment (COBRA) health impacts screening and mapping tool.

BPK values are determined using the following equation:

$$BPK_{t,r} = \frac{HealthBenefits_{t,US}}{GenerationChange_{t,r}}$$

Where:

$BPK_{t,r}$ = Monetized public health benefits per kilowatt-hour (c/kWh) for each energy efficiency/renewable energy technology type (t) and AVERT region (r)

$Health\ Benefits_{t,US}$ = Aggregated monetized public health benefits from emissions reductions for each type of energy efficiency/renewable energy technology (t) for the contiguous United States (US)

$Generation\ Change_{t,r}$ = Change in electricity generation for each energy efficiency/renewable energy technology type (t) and AVERT region (r)

The effects of these emissions are then tied to the negative health outcomes associated with inhalation of those particulates. A list of these included health factors, and the savings associated with each input, is presented in Table H-1. The in-depth methodology for the calculation of these benefits is available in a 2019 report on public health and energy from the EPA.[32]

Table H-1. Included Health Inputs

Health Endpoint	Age Range
Mortality[a]	25–99
Infant Mortality[b]	0–0
Acute Myocardial Infarction, Nonfatal[c]	0–24
Acute Myocardial Infarction, Nonfatal[c]	25–44
Acute Myocardial Infarction, Nonfatal[c]	45–54
Acute Myocardial Infarction, Nonfatal[c]	55–64
Acute Myocardial Infarction, Nonfatal[c]	65–99
Acute Myocardial Infarction, Nonfatal[d]	0–24
Acute Myocardial Infarction, Nonfatal[d]	25–44
Acute Myocardial Infarction, Nonfatal[d]	45–54
Acute Myocardial Infarction, Nonfatal[d]	55–64
Acute Myocardial Infarction, Nonfatal[d]	65–99
Hospital Admissions, All Cardiovascular (less-acute myocardinal infraction)	18–64
Hospital Admissions, All Cardiovascular (less-acute myocardinal infraction)	65–99
Hospital Admissions, All Respiratory	65–99
Hospital Admissions, Asthma	0–17
Hospital Admissions, Chronic Lung Disease	18–64
Asthma Emergency Room Visits (Smith et al. 1997)	0–99
Asthma Emergency Room Visits (Stanford et al. 1999)	0–99
Acute Bronchitis	8–12
Lower Respiratory Symptoms	7–14
Upper Respiratory Symptoms	9–11
Minor Restricted Activity Days	18–64
Work Loss Days	18–64
Asthma Exacerbation (cough, shortness of breath, or wheeze)	6–18

[a] Mortality value after adjustment for 20-year lag.
[b] Infant mortality value is not adjusted for 20-year lag.
[c] Based on Russell (1998).
[d] Based on Wittels (1990).

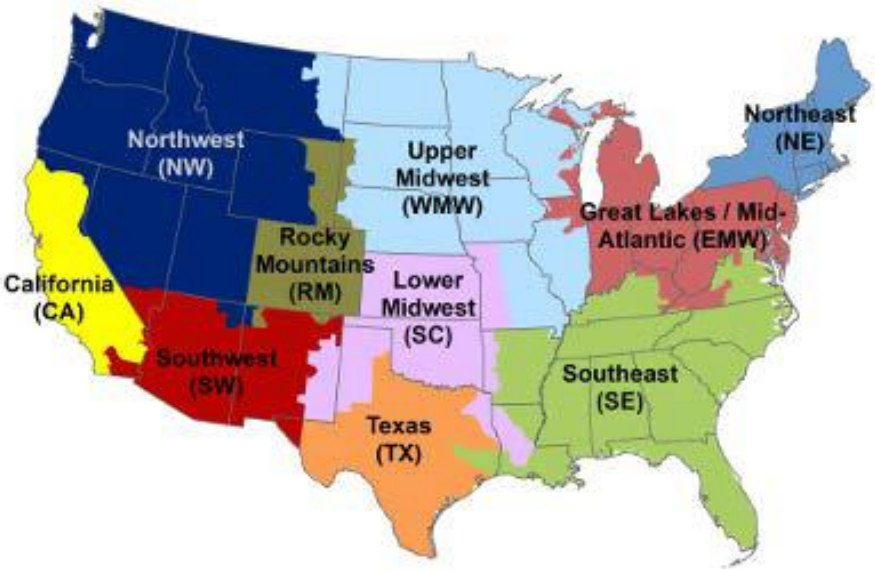
Source: U.S. Environmental Protection Agency

To determine Wisconsin-specific values, the evaluation team took a weighted average of the cost of emissions generated across the two AVERT regions that cover the state (Upper Midwest and Great

[32] U.S. Environmental Protection Agency. July 2019. *Public Health Benefits per kWh of Energy Efficiency and Renewable Energy in the United States: A Technical Report*. https://www.epa.gov/sites/production/files/2019-07/documents/bpk-report-final-508.pdf

Lakes/Mid-Atlantic, as shown in Figure H-1). The team assumed a 2% discount rate to comply with decisions by the PSC for Quadrennial Planning Process III, the current Focus on Energy period.

Figure H-1. U.S. EPA AVERT Regions



Source: U.S. Environmental Protection Agency.

The two regional inputs specific to Wisconsin are a 54.2% weighted value of 4.22 cents/kWh and a 45.8% weighted value of 3.74 cents/kWh. The cents/kWh by technology for each region is presented in Table H-2. The evaluation team determined that the lower of the two value ranges was the most appropriate to use because it provides the most conservative estimate of offering-induced health benefits. The team blended these regional inputs to create a single weighted uniform energy efficiency value of 3.96 cents/kWh.

Table H-2. Wisconsin Specific Health Benefits

Region	Technology	Cents/kWh (Low Estimate)	Cents/kWh (High Estimate)
Great Lakes/Mid Atlantic	**Uniform energy efficiency**	**4.22**	**9.54**
Great Lakes/Mid Atlantic	Peak energy efficiency	4.30	9.70
Great Lakes/Mid Atlantic	Solar	4.39	9.95
Great Lakes/Mid Atlantic	Wind	4.02	9.11
Upper Midwest	**Uniform energy efficiency**	**3.74**	**8.45**
Upper Midwest	Peak energy efficiency	3.29	7.44
Upper Midwest	Solar	3.46	7.82
Upper Midwest	Wind	3.83	8.65
Weighted Average	**Uniform energy efficiency**	**3.96**	**8.94**

Aggregated health benefits are subsequently generated by applying the 3.96 cents/kWh to the first five years of lifecycle program savings, a shorter period than is claimed for lifetime emissions benefits. This is in line with EPA recommendations not to extend savings beyond the five-year threshold because of the

uncertainty in the share of generation each region is expected to draw from various fuel sources during that period and for the likelihood of revisions to health savings assumptions as the tool is regularly updated. For example, coal generation is expected to start being supplanted by natural gas and renewable sources, which are less polluting than coal and which may substantially reduce the risk of certain specific negative healthcare outcomes while leaving others unaffected.

Water Benefits

The evaluation team estimated participant water delivery and wastewater bill savings attributed to reductions in volumetric water consumption accrued over the lifetime of efficient measures installed. These benefits are estimated for each offering by the following equation:

$$\sum_{Measure=1}^{n} Units_{Measure} \times PV(Water\ Savings\ Per\ Unit_{Measure} \times Marginal\ Cost\ of\ Water, EUL_{Measure})$$

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

The marginal cost of water is then shown in this equation:

$$Marginal\ Cost\ of\ Water = (Marginal\ Cost\ of\ Water\ Delivery\ + Marginal\ Cost\ of\ Wastewater\ Service).$$

The evaluation team acquired input data from various sources:

- Measure quantity ($Units_{Measure}$) data were provided directly by Focus on Energy on an offering-by-offering basis.
- Volumetric water savings attributed to the efficient measure relative to some baseline measure ($Water\ Savings\ Per\ Unit_{Measure}$) was acquired from the Wisconsin Technical Reference Manual (TRM) The evaluation team scaled the savings data by the NTG ratio for each offering.
- The water delivery rate ($Marginal\ Cost\ of\ Water\ Delivery$) was estimated using a weighted averaging algorithm from a sample of 25 water utilities in Wisconsin. This sample includes the 10 largest water utilities in Wisconsin, a random sample of 10 utilities from the smallest 50% of utilities in Wisconsin, and a random sample of five additional utilities in Wisconsin, where size is measured by average number of customers served.[33]

  From these 25 utilities, the evaluation team calculated average marginal (volumetric) delivery rates for each utility for both residential and commercial sectors by taking the arithmetic mean

[33] Utility sales data was acquired from the PSC's E-Services Portal. The evaluation team used 2019 water sales data, the most recent year of nearly complete reporting. When 2019 water sales data were not available, the evaluation team supplemented with 2018 data. Public Service Commission of Wisconsin. April 2021. *E-Services Portal: Municipal Annual Report Data*. https://apps.psc.wi.gov/ARS/WEGSqueries/default.aspx

of the highest and lowest rate tiers charged by each utility.[34] The team then calculated overall rate estimates by taking weighted averages of these utility-specific averages for both residential and commercial sectors, where each utility's weight is proportional to the utility's average number of customers relative to the sum of each utility's average number of customers for all utilities included in the sample. The final water delivery rate estimates for Wisconsin are $2.60 and $2.19 per 100 cubic feet for residential and commercial sectors, respectively.

- Table H-3 summarizes the weighted averaging algorithm applied to residential rates in Wisconsin by showing intermediate calculation outputs.[35]

Table H-3. Residential Water Rate Algorithm Example

Utility Size Bracket	Rank by Gallons Sold	Utility Name	Average Number of Customers	Weight (Number of Utility Customers/ Customers in Sample)	Highest/ Lowest Tier Rates	Rate Average
Top 10	1	Milwaukee Water Works	163,699	26.4%	$2.14	$2.14
	2	Green Bay Water Utility	72,356	11.7%	**Low:** $1.89; **High:** $2.66	$2.28
	3	Madison Water Utility	69,379	11.2%	**Low:** $2.79; **High:** $7.72	$5.26
	4	Appleton Water Department	56,293	9.1%	**Low:** $3.50; **High:** $4.55	$4.02
	5	Eau Claire Municipal Water Utility	55,325	8.9%	$1.65	$1.65
	6	Janesville Water Utility	47,635	7.7%	**Low:** $1.64; **High:** $2.77	$2.20
	7	West Allis Municipal Water Utility	41,170	6.6%	**Low:** $2.08; **High:** $2.58	$2.33
	8	Sheboygan Water Utility	38,110	6.2%	**Low:** $1.23; **High:** $1.56	$1.40
	9	Racine Water Works Commission	34,762	5.6%	**Low:** $2.41; **High:** $3.11	$2.76
	10	La Crosse Water Utility	33,116	5.3%	**Low:** $1.11; **High:** $1.59	$1.35

[34] Utility tariff data were acquired from the Public Service Commission of Wisconsin's E-Services Portal. Public Service Commission of Wisconsin. April 2021. *E-Services Portal: Utility Tariffs*. https://apps.psc.wi.gov/RATES/tariffs/default.aspx?tab=4

[35] Some participants obtain water from sources outside of conventional water delivery from a water utility, such as from natural bodies of water. These participants are not subject to the same marginal cost of delivery charged by water utilities. Because of an inability to reliably identify the source of water saved by program participants, the evaluation team conservatively assumes a water bill savings of $0 for those larger customers.

Utility Size Bracket	Rank by Gallons Sold	Utility Name	Average Number of Customers	Weight (Number of Utility Customers/ Customers in Sample)	Highest/ Lowest Tier Rates	Rate Average
Random Sample of 10 from Smallest 50%	577	East Troy Sanitary District #3	20	0.0%	$2.47	$2.47
	442	Birnamwood Municipal Water Utility	289	0.0%	**Low:** $1.38; **High:** $2.13	$1.76
	310	Delafield Municipal Water Utility	672	0.1%	$2.43	$2.43
	540	Linden Tn of Sanitary Dist #1	122	0.0%	**Low:** $2.19; **High:** $3.76	$2.98
	…	…	…	…	…	…
	281	Mazomanie Water Utility	837	0.1%	**Low:** $1.23; **High:** $2.04	$1.63
Random Sample of Five from Throughout	284	Oakfield Village of Mun Wtr Uty	815	0.1%	**Low:** $4.88; **High:** $4.88	$4.88
	…	…	…	…	…	…
	373	Redgranite Water Utility	449	0.1%	**Low:** $1.31; **High:** $1.50	$1.40
Final Rate Estimate						**$2.60**

- The wastewater service rate ($Marginal\ Cost\ of\ Wastewater\ Service$) estimate was constructed from a population-weighted average of marginal (volumetric) wastewater charges for 326 (41%) Wisconsin wastewater service territories. The evaluation team acquired population and volumetric charge data from the Wisconsin Sewer User Charge Survey Report.[36] The final water wastewater estimate is $3.11 per 100 cubic feet for both residential and commercial. This estimate accounts for the prevalence of utilities with no volumetric wastewater charge. The evaluation team used the same values and method as in 2019 due to a lack of updated data on wastewater service rates for 2020.
- The expected useful life of an efficient measure ($EUL_{Measure}$) was provided by the TRM.
- Lastly, the evaluation team assumed a real annual interest rate of 2%.

Purchase Deferral

Purchase deferral benefits account for the avoided costs of future baseline measure replacement in cases where the useful life of an efficient measure exceeds the useful life of the baseline measure it replaces. The evaluation team estimated purchase deferral benefits for lighting, where the expected useful life (EUL) of efficient measures (fixtures and lamps) tends to exceed those of their corresponding baseline measures.

[36] MSA Professional Services, Inc. October 2019. *The Cost of Clean: Wisconsin Sewer User Charge Survey Report*.

The evaluation team assumes that offering participants would have replaced each baseline measure with an identical baseline or equivalent at regular intervals equal to the baseline measure's useful life. Purchase deferral benefits are estimated for each offering by the following generalized expression:

$$\sum_{Measure=1}^{n} Units_{Measure} \times PV(Avoided\ Replacement\ Costs_{Measure})$$

Where PV indicates a present value function and $Avoided\ Replacement\ Costs$ refers to the value of avoided baseline measure replacements over the lifetime of the efficient measure $Measure$.

For each efficient measure installed, the evaluation team attempted to identify a corresponding baseline measure from the Mid-Atlantic TRM because this TRM contains a study of purchase deferral benefits for lighting measures.[37] Where available, the evaluation team used the present value of purchase deferral benefits provided explicitly by the Mid-Atlantic TRM.

In cases where the Mid-Atlantic TRM did not provide purchase deferral benefit estimates or the efficient measure installed through a Focus on Energy offering was not an exact match, the evaluation team conducted research to identify the EUL (in life-hours and years) and the cost of the baseline measure indicated in the TRM. These two inputs were used to estimate benefits accrued from each avoided baseline replacement over the lifetime of the efficient measure, reduced by the Focus on Energy discount rate of 2%. Finally, the evaluation team scaled the savings data by the NTG ratio for each offering.

Property Values

Participating in energy efficiency programs can increase the value of a home and the associated property. Customers who participate in whole-home programs, such as Home Performance with ENERGY STAR, are most likely to see increases in property values.

Cadmus completed a study for People Working Cooperatively (PWC), a provider of whole-home weatherization for low-income individuals in Cincinnati that researched the impact of low-income whole-home weatherization programs on home value.[38] Through this study, Cadmus found a $7,000 increase in property value for participants in the PWC program compared with similar homes for nonparticipants. Though the study was specific to low-income customers, Cadmus believes the increase in property value can be applied to all customers who complete a whole-home weatherization project.

Many factors can impact home value, which makes it difficult to measure this benefit. Therefore, for Focus on Energy, the evaluation team used a net present value benefit of $7,000 per whole-home

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[37] Northeast Energy Efficiency Partnerships. October 2019. *Mid-Atlantic Technical Reference Manual, Version 9.* https://neep.org/sites/default/files/resources/Mid_Atlantic_TRM_V9_Final_clean_wUpdateSummary%20-%20CT%20FORMAT.pdf

[38] Cadmus. December 2012. *PWC 2009 Ohio Program Services Evaluation Report.* Prepared for People Working Cooperatively. http://www.pwchomerepairs.org/Assets/PWC_2009_Evaluation_FIN/AL_DEC12.pdf

participant (both Tier 1 and Tier 2) of the Trade Ally Solutions (formerly the Home Performance with ENERGY STAR Program).

Arrearages

Outstanding customer debt incurs a cost on utility and customer, including costs associated with financing (carrying costs, bad debt write-offs) shutoffs, reconnections, sending notices, and collecting debts. Low-income programs provide customers the opportunity to reduce monthly bills, which in turn lowers the probability they will carry debt and, among those who do, helps reduce the overall total.

Several utilities have included the reduced arrearage costs associated with providing low-income program benefits in their societal tests. However, there does not appear to be a universally agreed-upon per-participant value associated with these benefits. Limited primary research is available, and what does exist is not recent. Nevertheless, the evaluation team reviewed a benchmarking analyses from the Skumatz Economic Research Associates, Inc., and Cadmus in 2010 and 2014,[39,40] which compiled several potential inputs related to utility benefits associated with low-income programs.

As presented in Table H-4, the study found a typical arrearage-related carrying cost of $2.50 per participant, with an additional $1.75 cost associated with paying of bad debt and $2.15 in total costs from shutoffs and reconnects, notices, and customer calls/collections. In total, these direct arrearage costs sum to $6.40. An additional $13 per customer was also attributed to reduced low-income subsidy payments and discounts if the program was strictly low-income. Therefore, the evaluation team recommends that a per-participant value of $19.40 be applied to Tier 2 customers in the Insulation and Air Sealing offering in the Trade Ally Solutions (formerly the Home Performance with ENERGY STAR Program) based on the results of the most direct benchmarking research available.

Table H-4. Typical Utility Costs Associated with Customer Debt

NEB Estimates from Multiple Weatherization Studies: Dollar and Percentage Analysis	Dollar NEB Values Range Low-High	Typical Value	Percent NEB Values Range Low-High	Typical Value	Notes
UTILITY PERSPECTIVE					
Payment-related					
Carrying cost on arrearages	$1.50 - $4.00	$2.50	0.6% - 4.4%	2.0%	Total arrearages $2-$100; $20-30 typical
Bad Debt Write-offs	$0.50 - $3.75	$1.75	0.4% - 2.0%	0.7%	
Reduced LI subsidy pymt/discounts	$3.00 - $25.00	$13.00	3.9% - 29.0%	16.4%	IF low income program
Shutoffs / Reconnects	$0.10 - $3.65	$0.65	0.1% - 4.4%	0.5%	
Notices	$0.05 - $1.50	$0.60	0.1% - 1.8%	0.9%	
Customer calls / collections	$0.40 - $1.60	$0.90	0.2% - 1.9%	0.6%	

Source: Skumatz Economic Research Associates, Inc. 2014. *Non-Energy Benefits / Non-Energy Impacts (NEBS/NEIS) and Their Role & Values In Cost-Effectiveness Tests: State Of Maryland*.

The evaluation team reviewed other, more recent evaluations of the impact of various program designs on the amount of debt carried by participants. One of these programs, a prepayment program in the

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39 Skumatz Economic Research Associates, Inc. & The Cadmus Group. 2010. *Non Energy Benefits: Status, Findings, Next Steps, and Implications for Low Income Program Analyses in California – Revised Report.*

40 Skumatz Economic Research Associates, Inc. 2014. *Non-Energy Benefits / Non-Energy Impacts (NEBS/NEIS) and Their Role & Values In Cost-Effectiveness Tests: State Of Maryland*.

upper Midwest, showed evidence that customers were able to eliminate approximately $68 in total debt after participating in the program for at least a calendar year. However, key differences between that program design and the low-income offerings in Wisconsin make direct comparisons difficult. These differences include the targeting and/or opening of that offering to customers who are not low-income. However, the total debt paid off through that offering does not necessarily reflect the debt held by strictly low-income customers in Focus on Energy's offerings in Wisconsin.

Interpreting Test Results

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

Because of changes in avoided electric energy and natural gas costs and in emissions allowance prices for the current quadrennium (CY 2019-CY 2022), the cost-effectiveness results reported for Focus on Energy here are not directly comparable with results from its previous quadrennium (CY 2015-CY 2018). The changes to avoided costs tended to decrease the benefit/cost test results across all offerings when compared to the avoided costs used in the previous quadrennium.

Additionally, changes in the calculation of incremental measure costs further reduce the comparability between quadrenniums, as many measures, including most custom measures, saw their approach to measure cost calculation revised between CY 2018, CY 2019, and CY 2020. As with avoided costs, these changes often decreased the benefit/cost ratio at the portfolio level compared to the previous quadrennium. These externalities have an impact on offering and overall portfolio cost-effectiveness; however, they do not directly reflect the overall performance of Focus on Energy.

Energy Avoided Costs

The PSC established the methodology to estimate electric and natural gas avoided energy costs for the CY 2019-CY 2022 Focus quadrennium under PSC docket 5-FE-101 (PSC REF#: 343909). The approach represents a continuation of the avoided cost methodology used for the CY 2015-CY 2018 quadrennium. The source for electric energy avoided costs are based on the Midcontinent Independent Transmission System Operator (MISO) forecasted locational marginal price (LMP), that is, the average of LMPs across Wisconsin nodes. Avoided natural gas costs are calculated based on Energy Information Administration 2018 Annual Energy Outlook forecasts of Henry Hub prices, adjusted using Wisconsin City Gate prices and retail prices. Compared to the previous quadrennium, avoided costs calculated using updated price forecasts for the current quadrennium evaluation are lower by approximately 30%, on average.

The PSC established the step-by-step methodology to estimate avoided electric capacity costs for the CY 2019-CY 2022 Focus quadrennium under PSC docket 5-FE-101 (PSC REF#: 390566).[41] The approach

[41] Public Service Commission of Wisconsin. June 1, 2020. *Quadrennial Planning Process III.* Order PSC Docket 5-FE-101, REF#: 390566. http://apps.psc.wi.gov/vs2015/ERF_view/viewdoc.aspx?docid=390566

relies upon MISO-established Cost of New Entry (CONE) values as well as MISO Narrow Constrained Area net revenues to calculate avoided capacity costs. This methodology aligns with the PSC's decision for the CY 2019-CY 2022 Focus quadrennium that, for the purposes of evaluating Focus on Energy, avoided capacity costs shall be based on the unit costs of a peaker plant.

The forecast model decreases the verified gross energy savings by the conventional attribution factor of NTG to derive net savings. The net savings are then increased by the line loss factor of 8% to account for avoided distribution losses. Table H-5 shows the assumptions for the CY 2018 through CY 2020 evaluation avoided costs used for the cost-effectiveness tests.

Table H-5. Avoided Costs

Avoided Cost	CY 2018	CY 2019	CY 2020
Electric Energy ($/kWh)[a]	$0.04747–$0.06871	$0.03093–$0.04878	$0.03093–$0.05015
Electric Capacity ($/kW year)	$130.26	$117.43–$174.17	$124.75–$176.99
Gas ($/therms)	$0.802–$1.278	$0.538–$0.764	$0.524–$0.777
Transmission and Distribution ($/kW year)	N/A	N/A	$66.34–$68.61
Avoided Cost Inflation	0%	0%	0%
Real Discount Rate	2%	2%	2%
Line Loss	8%	8%	8%

[a] The CY 2020 cost-effectiveness analyses used a time series that grows from $0.03093 to $0.05015 over 14 years in the forecast model.

Avoided Transmission and Distribution Costs

In its Final Decision of June 1, 2020, the PSC directed the Environmental Working Group (EWG) to propose to the PSC a method for calculating avoided T&D costs to be used for the purposes of evaluating Focus on Energy (PSC REF#: 390566). In its Final Decision of March 10, 2021, the PSC approved the EWG's recommended methodology to estimate avoided electric T&D costs for the CY 2019-CY 2022 Focus quadrennium under PSC docket 5-FE-101 (PSC REF#: 406591), with the direction to incorporate avoided T&D costs into a parallel analysis of benefits achieved by Focus on Energy offerings in Quadrennial Planning Process III and to revisit avoided T&D costs in the Quadrennial Planning Process IV.

As stated in the commission order:[42]

> "In order to reduce the year-to-year variability of the costs, a four-year running average of the total miles and the annualized cost per mile per kW-Year are multiplied to get the average cost per kW-Year. For projecting values in future years, this approach escalates the most recent average Midcontinent Independent System Operating (MISO) Cost of New Entry (CONE) value by a growth factor that takes into account inflation and construction costs. The growth factor is calculated by taking the four-year average of construction cost growth as determined by the

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

Wisconsin Department of Transportation in the Chained Fisher Construction Cost Index, and subtracting inflation (U.S. Bureau of Labor Statistics Consumer Price Index, Midwest Region[43]), over the same period."

Following the approval of calculating avoided T&D costs, the evaluation team, using the method specified above, established estimated avoided T&D costs per kW for each year from 2018 to 2051. These values are presented in Table H-6, and are based on PSC order 5-FE-101.[44]

Avoided T&D costs are not applied to renewable projects at this time as insufficient primary data currently exist to verify the net reduction, if any, in T&D needs that would be associated with installing local generation, such as through photovoltaics. Given the current guidance on program design, solar photovoltaic projects cannot be scaled at more than 125% of the baseline consumption of a given location, which caps the potential for an increase in capacity required at the installation location. However, such projects could, in theory, leave the requirements for T&D largely unaffected, as similar values for total kWh could be consumed or generated at that location. Therefore, until further research establishes a specific baseline for T&D impacts based on consumption data for those renewable projects, the evaluation team recommends not applying T&D benefits to any local renewable projects.

[43] Bureau of Labor Statistics Midwest CPI Summaries available here: https://www.bls.gov/regions/midwest/cpisummary/home.htm

[44] Public Service Commission of Wisconsin. January 20, 2021. *Quadrennial Planning Process III* . Order PSC Docket 5-FE-101, REF#: 403255. https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=403255

Table H-6. Calculated and Forecasted Avoided T&D Costs

Year	Avoided T&D Cost ($/kW-Yr)	Year	Avoided T&D Cost ($/kW-Yr)
2018	$66.34	2035	$67.85
2019	$66.40	2036	$67.97
2020	$66.47	2037	$68.09
2021	$66.54	2038	$68.21
2022	$66.61	2039	$68.34
2023	$66.69	2040	$68.47
2024	$66.76	2041	$68.61
2025	$66.85	2042	$68.74
2026	$66.93	2043	$68.88
2027	$67.02	2044	$69.03
2028	$67.11	2045	$69.17
2029	$67.21	2046	$69.32
2030	$67.31	2047	$69.48
2031	$67.41	2048	$69.63
2032	$67.51	2049	$66.34
2033	$67.62	2050	$66.40
2034	$67.73	2051	$69.79

Emissions Benefits

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

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

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

$$Value\ of\ Avoided\ Emissions\ = [Net\ Saved\ Energy\ x\ Emissions\ Factor\ x\ Value\ of\ Emissions\ Allowance]$$

For CY 2020, the evaluation team assessed the electric emissions benefits using a tool developed by the EPA to calculate avoided emissions from renewable energy and energy efficiency programs (the tool is officially called AVERT, or the AVoided Emissions and geneRation Tool). AVERT is a spreadsheet-based model that uses historical hourly generation and emissions data to determine the individual power

plants that are likely to be displaced by energy efficiency or renewable energy during each hour of the year.

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

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

Table H-7 lists the gas emissions factor and allowance prices.

Table H-7. Emissions Factors and Allowance Price

Service Fuel Type	Carbon Dioxide	Nitrogen Oxide	Sulfur Dioxide
Gas Emissions Factor (Tons/MThm)	5.85	N/A	N/A
Allowance Price ($/Ton)	$15	$7.50	$2

For CY 2020, as in previous years, the evaluation team continued to obtain nitrogen oxide and sulfur dioxide emissions allowance prices from the EPA's Cross State Air Pollution Rule, most recently updated in 2018.[45] The team used the carbon dioxide emissions price in the PSC's Order, docket 5-5-FE-101, PSC REF#: 343909, which states, "The Commission finds it reasonable for Focus cost-effectiveness tests to continue valuing avoided carbon dioxide emissions using a market-based value of $15.00 per ton."[46] The natural gas emissions factor has remained constant since the CY 2011 evaluation report and is derived from a best practice greenhouse gas inventory method developed by the California Energy Commission.[47]

Table H-8 lists the emissions benefits for all programs by residential and nonresidential segment.

Table H-8. Total Emissions Benefits by Segment

Year	Residential	Nonresidential	Rural	Midstream [a]	Total
CY 2019 Emissions Benefits	$25,422,131	$91,289,103	$2,092,656	N/A	$118,803,890
CY 2020 Emissions Benefits	$26,004,128	$89,940,588	N/A	$520,240	$116,464,956

[a] The Midstream Solution incents both residential and nonresidential measures through a distributor-based delivery approach.

45 U.S. Environmental Protection Agency. December 14, 2018. "Cross-State Air Pollution Rule." https://www.epa.gov/csapr

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

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

Offering Costs

The CY 2020 offering costs were provided to the evaluation team from Focus on Energy's contract fiscal agent, the accounting firm Wipfli, and represent all costs associated with running the efficiency offerings (including administration and delivery costs). Note that incentive costs are not included as TRC costs because they are deemed transfer payments, which is consistent with industry guidelines defining the TRC test. Incentive costs are, however, used for other costs tests such as the UAT.

Incremental Costs

The gross incremental costs are the additional costs incurred by participants 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 2020 evaluation from the incremental cost study conducted by the administrator, implementers, and evaluation team. This study established up-to-date incremental costs for all measures based on the best available data, including historical Focus on Energy program data and independent research from other state programs.

One notable change to CY 2020 incremental costs from previous years includes an update to the approach taken for calculating many commercial lighting measures. In previous years, baseline costs for these measures were established by using online resources to determine estimated baseline costs. In 2020, costs were derived directly from the program database, which records the total cost of the installation, often including labor, and assumed baseline costs for each measure. This also sometimes includes an update to the fixture baseline costs, where in previous years the full cost of the replacement fixture was subtracted to determine incremental costs. Now the much lower cost of a lamp is subtracted to determine the baseline cost, resulting in higher incremental costs for those measures. The gross incremental costs, like the energy savings used in the cost-effectiveness tests, required the application of attribution factors to account for freeridership. Similar to the previous quadrennium's evaluation effort, the evaluation team assigned actual project cost values from the offering tracking databases to the renewable energy projects.

Lost Revenue

To calculate the RIM test, the evaluation team determined an average value in lost revenue attributable to reductions in energy consumption due to program behavior. The assumptions used for this test are show in Table H-9.

Table H-9. Lost Revenue Inputs

	Weighted Average Rate ($/kWh or Therms)	Annual Net Lost Revenue	Average Measure Life	Total Lost Revenue
Residential Rate (kWh)	$0.1217	$12,166,849	16	$167,329,951
Nonresidential Rate (kWh)	$0.0655	$22,859,696	15	$293,596,252
Midstream Rate (kWh)	$0.0801	$52,621	13	$585,560
Residential Rate (Therms)	$0.5540	$1,394,035	16	$19,172,075
Nonresidential Rate (Therms)	$0.3860	$5,383,783	15	$69,146,090
Midstream Rate (Therms)	$0.4381	$145,180	13	$1,615,546

Cost-Effectiveness Results by Test

Table H-10 presents the inputs and results from the modified TRC test for the Focus on Energy CY 2020 energy efficiency and renewable resource portfolio. Application of the modified TRC test with T&D benefits showed that net statewide benefits to residents, businesses, and Focus on Energy from the CY 2020 offerings were $407,187,907 overall.

Not including T&D, the benefits from the residential offerings were 1.58 times greater than the costs, while the benefits from the nonresidential offering outweighed the costs by a factor of 2.56. Benefits from the Midstream offering outweighed costs by a factor of 1.38. The table also presents the results of the Modified TRC ratio but with the inclusion of T&D avoided costs. Adding these benefits increases the overall modified TRC ratio to 2.43 from 2.24.

Table H-10. CY 2020 Sector-Level and Overall Results, Modified Total Resource Cost Test

	Residential	Nonresidential	Midstream	Total
Administrative Costs	$1,342,023	$1,437,058	$9,657	$2,788,738
Delivery Costs	$12,009,189	$18,009,445	$525,541	$30,544,175
Incremental Measure Costs	$75,928,043	$172,974,089	$2,118,513	$251,020,645
Total TRC Costs	**$89,279,255**	**$192,420,592**	**$2,653,712**	**$284,353,558**
Electric Benefits	$94,780,379	$297,996,141	$684,267	$393,460,787
Gas Benefits	$20,599,359	$103,887,844	$2,463,121	$126,950,324
Emissions Benefits	$26,004,128	$89,940,588	$520,240	$116,464,956
T&D Benefits	$10,443,511	$44,043,325	$178,562	$54,665,398
Total TRC Benefits	**$151,827,378**	**$535,867,898**	**$3,846,189**	**$691,541,465**
TRC Benefits Minus Costs	**$62,548,123**	**$343,447,306**	**$1,192,478**	**$407,187,907**
Modified TRC B/C without T&D Benefits	**1.58**	**2.56**	**1.38**	**2.24**
TRC Benefit/Cost Ratio	**1.70**	**2.78**	**1.45**	**2.43**

Table H-11 resents the inputs and results from the expanded TRC test for the Focus on Energy CY 2020 energy efficiency and renewable resource portfolio. The expanded TRC test includes economic benefits from the portfolio.

Table H-11. CY 2020 Overall Results, Expanded Total Resource Cost Test

	Total
Administrative Costs	$2,788,738
Delivery Costs	$30,544,175
Incremental Measure Costs	$251,020,645
Total TRC Costs	**$284,353,558**
Electric Benefits	$393,460,787
Gas Benefits	$126,950,324
T&D Benefits	$54,665,398
Emissions Benefits	$116,464,956
Economic Benefits	$537,531,292
Total TRC Benefits	**$1,229,072,757**
TRC Benefits Minus Costs	**$944,719,198**
TRC Benefit/Cost Ratio without T&D Benefits	**4.13**
TRC Benefit/Cost Ratio	**4.32**

Table H-12 presents the inputs and results from the UAT for the CY 2020 Focus on Energy portfolio. With T&D benefits incorporated, the benefits from the residential offerings were 3.45 times greater than the costs, while the benefits from the nonresidential offerings outweighed the costs by a factor of 8.68.

Table H-12. CY 2020 Overall Results, Utility Administrator Cost Test

	Residential	Nonresidential	Midstream	Total
Incentive Costs	$23,158,238	$31,909,702	$401,575	$55,469,515
Administrative Costs	$1,342,023	$1,437,058	$9,657	$2,788,738
Delivery Costs	$12,009,189	$18,009,445	$525,541	$30,544,175
Total UAT Costs	**$36,509,450**	**$51,356,204**	**$936,773**	**$88,802,428**
Electric Benefits	$94,780,379	$297,996,141	$684,267	$393,460,787
Gas Benefits	$20,599,359	$103,887,844	$2,463,121	$126,950,324
T&D Benefits	$10,443,511	$44,043,325	$178,562	$54,665,398
Total UAT Benefits	**$125,823,250**	**$445,927,310**	**$3,325,950**	**$575,076,509**
UAT Benefits Minus Costs	**$89,313,799**	**$394,571,106**	**$2,389,176**	**$486,274,082**
UAT Benefit/Cost Ratio without T&D Benefits	**3.16**	**7.83**	**3.36**	**5.86**
UAT Benefit/Cost Ratio	**3.45**	**8.68**	**3.55**	**6.48**

Table H-13 shows the inputs and results from the RIM test for CY 2020 energy efficiency and renewable resource offerings. As expected, estimated benefit/cost value from the RIM test is less than 1. When interpreted within the context of the UAT test 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.

Table H-13. CY 2020 Sector-Level and Overall Results, Ratepayer Impact Measure Test

	Residential	Nonresidential	Midstream	Total
Incentive Costs	$23,158,238	$31,909,702	$401,575	$55,469,515
Electric Lost Revenues	$188,518,537	$306,703,971	$585,560	$495,808,067
Gas Lost Revenues	$19,172,075	$69,146,090	$1,615,546	$89,933,710
Administrative Costs	$1,342,023	$1,437,058	$9,657	$2,788,738
Delivery Costs	$12,009,189	$18,009,445	$525,541	$30,544,175
Total RIM Costs	**$244,200,062**	**$427,206,265**	**$3,137,879**	**$674,544,205**
Electric Benefits	$94,780,379	$297,996,141	$684,267	$393,460,787
Gas Benefits	$20,599,359	$103,887,844	$2,463,121	$126,950,324
Total RIM Benefits	**$115,379,738**	**$401,883,984**	**$3,147,388**	**$520,411,111**
RIM Benefits Minus Costs	**($128,820,324)**	**($25,322,280)**	**$9,510**	**($154,133,0940)**
RIM Benefit/Cost Ratio[a]	**0.47**	**0.94**	**1.00**	**0.77**

[a] For the CY 2020 cost-effectiveness analysis, lost revenue portion of RIM test assumes a fixed utility rate that does not escalate over time; avoided energy costs are escalated on a yearly basis resulting in greater benefits than costs for the nonresidential portfolio.

Table H-14 shows the inputs and results from the societal test for CY 2020 energy efficiency and renewable resource offerings. As expected, estimated benefit/cost value from the societal test is the highest of all the tests, including the same costs as the modified TRC, with additional non-energy benefits. When interpreted within the context of the modified TRC test results, these findings suggest that substantial additional benefits are provided by Focus on Energy activities, generating additional value in terms of personal health cost savings, water savings, lighting purchase deferrals, property values, and arrearage repayment assistance. Including T&D benefits, the benefits from the residential offerings were 2.16 times greater than the costs, while the benefits from the nonresidential offerings outweighed the costs by a factor of 3.18.

Table H-14. CY 2020 Sector-Level and Overall Results, Societal Test

	Residential	Nonresidential	Midstream	Total
Administrative Costs	$1,342,023	$1,437,058	$9,657	$2,788,738
Delivery Costs	$12,009,189	$18,009,445	$525,541	$30,544,175
Incremental Measure Costs	$75,928,043	$172,974,089	$2,118,513	$251,020,645
Total Non-Incentive Costs	**$89,279,255**	**$192,420,592**	**$2,653,712**	**$284,353,558**
Electric Benefits	$94,780,379	$297,996,141	$684,267	$393,460,787
Gas Benefits	$20,599,359	$103,887,844	$2,463,121	$126,950,324
Emissions Benefits	$26,004,128	$89,940,588	$520,240	$116,464,956
T&D Benefits	$10,443,511	$44,043,325	$178,562	$54,665,398
Health Benefits	$19,794,714	$68,410,486	$130,055	$88,335,255
Water Benefits	$6,210,568	$471,793	$84,841	$6,767,201
Purchase Deferral Benefits	$7,811,700	$7,086,930	$0	$14,898,630
Other Non-Energy Benefits [a]	$7,255,938	$0	$0	$7,255,938
Economic Benefits	N/A	N/A	N/A	$537,531,292
Total SOC Benefits	**$192,900,298**	**$611,837,107**	**$4,061,085**	**$1,346,329,781**
SOC Benefits Minus Costs	**$103,621,043**	**$419,416,515**	**$1,407,373**	**$1,061,976,223**
SOC Ratio without T&D Benefits	**2.04**	**2.95**	**1.46**	**4.54**
SOC Ratio	**2.16**	**3.18**	**1.53**	**4.73**

[a] Includes Property Values and Arrearages

Cost-Effectiveness Results by Offering

Table H-15 and Table H-16 provide the sector-level and overall results of the cost-effectiveness analysis shown by core efficiency offerings, rural offerings, and renewables. In CY 2020, cost-effectiveness is presented in more detail because of the presence of rural and renewable programs. Incentive costs are provided below, but they are not included in the TRC calculation. The TRC ratio equals the total TRC benefits divided by total non-incentive costs. Table H-17 provides UAT rest results. Table H-18 provides RIM test results. Table H-19 provides Societal test results.

Table H-15. CY 2020 Overall Cost-Effectiveness Analysis with Portfolio Breakout

Focus on Energy Benefits and Costs		Portfolio Breakout	Core Efficiency	Rural	Renewables
Incentives	$55,469,515		$47,677,244	$3,171,874	$4,620,397
Modified TRC Benefits	$691,541,465		$597,095,217	$40,036,111	$54,410,137
Modified TRC Costs	$284,353,558		$231,190,174	$9,450,821	$43,712,564
Portfolio TRC Ratio	**2.43**	Alone	**2.58**	**4.24**	**1.24**
		With Core		**2.65**	**2.37**
		With Core (All Efficiency)			**2.43**
		With Core and Rural			**2.43**

Table H-16. CY 2020 Overall with Renewables Separate Cost-Effectiveness Analysis, Modified Total Resource Cost Test

	Residential	Nonresidential	Midstream	Renewables	Total
Incentive Costs	$20,320,494	$30,003,701	$401,575	$4,743,745	$55,469,515
Administrative Costs	$1,292,223	$1,422,713	$9,657	$64,144	$2,788,738
Delivery Costs	$11,563,550	$17,745,763	$525,541	$709,320	$30,544,175
Incremental Measure Costs	$47,796,116	$158,148,925	$2,118,513	$42,957,092	$251,020,645
Total Non-Incentive Costs	**$60,651,889**	**$177,317,401**	**$2,653,712**	**$43,730,556**	**$284,353,558**
Electric Benefits	$71,967,357	$274,243,541	$684,267	$46,565,622	$393,460,787
Gas Benefits	$20,599,359	$103,887,844	$2,463,121	$0	$126,950,324
Emissions Benefits	$22,299,686	$85,800,515	$520,240	$7,844,515	$116,464,956
T&D Benefits	$10,443,511	$44,043,325	$178,562	$0	$54,665,398
Total TRC Benefits	**$125,309,914**	**$507,975,225**	**$3,846,189**	**$54,410,137**	**$691,541,465**
TRC Benefits Minus Costs	**$64,658,025**	**$330,657,824**	**$1,192,478**	**$10,679,580**	**$407,187,907**
TRC Ratio without T&D Benefits	**1.89**	**2.62**	**1.38**	**1.24**	**2.24**
TRC Ratio	**2.07**	**2.86**	**1.45**	**1.24**	**2.43**

Table H-17. CY 2020 Overall with Renewables Separate Cost-Effectiveness Analysis, Utility Administrator Cost Test

	Residential	Nonresidential	Midstream	Renewables	Total
Incentive Costs	$20,320,494	$30,003,701	$401,575	$4,743,745	$55,469,515
Administrative Costs	$1,292,223	$1,422,713	$9,657	$64,144	$2,788,738
Delivery Costs	$11,563,550	$17,745,763	$525,541	$709,320	$30,544,175
Total Non-Incentive Costs	**$33,176,267**	**$49,172,177**	**$936,773**	**$5,517,210**	**$88,802,428**
Electric Benefits	$71,967,357	$274,243,541	$684,267	$46,565,622	$393,460,787
Gas Benefits	$20,599,359	$103,887,844	$2,463,121	$0	$126,950,324
T&D Benefits	$10,443,511	$44,043,325	$178,562	$0	$54,665,398
Total UAT Benefits	**$103,010,228**	**$422,174,710**	**$3,325,950**	**$46,565,622**	**$575,076,509**
UAT Benefits Minus Costs	**$69,833,961**	**$373,002,533**	**$2,389,176**	**$41,048,412**	**$486,274,082**
UAT Ratio without T&D Benefits	**2.79**	**7.69**	**3.36**	**8.44**	**5.86**
UAT Ratio	**3.10**	**8.59**	**3.55**	**8.44**	**6.48**

Table H-18. CY 2020 Overall with Renewables Separate Cost-Effectiveness Analysis, Ratepayer Impact Measure Test

	Residential	Nonresidential	Midstream	Renewables	Total
Incentive Costs	$20,320,494	$30,003,701	$401,575	$4,743,745	$55,469,515
Electric Lost Revenues	$167,329,951	$293,596,252	$585,560	$34,296,304	$495,808,067
Gas Lost Revenues	$19,172,075	$69,146,090	$1,615,546	$0	$89,933,710
Administrative Costs	$1,292,223	$1,422,713	$9,657	$64,144	$2,788,738
Delivery Costs	$11,563,550	$17,745,763	$525,541	$709,320	$30,544,175
Total RIM Costs	**$219,678,293**	**$411,914,519**	**$3,137,879**	**$39,813,514**	**$674,544,205**
Electric Benefits	$71,967,357	$274,243,541	$684,267	$46,565,622	$393,460,787
Gas Benefits	$20,599,359	$103,887,844	$2,463,121	$0	$126,950,324
Total RIM Benefits	**$92,566,716**	**$378,131,384**	**$3,147,388**	**$46,565,622**	**$520,411,111**
RIM Benefits Minus Costs	**$(127,111,577)**	**$(33,783,135)**	**$9,510**	**$6,752,108**	**$(154,133,094)**
RIM B/C Ratio	**0.42**	**0.92**	**1.00**	**1.17**	**0.77**

Table H-19. Overall with Renewables Separate Cost-Effectiveness Analysis, Societal Test

	Residential	Nonresidential	Midstream	Renewables	Total
Incentive Costs	$20,320,494	$30,003,701	$401,575	$4,743,745	$55,469,515
Administrative Costs	$1,292,223	$1,422,713	$9,657	$64,144	$2,788,738
Delivery Costs	$11,563,550	$17,745,763	$525,541	$709,320	$30,544,175
Incremental Measure Costs	$47,796,116	$158,148,925	$2,118,513	$42,957,092	$251,020,645
Total Non-Incentive Costs	**$60,651,889**	**$177,317,401**	**$2,653,712**	**$43,730,556**	**$284,353,558**
Electric Benefits	$71,967,357	$274,243,541	$684,267	$46,565,622	$393,460,787
Gas Benefits	$20,599,359	$103,887,844	$2,463,121	$0	$126,950,324
Emissions Benefits	$22,299,686	$85,800,515	$520,240	$7,844,515	$116,464,956
T&D Benefits	$10,443,511	$44,043,325	$178,562	$0	$54,665,398
Health Benefits	$17,686,471	$65,987,253	$130,055	$4,531,476	$88,335,255
Water Benefits	$6,210,568	$471,793	$84,841	$0	$6,767,201
Purchase Deferral	$7,811,700	$7,086,930	$0	$0	$14,898,630
Other Non Energy Benefits [a]	$7,255,938	$0	$0	$0	$7,255,938
Economic Benefits	N/A	N/A	N/A	N/A	$537,531,292
Total SOC Benefits	**$164,274,591**	**$581,521,201**	**$4,061,085**	**$58,941,613**	**$1,346,329,781**
SOC Benefits Minus Costs	**$103,622,702**	**$404,203,800**	**$1,407,373**	**$15,211,057**	**$1,061,976,223**
SOC Ratio without T&D Benefits	**2.54**	**3.03**	**1.46**	**1.35**	**4.54**
SOC Ratio	**2.71**	**3.28**	**1.53**	**1.35**	**4.73**

[a] Includes property values and arrearages

Table H-20 provides the residential offerings cost-effectiveness analysis. Incentive costs are provided below, but they are not included in the TRC calculation. The TRC ratio equals the total TRC benefits divided by total non-incentive costs. The values provided are exclusive of renewable and rural offerings.

Table H-20. CY 2020 Residential and Midstream Offerings Cost-Effectiveness Analysis

	Direct to Customer				Trade Ally Solutions		Residential New Construction	Midstream
	Appliance Recycling	Online Marketplace	Packs	Retail	Building Shell	Heating and Cooling		
Incentive Costs	$5,975	$1,672,091	$1,861,274	$8,809,196	$1,921,331	$4,528,242	$1,256,900	$401,575
Non Incentive Costs	$3,539	$990,367	$1,102,418	$5,217,619	$1,326,669	$3,126,728	$863,554	$535,198
Incremental Measure Costs	$254,148	$2,674,804	$2,538,092	$2,867,555	$8,488,165	$30,836,371	$0	$2,118,513
Total Non-Incentive Costs	**$257,687**	**$3,665,171**	**$3,640,510**	**$8,085,174**	**$9,814,834**	**$33,963,099**	**$863,554**	**$2,653,712**
Electric Benefits (kWh)	$683,110	$7,218,222	$8,320,874	$24,027,507	$1,459,203	$5,497,725	$0	$293,032
Electric Benefits (kW)	$324,644	$2,129,751	$3,208,418	$10,504,927	$2,087,581	$4,938,318	$0	$391,235
T&D Benefits	$153,631	$953,252	$1,456,402	$4,694,424	$902,231	$2,103,183	$0	$178,562
Gas Benefits	$0	$2,131,919	$4,152,373	$552,913	$2,664,273	$10,632,833	$341,038	$2,463,121
Emissions Benefits	$277,766	$3,183,216	$3,960,536	$9,470,664	$996,107	$3,877,143	$58,525	$520,240
Total TRC Benefits	**$1,439,150**	**$15,616,360**	**$21,098,602**	**$49,250,436**	**$8,109,395**	**$27,049,200**	**$399,563**	**$3,846,189**
TRC Benefits Minus Costs	**$1,181,463**	**$11,951,189**	**$17,458,092**	**$41,165,262**	**($1,705,439)**	**($6,913,899)**	**($463,991)**	**$1,192,478**
TRC Ratio without T&D Benefits	**4.99**	**4.00**	**5.40**	**5.51**	**0.73**	**0.73**	**0.46**	**1.38**
TRC Ratio	**5.58**	**4.26**	**5.80**	**6.09**	**0.83**	**0.80**	**0.46**	**1.45**

Table H-21 provides nonresidential offerings cost-effectiveness analysis. Incentive costs are provided below, but they are not included in the TRC calculation. The TRC ratio equals the total TRC benefits divided by total non-incentive costs. The values provided are exclusive of rural and renewable programs.

Table H-21. CY 2020 Nonresidential Offerings Cost-Effectiveness Analysis

	Business and Industry			Business New Construction		Schools and Government	
	C&I	Large Industrial	Small Business	Design Assistance	Prescriptive	School	Government
Incentive Costs	$7,859,815	$7,078,021	$5,219	$4,023,298	$2,066,939	$3,778,175	$2,409,195
Non Incentive Costs	$5,082,326	$4,576,801	$3,374	$2,277,951	$1,170,280	$2,362,724	$1,506,617
Incremental Measure Costs	$37,219,013	$32,856,569	$4,018	$25,762,425	$7,937,797	$32,268,047	$15,218,491
Total Non-Incentive Costs	**$42,301,339**	**$37,433,370**	**$7,393**	**$28,040,376**	**$9,108,077**	**$34,630,771**	**$16,725,108**
Electric Benefits (kWh)	$52,933,150	$46,751,250	$14,335	$20,364,112	$15,333,031	$13,195,296	$11,968,693
Electric Benefits (kW)	$29,957,075	$21,493,819	$5,988	$14,252,340	$8,171,810	$10,447,739	$5,853,589
T&D Benefits	$13,539,668	$9,552,662	$2,901	$6,164,962	$3,682,144	$4,718,626	$2,620,338
Gas Benefits	$11,205,297	$54,648,502	$1,444	$9,424,691	$3,960,383	$9,731,053	$11,021,365
Emissions Benefits	$22,759,587	$27,167,529	$5,038	$9,322,565	$6,680,503	$6,817,123	$6,517,712
Total TRC Benefits	**$130,394,777**	**$159,613,761**	**$29,706**	**$59,528,670**	**$37,827,871**	**$44,909,838**	**$37,981,698**
TRC Benefits Minus Costs	**$88,093,438**	**$122,180,392**	**$22,313**	**$31,488,293**	**$28,719,794**	**$10,279,067**	**$21,256,590**
TRC Ratio without T&D Benefits	**2.76**	**4.01**	**3.63**	**1.90**	**3.75**	**1.16**	**2.11**
TRC Ratio	**3.08**	**4.26**	**4.02**	**2.12**	**4.15**	**1.30**	**2.27**

Table H-22 provides results of the cost-effectiveness analysis for offerings targeted to customers in rural areas. The values provided are exclusive of renewable programs.

Table H-22. CY 2020 Rural Non Renewable Cost-Effectiveness Analysis

	Direct to Customer		Trade Ally Solutions	Business and Industry	
	Farmhouse Kits	Pop-Up Retail	Building Shell Rural	Agribusiness	Non-Agriculture Rural
Incentive Costs	$21,877	$239,734	$3,875	$2,231,388	$551,652
Non-Incentive Costs	$10,187	$111,628	$103,065	$1,754,619	$433,784
Incremental Measure Costs	$19,355	$117,626	$0	$5,414,608	$1,467,956
Total Non-Incentive Costs	**$29,542**	**$229,254**	**$103,065**	**$7,169,228**	**$1,901,740**
Electric Benefits (kWh)	$80,724	$1,085,107	$0	$12,793,343	$2,283,886
Electric Benefits (kW)	$29,150	$372,098	$0	$7,125,610	$1,298,475
T&D Benefits	$13,212	$167,176	$0	$3,183,037	$578,987
Gas Benefits	$55,893	$68,117	$0	$2,095,665	$1,799,444
Emissions Benefits	$40,059	$435,672	$0	$5,342,536	$1,187,921
Total TRC Benefits	**$219,037**	**$2,128,169**	**$0**	**$30,540,191**	**$7,148,713**
TRC Benefits Minus Costs	**$189,496**	**$1,898,916**	**($103,065)**	**$23,370,963**	**$5,246,973**
TRC Ratio without T&D Benefits	**6.97**	**8.55**	**N/A**	**3.82**	**3.45**
TRC Ratio	**7.41**	**9.28**	**N/A**	**4.26**	**3.76**

Cost-Effectiveness Results for Renewables

Table H-23 lists the CY 2019 and CY 2020 cost-effectiveness results, with renewables excluded and with renewables included. CY 2020 values include T&D benefits.

Table H-23. Cost-Effectiveness Results for Focus on Energy Portfolio

Calendar Year	Residential	Nonresidential	Midstream	Renewables	Total
CY 2019: Modified TRC Test Result with Renewables	1.70	2.99	N/A	N/A	**2.58**
CY 2019: Modified TRC Test Result Renewables Excluded	1.79	3.11	N/A	1.51	**2.58**
CY 2020: Modified TRC Test Result with Renewables	1.70	2.78	1.45	N/A	**2.43**
CY 2020: Modified TRC Test Result Renewables Excluded	2.07	2.86	1.45	1.24	**2.43**

Appendix I. Summary of Confidence and Precision

Focus on Energy gives significant consideration to evaluation design to ensure that its offerings achieve the most accurate and reliable results possible under the available evaluation budget. The evaluation uses statistical confidence and precision standards as a key driver in determining the scale and scope of the evaluation design for each offering for which the target for net savings over the CY 2019-CY 2022 quadrennium is 90% confidence and 10% precision.

The evaluation team calculated the precision of final net first-year and lifetime energy savings estimates (MMBtu) at 90% confidence for each offering in the Focus on Energy portfolio. The precision reflects the uncertainty in the savings estimates because of measurement error, regression error, and sampling error. Measurement error refers to the uncertainty around engineering parameters derived from simulation or professional judgment, regression error refers to uncertainty around estimates derived from regression analysis, and sampling error refers to uncertainty introduced by estimating population parameters based on a sample.

After calculating standard errors, the Evaluation Team calculated the precision of the final estimates using the following formula:

$$relative\ precision = \frac{z\text{-}statistic * SE}{total\ net\ savings}$$

Where:

z-statistic	=	Critical value at a specific confidence level
SE	=	Standard error of the total net savings estimate
total net savings	=	Total net savings estimated based on the evaluation results

This appendix provides details on how the evaluation team calculated total net savings estimates and their standard errors.

Introduction to Statistical Uncertainty

The Evaluation Team collected data from surveys, billing histories, meters, and secondary sources including the technical reference manual (TRM) to estimate net savings for each program and the portfolio. Statistical uncertainty is inherent in all activities for which samples or models are used to estimate a property of a population. Using sampled data is often preferred to save on costs and time associated with studying an entire population and because random samples of the population provide sufficiently reliable results. The strength of an estimate is related to the amount of uncertainty or error around it, which is determined based on the statistical properties of sampled data and how they are used to make inferences about a population.

Statistical uncertainty comprises two parts: the confidence and the precision of the estimate. Confidence intervals show the range of values within which one expects the unknown population

parameter to fall. Confidence refers to the probability that the true value of the metric of interest (such as kilowatt-hours saved) will fall within some level of precision.

A statement of precision without a statement of confidence is misleading. For example, if energy savings is estimated as 24 kWh with precision of ±5 kWh at 90% confidence, the interpretation is that one is 90% confident that the true energy savings is between 19 kWh and 29 kWh. Narrower confidence intervals indicate that the savings estimate is very precise, and wider confidence intervals indicate that the variability in the data is large and that more information would be required to produce a more precise estimate.

For the Focus on Energy evaluation, the general standard for uncertainty is to achieve evaluation results with 90% confidence and 10% precision over the CY 2019-CY 2022 quadrennium. Evaluation activities are defined and prioritized to align with this standard. This standard is in line with nationwide best practices for the evaluation of energy efficiency programs, as documented in the U.S. Environmental Protection Agency's National Action Plan for Energy Efficiency and elsewhere.[48]

Combining Net Uncertainty with Gross Uncertainty

When two estimates are based on different evaluation activities and combined to produce a final estimate, the uncertainty from each estimate must be considered in calculating the uncertainty of the final estimate. For example, if one set of data collected from surveys, billing analyses, metering, and/or TRM review is used to estimate gross savings and another set of data collected from a separate survey is used to estimate spillover, freeridership, and net-to-gross (NTG) ratios and then that NTG ratio is applied to the gross savings to estimate net savings, the standard error of total net savings should be based on the standard error of gross savings and the NTG ratio. Details are provided below, specific to each set of programs.

When the Evaluation Team estimated NTG ratios using survey data collected from an independent simple random sample of participants, it used a ratio estimator and its standard error formula to quantify the uncertainty in the NTG ratios where net savings are represented by y_i, *ex post* savings are represented by x_i, and the standard error of the NTG ratio estimate is represented by SE_{NTG}, in the following formulas:

$$NTG\ Ratio = \frac{\sum_{sample} y_i}{\sum_{sample} x_i}$$

$$SE_{NTG} = \sqrt{\sum_{i=1}^{n} \frac{(y_i - NTG\ Ratio * x_i)^2}{\bar{x}^2 * n(n-1)}}$$

[48] U.S. Environmental Protection Agency. Accessed April 2019. "Energy and the Environment. National Action Plan for Energy Efficiency." https://www.epa.gov/energy/national-action-plan-energy-efficiency

The Evaluation Team then multiplied the NTG ratio to the total *ex post* gross savings to estimate total net savings and used the formula for the standard error of the product of two independent random variables to calculate precision, as shown in this formula:

$$SE_{total\ net\ savings} = \sqrt{NTG^2 * SE^2_{total\ ex\ post\ gross\ savings} + total\ ex\ post\ gross\ savings^2 * SE^2_{NTG} + SE^2_{NTG} * SE^2_{total\ ex\ post\ gross\ savings}}$$

The Evaluation Team used this method for all programs unless otherwise noted.

Nonresidential Offerings

The Evaluation Team selected a sample of projects in each nonresidential program to estimate *ex post* verified gross savings. It used a stratified sample design with a random stratum and a census stratum in most offerings. Sampling took place throughout the evaluation year in three waves. The initial plan was to sample the largest ten projects in each offering as census along with a random sample for all remaining projects. In Wave 1, the Evaluation Team followed this approach, however after reviewing the project data and the characteristics of each offering Cadmus adjusted the sampling approach for Waves 2 and 3, such that projects whose savings were above a percentage threshold of total offering savings were placed in the census stratum. The sample design was very successful in achieving low precision values for all offerings as seen in the 2020 precision results.

The Evaluation Team applied the realization rates to the population total *ex ante* savings in each program by wave to estimate that wave's population total *ex post* gross savings. It calculated realization rates and standard errors in the random stratum in each wave using the formulas presented in the Uniform Methods Project (UMP) sampling chapter.[49] In the following formulas, y_i represents ex post savings for each evaluated measure, x_i represents ex ante savings for each measure, and n represents each wave's sample size.

$$RR_{random\ stratum} = \frac{\sum_{sample} y_i}{\sum_{sample} x_i}$$

$$random\ stratum\ ex\ post\ gross\ savings = RR_{random\ stratum} * \sum_{random\ stratum\ population} x_i$$

$$SE_{random\ stratum\ total\ ex\ post\ gross\ savings} = \frac{\sum_{random\ stratum\ population} x_i}{\sqrt{n} * \bar{x_i}} * \sqrt{\sum_{i=1}^{n} \frac{(y_i - RR * x_i)^2}{n-1}}$$

Realization rates were also calculated for the census strata within each offering. In the census stratum, all projects are evaluated, in order to directly verify the largest saving projects. The census stratum has

[49] National Renewable Energy Laboratory. April 2013. *The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures.* "Chapter 11: Sample Design Cross-Cutting Protocols." Prepared by Cadmus. http://energy.gov/sites/prod/files/2013/11/f5/53827-11.pdf

no sampling error. To estimate a single standard for each wave's combined census and random strata, the Evaluation Team used the following formula.

$$SE_{wave\ total\ ex\ post\ gross\ savings} = \sqrt{(SE_{random\ stratum\ total\ ex\ post\ gross\ savings})^2 + (SE_{census\ stratum\ total\ ex\ post\ gross\ savings})^2}$$

As the standard error of the census stratum is zero, the standard error for the wave simplifies to the following:

$$SE_{wave\ total\ ex\ post\ gross\ savings} = SE_{random\ stratum\ total\ ex\ post\ gross\ savings}$$

The following formulas show the realization rate calculations for the census stratum, and the method for calculating a single realization rate for the wave. Similar methods as were used to combine census and random stratum standard errors and realization rate within waves were also used across waves.

$$RR_{census\ stratum} = \frac{\sum_{census} y_i}{\sum_{census} x_i}$$

$$census\ stratum\ ex\ post\ gross\ savings = RR_{census\ stratum} * \sum_{census\ stratum\ population} x_i$$

$$RR_{wave} = \frac{random\ stratum\ ex\ post\ gross\ savings + census\ stratum\ ex\ post\ gross\ savings}{\sum_{wave} x_i}$$

The team estimated nonresidential NTG ratios using survey data collected from an independent simple random sample of participants then multiplied these ratios with the total *ex post* gross savings to estimate total net savings for each offering. It used a ratio estimator and standard error formula described above to quantify the uncertainty in the NTG ratios.

Table I-1 presents the precision of total net first and cumulative year MMBtu savings estimates at 90% confidence for each nonresidential offering by program year. The sources of uncertainty in all nonresidential savings estimates were due to estimating the realization rate and NTG values based on samples.

Table I-1. Nonresidential Net First-Year MMBtu Energy Savings Precision

Nonresidential Offerings	Precision at 90% Confidence			
	CY 2020	CY 2021	CY 2022	Cumulative[a]
Agriculture	9%	TBD	TBD	9%
Commercial and Industrial	17%	TBD	TBD	17%
Schools	12%	TBD	TBD	12%
Large Industrial	12%	TBD	TBD	12%
Government	12%	TBD	TBD	12%
New Construction: Design	25%	TBD	TBD	25%
New Construction: Prescriptive	19%	TBD	TBD	19%
Renewable Energy Competitive Incentive	9%	TBD	TBD	9%
Renewable Rewards	13%	TBD	TBD	13%

[a] Between CY 2019 and CY 2020 the non-residential programs were reorganized. CY 2019 precision was calculated at the program level, which does not align with the offerings in CY 2020, therefore cumulative precision does not include CY 2019.

Residential Offerings

The evaluation team used various methods to evaluate the residential programs. Methods for the remaining programs are described below. Table I-2 presents the precision of total net savings estimates and the sources of uncertainty for each residential program, by program year as well as cumulative.

Table I-2. Residential Net First-Year MMBtu Energy Savings Precision (90% Confidence)

Residential Offerings	Precision at 90% Confidence					Sources of Uncertainty
	CY 2019	CY 2020	CY 2021	CY 2022	Cumulative	
Appliance Recycling	38%	32%	TBD	TBD	19%	UEC Model, Part Use, and NTG ratio
Trade Ally Solutions [a]	2%	3%	TBD	TBD	2%	PRISM model, NTG ratio
New Homes Program	122%[v]	8%	N/A	N/A	63%	PRISM model
Retail	53%	13%	TBD	TBD	32%	ISR and NTG ratio
Packs	2%	3%	TBD	TBD	2%	Survey estimated ISRs and NTG ratios
Online Marketplace	10%	28%	TBD	TBD	26%	ISR and NTG ratio

[a] Whole-home and HVAC measures did not map to current Trade Ally Solutions offerings. In order to calculate cumulative precision across years, precision was rolled up across programs/offerings.

[b] High relative precision around first-year MMBtu savings in the New Homes Program resulted from a small savings estimate (0.004 therms/sq ft).

Appendix J. Measure Analysis

This appendix describes the analyses of measures delivered by specific Focus on Energy offerings during CY 2020. It includes the methodologies the evaluation team followed and describes the results applied to the CY 2020 evaluation.

This appendix describes how the evaluation team estimated per-unit kWh savings for recycled refrigerators and freezers in the Appliance Recycling offering and LED per-bulb savings in the Retail offering.

This appendix also describes the team's analysis of realization rates for a sample of projects from these nonresidential offerings—Large Industrial, Commercial and Industrial, Agribusiness, Schools, Government, New Construction Prescriptive, New Construction Design Assistance/Review, and RECIP.

Direct to Customer: Appliance Recycling Offering

In CY 2020, the evaluation team estimated the per-unit savings for recycled refrigerators and freezers using the same meter data and multivariate regression models as in the CY 2013 through CY 2019 evaluations.

Regression Models

Table J-1 shows the model specification along with the model's estimated coefficients the evaluation team used to estimate the annual energy consumption of refrigerators recycled in CY 2020.

Table J-1. Refrigerator Unit Energy Consumption Regression Model Estimates (Dependent Variable = Average Daily kWh, R-squared = 0.30)

Independent Variables	Coefficient	p-Value
Intercept	0.80	0.134
Age (years)	0.02	0.035
Dummy: Manufactured Pre-1990	1.04	0.000
Size (square feet)	0.06	0.021
Dummy: Single Door	-1.75	0.000
Dummy: Side-by-Side	1.12	0.000
Dummy: Primary	0.56	0.003
Interaction: Unconditioned Space x Heating Degree Days (HDDs)	-0.04	0.000
Interaction: Unconditioned Space x Cooling Degree Days (CDDs)	0.03	0.239

Table J-2 details the final model specifications along with the model's estimated coefficients the evaluation team used to estimate the energy consumption of participating freezers recycled in CY 2020.

Table J-2. Freezer Unit Energy Consumption Regression Model Estimates (Dependent Variable = Average Daily kWh, R-squared = 0.38)

Independent Variables	Coefficient	p-Value
Intercept	-0.95	0.236
Age (years)	0.05	0.010
Dummy: Manufactured Pre-1990	0.54	0.202
Size (square feet)	0.12	0.001
Dummy: Chest Freezer	0.30	0.273
Interaction: Unconditioned Space x HDDs	-0.03	0.035
Interaction: Unconditioned Space x CDDs	0.08	0.026

Extrapolation

After estimating the final regression models, the evaluation team analyzed the corresponding characteristics (independent variables) for participating appliances as captured in the implementer's database.[50] Table J-3 lists Appliance Recycling averages or proportions for each independent variable.

Table J-3. CY 2020 Participant Mean Explanatory Variables

Appliance	Independent Variables	Participant Population Mean Value
Refrigerator	Age (years)	21.25
	Dummy: Manufactured Pre-1990	19.28
	Size (square feet)	0.22
	Dummy: Single Door	0.05
	Dummy: Side-by-Side	0.22
	Dummy: Primary	0.47
	Interaction: Unconditioned Space x HDDs[a]	6.36
	Interaction: Unconditioned Space x CDDs[a]	0.45
Freezer	Age (years)	25.94
	Dummy: Manufactured Pre-1990	17.45
	Size (square feet)	0.40
	Dummy: Chest Freezer	0.52
	Interaction: Unconditioned Space x HDDs[a]	8.58
	Interaction: Unconditioned Space x CDDs[a]	0.60

[a] CDDs and HDDs derive from the weighted average from typical meteorological year data for weather stations the evaluation team mapped to participating appliance zip codes. Typical meteorological year data uses median daily values for a variety of weather data collected from 1991–2005.

Using the values from Table J-1, Table J-2, and Table J-3, the evaluation team estimated the *ex post* annual unit energy consumption (UEC) of the average refrigerator and freezer participating in the Appliance Recycling Offering. Table J-4 shows the estimated *ex post* estimates.

[50] These data were not available in SPECTRUM. The evaluation team requested and received these data from ARCA, the implementer, in January 2020.

Table J-4. Average UEC by Appliance Type

Appliance	Ex Post Annual UEC (kWh/year)	Relative Precision (90% Confidence)
Refrigerators	1,020	±0.11%
Freezers	949	±0.23%

Part-Use Factor

Part-use is an adjustment factor specific to appliance recycling that is used to convert the UEC into an average per-unit gross savings. The UEC itself is not equal to the gross savings for these two reasons:

- The UEC model yields an estimate of annual consumption.
- Not all recycled refrigerators would have operated year-round had they not been decommissioned through the program.

The part-use methodology relies on information from surveyed participants regarding how the unit was used prior to participating in the program, that is, how many months of the year the appliance was plugged in and running prior to recycling.

The final estimate of part-use reflects how appliances were likely to operate had they not been recycled (rather than how they previously operated). For example, it is possible that a primary refrigerator operated year-round would have become a secondary appliance and operated part-time.

The methodology accounts for these potential shifts in usage types. Specifically, part-use is calculated using a weighted average of the following prospective part-use categories and factors:

- Appliances that would have run full-time (part-use = 1.0)
- Appliances that would not have run at all (part-use = 0.0)
- Appliances that would have operated a portion of the year (part-use is between 0.0 and 1.0)

The evaluation team calculated a weighted average part-use factor, representing these three participant usage categories as defined by the operational status of the appliance during the year before recycling. For example, the team gave participants a part-use factor of zero if they did not use their appliance at all during the year prior to its recycling, as no immediate savings were generated by the appliance's retirement.

Using information gathered through participant surveys, the team took the following steps to determine part-use:

1. Determined whether recycled refrigerators were primary or secondary units (treating all stand-alone freezers as secondary units).
2. Asked participants who indicated they had recycled a secondary refrigerator or freezer if the appliance had operated year-round, operated for a portion of the preceding year, or was unplugged and not operated. All primary units were assumed to have operated year-round.

3. Asked participants who indicated they operated their secondary refrigerator or freezer for only a portion of the preceding year to estimate the total number of months the appliance remained plugged in. This allowed the calculation of the portion of the year in which the appliance remained in use. The evaluation team determined that the average refrigerator, operating part of the time, had a part-use factor of 0.38, or 4.6 months. Freezers operating part of the time had a part-use factor of 0.58, or seven months.

In CY 2020, the part-use factor for part-time units was much higher than in CY 2019 (the most recent year surveys were fielded to measure part-use). Part-time refrigerators had a part-use factor of 0.38 in 2020, compared to 0.11 in 2019. Part-time freezers had a part use factor of 0.58 in 2020, compared to 0.08 in 2019.

However, a high share of survey respondents answered "don't know" to questions asking whether they would keep their appliance absent the program. This meant these respondents skipped questions regarding part-use and freeridership. Respondents who did not know what they would have done with their appliance absent the program may differ from respondents who did answer all of the questions, and this could bias the part-use estimates for 2020.

The three steps listed above resulted in information about how refrigerators and freezers operated prior to recycling, as shown in Table J-5.

Table J-5. Historical Part-Use Factors by Category

Usage Type and Part-Use Category	Percent of Recycled Units	Part-Use Factor	Per-Unit Energy Savings (kWh/Yr)
Secondary Refrigerators Only	**n = 46**		
Not in Use	17%	0	0
Used Part Time	4%	0.38	388
Used Full Time	78%	1.00	1,020
Weighted Average		**0.80**	**811**
All Refrigerators (Primary and Secondary)	**n = 101**		
Not in Use	8%	0	0
Used Part Time	2%	0.38	388
Used Full Time	90%	1.00	1,020
Weighted Average		**0.91**	**926**
All Freezers	**n = 69**		
Not in Use	18%	0	0
Used Part Time	12%	0.58	550
Used Full Time	69%	1.00	949
Weighted Average		**0.76**	**721**

In many cases, historical use of an appliance (prior to being recycled) is not indicative of how the appliance would have been used had it not been recycled. To account for this, the evaluation team asked surveyed participants how they would have (likely) operated their appliances had they not recycled them through the program. For example, if they indicated they would have kept a primary

refrigerator in the program's absence, the team asked if they would have continued to use the appliance as their primary refrigerator or would have relocated it, using it as a secondary refrigerator.

Respondents who said they would have discarded their appliance independent of the offering were not asked about the future usage of that appliance, as that would be determined by another customer. Since the future use type of discarded refrigerators is unknown, the evaluation team applied the weighted part-use average of all units (0.91) for all refrigerators that would have been discarded independent of the offering . By using this approach, the team acknowledges that the discarded appliances might be used as either primary or secondary units in the would-be recipient's home.

The evaluation team then combined the part-use factors shown in Table J-5 with participants' self-reported actions had the offering *not* been available. This resulted in the distribution of likely future usage scenarios and corresponding part-use estimates.

The weighted average of these future scenarios, shown in Table J-6, produced the CY 2020 part-use factor of 0.89 for refrigerators (up from 0.77 in CY 2019) and of 0.74 for freezers (down slightly from 0.76 in CY 2019). Changes in refrigerator part-use in CY 2020 was statistically different from CY 2019 but not for freezers.

Table J-6. CY 2020 Part Use Factors by Appliance Type

Use Prior to Recycling	Likely Use Independent of Recycling	Part-Use Factor	Percentage of Participants
Primary Refrigerators	Kept (as primary unit)	1	8%
	Kept (as secondary unit)	0.80	6%
	Discarded	0.91	40%
Secondary Refrigerators	Kept	0.91	25%
	Discarded	0.80	21%
Overall		**0.89**	**100%**
Freezers	Kept	0.74	35%
	Discarded	0.74	65%
Overall		**0.74**	**100%**

Applying the part-use factors from to the modeled annual consumption from Table J-6 yields the average gross per-unit energy savings. Table J-7 shows that the average gross savings for refrigerators is 905 kWh and the average gross savings for freezers is 707 kWh.

Table J-7. CY 2020 Per Unit Gross Savings by Measure

Appliance	Unit Energy Consumption (kWh/Year)	Part-Use Factors	Gross Energy Savings (kWh/Year)	Relative Precision (90% Confidence)*
Refrigerators	1,020	0.89	905	12%
Freezers	949	0.74	707	25%

Direct to Customer: Retail Offering / Rural Retail Events

In CY 2020, the evaluation team estimated LED per-bulb savings using the lumen equivalence methodology to determine baseline wattages and other inputs from the 2020 Wisconsin Technical Reference Manual (TRM).

Unit Energy Savings Input Details

Table J-8 shows the values used to calculate verified gross savings. The evaluation team used items in the rows under the Unit Savings Inputs heading to calculate savings for individual bulbs and applied the items in the rows under the Total Savings Inputs heading to aggregated savings.

Table J-8. CY 2020 Lighting Verified Gross Inputs

Input	Description	Residential Value	Nonresidential Value	Units	Source
Unit Savings Inputs					
HOU	Hours of use: daily average use LEDs	2.20	10.20	Hours/ day	2020 TRM
ISR_{LED}	In-service rate: percentage of LEDs installed	Varies	Varies	%	2020 TRM and Participant Survey. See Table J-9
ΔWatts	Delta watts: difference in wattage between the efficient and baseline bulb	Varies	Varies	W	Wisconsin CY 2020 lumen equivalence analysis
CF	Coincidence factor: summer peak coincidence factor	0.070	0.770	-	2020 TRM
365	Days per year: conversion to annualize the daily hours of use	365	365	Days/ year	2020 TRM
Total Savings Inputs					
Cross-Sector Sales	Cross-sector sales: percentage of bulbs sales allocated to the residential and nonresidential sector	93.4	6.6	%	Wisconsin CY 2015 cross-sector sales analysis
EUL_{LED}	Effective useful life: average life of a LED bulb	15, 17 (long lifetime)	15, 17 (long lifetime)	Years	2020 TRM, MMIDs 3553, 3557, 4306-4313

This was the first year the Direct to Customer Solution offered LEDs in packs. The team used the CY 2020 participant survey to update ISRs for these measures where possible. Survey respondents were asked to verify or correct the number of units they purchased and to report how many of those units were currently installed.

Table J-9 lists the measure-specific ISRs that the evaluation team applied to all LED measures.

Table J-9. CY 2020 Lighting Verified In-Service Rates

Measure Name	Verified First-Year ISR	Verified Lifetime ISR	Verified ISR Source	*Ex Ante* ISR
LED (Upstream)	56%	87%	TRM	87%
LED Pack A-Line 60W Equivalent	72%	92%	CY 2020 Participant survey	87%
LED Pack A-Line 75W Equivalent	67%	90%	CY 2020 Participant survey	87%
LED Pack A-Line 100W Equivalent	58%	88%	CY 2020 Participant survey	87%
LED Pack 3-Way	57%	88%	CY 2020 Participant survey	87%
LED Pack Candelabra	59%	88%	CY 2020 Participant survey	87%
LED Pack Globe	61%	89%	CY 2020 Participant survey	87%
LED Pack Reflector	64%	90%	CY 2020 Participant survey	87%
LED Pack Desk Lamp	80%	94%	CY 2020 Participant survey	87%

The verified inputs include 6.6% cross-sector sales because, to determine verified savings, the evaluation team calculated residential and nonresidential savings independently then used this percentage to weight the savings for each residential and nonresidential measure. CY 2020 surveys of Retail Events participants found that they installed bulbs only in residential applications. Therefore, the team applied residential savings only to bulbs distributed through statewide Retail Events or Rural Retail Events. Table J-10 shows the verified residential, nonresidential, and weighted savings for the Retail Lighting and Appliance offering.

Table J-10. CY 2020 Retail Lighting and Appliance Offering Verified Gross Unit Savings

Measure	Residential		Nonresidential		Residential/ Nonresidential Weighted [a]	
	kWh	kW	kWh	kW	kWh	kW
LED, Reflector	36	0.003	167	0.034	44	0.005
LED, Omnidirectional, 310–749 Lumens	19	0.002	87	0.018	23	0.003
LED, Omnidirectional, 750–1,049 Lumens	24	0.002	109	0.023	29	0.003
LED, Omnidirectional, 1,050–1,489 Lumens	30	0.003	138	0.029	36	0.004
LED, Omnidirectional, 1,490–2,600 Lumens	40	0.004	186	0.038	49	0.006

Note: no natural gas savings are claimed for the offering.

[a] Residential and nonresidential unit savings are weighted by the evaluated cross-sector sales percentage.

Table J-11 shows the verified residential, nonresidential, and weighted savings for the Rural Retail Events.

Table J-11. CY 2020 Rural Retail Events Verified Gross Unit Savings

Measure	Residential		Nonresidential		Residential/ Nonresidential Weighted [a]	
	kWh	kW	kWh	kW	kWh	kW
LED, Reflector	40	0.004	N/A	N/A	40	0.004
LED, Omnidirectional, 310–749 Lumens	24	0.002	N/A	N/A	24	0.002
LED, Omnidirectional, 750–1,049 Lumens	25	0.002	N/A	N/A	25	0.002
LED, Omnidirectional, 1,050–1,489 Lumens	30	0.003	N/A	N/A	30	0.003
LED, Omnidirectional, 1,490–2,600 Lumens	44	0.004	N/A	N/A	44	0.004

Note: No natural gas savings are claimed for the Offering.

[a] All lamps assumed to be installed in residential applications.

Table J-12 provides baseline and efficient wattages and the corresponding delta watts for the Retail Lighting and Appliance offering *ex ante* and verified savings.

Table J-12. Retail Lighting and Appliance Offering *Ex Ante* and Verified Delta Watts Comparison

Measure	*Ex Ante* Baseline	Average Evaluated Baseline	Bulb Wattage		Delta Watts	
			Ex Ante	Average	*Ex Ante*	Average Evaluated
LED, Reflector	65	61	12	9	53	52
LED, Omnidirectional, 310–749 Lumens	29	33	7	6	22	27
LED, Omnidirectional, 750–1,049 Lumens	43	43	11	9	32	34
LED, Omnidirectional, 1,050–1,489 Lumens	53	53	13	11	40	43
LED, Omnidirectional, 1,490–2,600 Lumens	72	73	17	15	55	58

Table J-13 provides baseline and efficient wattages and the corresponding delta watts for the Rural Retail Events *ex ante* and verified savings.

Table J-13. Rural Retail Events *Ex Ante* and Verified Delta Watts Comparison

Measure	*Ex Ante* Baseline	Average Evaluated Baseline	Bulb Wattage		Delta Watts	
			Ex Ante	Average	*Ex Ante*	Average Evaluated
LED, Reflector	65	65	12	9	53	56
LED, Omnidirectional, 310–749 Lumens	29	38	7	5	22	34
LED, Omnidirectional, 750–1,049 Lumens	43	43	11	9	32	34
LED, Omnidirectional, 1,050–1,489 Lumens	53	53	13	11	40	42
LED, Omnidirectional, 1,490–2,600 Lumens	72	78	17	15	55	63

Delta Watts Lumens Bins

This section provides details related to lumen bins, which the evaluation team used for calculating verified delta watts inputs. The lumen bins for specialty bulbs shown in Table J-14, Table J-15, and Table J-16 are derived from the U.S. Department of Energy Uniform Methods Project (UMP).[51] The baselines are derived from the Energy Independence and Security Act (EISA).

Table J-14. Globe Lumen Bins

Bin	Baseline (EISA-Impacted Bulbs)
250–349	25
350–499	29
500–574	43
575–649	53
650–1,099	72
1,100–1,300	72

Table J-15 Decorative Shape (Candles) Lumen Bins

Bin	Baseline (EISA-Impacted Bulbs)
70–89	10
90–149	15
150–299	25
300–499	29
500–699	43

Table J-16. Three-Way, Post Lamps, and Other Similar Bulbs Lumen Bins

Bin	Baseline (EISA-Exempt Bulbs)
0–309	25
310–449	25
450–799	40
800–1099	60
1,100–1,599	75
1,600–1,999	100
2,000–2,600	150
2,601–3,300	150
3,301–4,815	200

[51] National Renewable Energy Laboratory. 2015. "Chapter 21: Residential Lighting Evaluation Protocol." *Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures.* https://www.energy.gov/sites/prod/files/2015/02/f19/UMPChapter21-residential-lighting-evaluation-protocol.pdf

Project Details from Sampled Projects

The evaluation team performed desk and on-site verification reviews of a sample of projects in each nonresidential solution—Business and Industry, New Construction, Schools and Government, and Renewable Energy Competitive Incentive. Measure-level realization rates were calculated based on the analysis completed for these sample projects, which informed the offering- and solution-level realization rates for CY 2020. A more detailed description of the sampled projects follows.

Large Industrial Offering (Business and Industry Solution)

The evaluation team found several large discrepancies in realization rates for sampled projects in the CY 2020 Large Industrial Offering. In the impact sample, 43 of 59 projects achieved a 100% energy realization rate. Of those with discrepancies, three sites had realization rates greater than 120%, and five sites had realization rates below 80%. Specific details related to projects with significant and/or impactful discrepancies are provided in Table J-17.

Table J-17. CY 2020 Large Industrial Offering Sample Detailed Projects

MMID	Measure	Savings (MMBtu)		Real. Rate	Share of Offering	Notes
		Ex Ante	*Ex Post*			
2498	Process Heat Recovery, Not Otherwise Specified	1,884,264	94,204	**5%**	8%	Facility permanently closed. Time-weighted average (months equipment was in use) used to determine *ex post* kW, kWh and therms first-year savings. Lifetime savings equal to *ex post* first-year savings given closure. No modifications made to original project savings calculations in *ex post;* modifications were only to time horizon of savings.
2499	Process, Not Otherwise Specified	732,134	36,602	**5%**	3%	Facility permanently closed. Time-weighted average (months equipment was in use) used to determine *ex post* kW, KWH and therms first-year savings. Lifetime savings equal to *ex post* first-year savings given closure. No modifications made to original project savings calculations in *ex post;* modifications were only to time horizon of savings.
2499	Process, Not Otherwise Specified	1,076,581	1,294,523	**120%**	5%	Savings from this measure come from pumping modifications (electric) and reduction in process water heating due to reuse of pre-heated process water (gas). Gas realization rate was affected by modifications made to boiler efficiency and operating days (higher for both), resulting in higher gas savings. Electric realization rates were affected by greater number of operating days, resulting in additional water use, thus reduced water savings and more pumping required, which resulted in negative kWh savings.
2254	Compressed Air Condensate Drains, No Loss Drain	700	885	**126%**	0%	Confirmed HOU on equipment is higher than TRM default value and matches equipment HOU in another sampled measure for same project. Evaluator increased HOU, which resulted in increased first-year kWh and lifetime kWh *ex post* savings.

MMID	Measure	Savings (MMBtu)		Real. Rate	Share of Offering	Notes
		Ex Ante	*Ex Post*			
2498	Process Heat Recovery, Not Otherwise Specified	365,348	329,348	**90%**	2%	Paper mill, waste heat recovery via pumping. Evaluator analyzed customer-provided trend data for this project. Lower realization rate is due to pump performance. Though system as a whole was more efficient than original design had expected, process line serving pump gradually loses gpm flow throughout day due to fiber buildup. As a result, facility found it cannot achieve target flow of consistent year-round 400 gpm, though project is still very successful, achieving average flow of 127 gpm over course of day.
2499	Process, Not Otherwise Specified	175,385	110,740	**63%**	1%	New asphalt heater to heat process load. *Ex ante* baseline estimated pre-installation energy consumption using nameplate data and 60% loading factor and estimated heat load to be 4,800 kBtu/hr. Implementor assumed heater will be on for 210 days, 24 hours a day, and used 62% baseline efficiency to determine that baseline annual consumption was 390,194 therms/year. To estimate *ex ante* performance case, implementor used same load and hours of use for proposed design but with proposed efficiency of 88%. Total proposed consumption was estimated to be 274,909 therms/year, resulting in 115,284 *ex ante* therms of savings. During the *ex post* evaluation, site contact provided actual pre- and post-installation therms usage of this equipment. After normalization, *ex post* determined baseline consumption to be 246,175 therms and performance case to be 173,441 therms, resulting in 72,734 annual therms savings. Trend data confirmed production level is constant throughout year. Lower electric realization rate is due to customer having installed a 15 hp blower; *ex ante* savings were based on 10 hp.
2498	Process Heat Recovery, Not Otherwise Specified	1,270,374	1,228,246	**97%**	5%	Tune-up and modifications of existing process heat recovery system. Decrease in gas savings due to modifications made to temperature setpoints and achieved temperature differentials observed from customer-supplied trend data. Modifications to flow and temperature reduce heat removal by approximately 1 MMBTU/hr, resulting in slight decrease in realization rate.
2498	Process Heat Recovery, Not Otherwise Specified	877,582	497,399	**57%**	4%	Tune-up and modifications of existing process heat recovery system. Decrease in gas savings due primarily to maintaining higher air temperature than originally expected. Higher temperature reported by facility contact was at 185°F to 210°F, instead of expected temperature of 140°F. Evaluated calculations conservatively used lowest end of that trended range (185°F).
2498	Process Heat Recovery, Not Otherwise Specified	736,732	884,344	**120%**	3%	Hood heat recovery system. Evaluated gas savings increased recently due to increased flow rate through system, and higher temperature differential observed. Both result in more heat recovery than originally expected.

Commercial and Industrial Offering (Business and Industry Solution)

The evaluation team found several large discrepancies in realization rates for sampled projects in the CY 2020 Commercial and Industrial offering. In the impact sample, 88 of 106 projects achieved a 100% energy realization rate. Of those with discrepancies, one site had a realization rates greater than 120%, and three sites had realization rates below 80%. Specific details related to projects with significant and/or impactful discrepancies are provided in Table J-18.

Table J-18. CY 2020 Commercial and Industrial Offering Sample Detailed Projects

MMID	Project Measure	Savings (MMBtu)		Real. Rate	Share of Offering	Notes
		Ex Ante	*Ex Post*			
3244	Process Exhaust Filtration	51,642	62,401	**121%**	1%	Customer interview indicated equipment is run for higher HOU than originally calculated. These higher HOU were confirmed as scheduled into programming of new equipment. Higher HOU is confirmed as not related to COVID-19 and likely a permanent shift in how equipment is used going forward. Evaluator used confirmed HOU from customer in *ex post* savings, which resulted in increase in savings.
4363	Dew Point Controls for Desiccant Dryers	1,364	1,320	**97%**	0%	Installed dryer is intentionally oversized by two times, planning for expansion of facility's compressed air system next year, at which point dryer will be right-sized. Customer's plans regarding expansion sound firm; evaluator reduced first-year savings by half but maintained subsequent year savings, assuming dryer will be right-sized in 2021.
3276	Boiler, Hot Water, Condensing, >=90% AFUE, >=300 mbh	30,780	14,376	**47%**	0%	Condensing boiler measure. Customer provided boiler current setpoints on virtual visit. Supply (158) setpoint and return (149) typical observed temperature are not currently programmed such that unit will go into condensing mode. Customer reports not having observed unit in condensing mode to date, only in venting steam. *Ex post* has used MMID calculations for near condensing boiler measure instead of condensing boiler measure. *Ex post* savings decreased as result of modified MMID calculations because unit does not reach the specified efficiency it is capable of.

Agribusiness Offering (Business and Industry Solution)

The evaluation team found few discrepancies in realization rates for sampled projects in the CY 2020 Agribusiness offering. In the impact sample, 26 of 39 projects achieved a 100% energy realization rate. Of those with discrepancies, one site had a realization rates greater than 120%, and six sites had realization rates below 80%. Specific details related to projects with significant and/or impactful discrepancies are provided in Table J-19.

Table J-19. CY 2020 Agribusiness Offering Sample Detailed Projects

MMID	Project Measure	Savings (MMBtu)		Real. Rate	Share of Offering	Notes
		Ex Ante	*Ex Post*			
3386	Grain Dryer, Energy Efficient, Hybrid	133,600	115,623	**87%**	7%	*Ex ante* calculation uses max bushel processing rate in lieu of average of past 3 years (1,200,000 vs. 1,038,509), which accounts for difference in savings calculated in *ex post*. Also noted was that proposed grain dryer does not meet min efficiency requirements of TRM (2,050 vs. min req 1,950).
3777	VFD, High Speed Ventilation/Circulation Fan, Ag	37,060	39,050	**105%**	2%	*Ex post* savings calculated using verified motor efficiency of 85%. *Ex ante* savings calculation use 89.5% efficiency.
3987	VFD, Dairy Vacuum Pump, Agriculture	21,836	18,939	**87%**	1%	E*x post* savings calculated based on 5,200 cows currently being milked as verified by participant instead of 6,000 on application. This resulted in lower *ex post* savings. TRM methodology used to calculate savings relies on an average kWh/cow based on a 10 hp motor and average volume of milk produced per day in a sample of projects. Average volume of milk associated with this average farm has approximately 265 cows. This project (MMID 3987) has 5,200 cows and a 25 hp pump. TRM savings algorithm does not accurately estimate savings for farms with this many cows. This is a prescriptive measure, so evaluation team did not adjust savings.
4695	LED Fixture, <155 Watts, Replacing 250 Watt HID, High Bay, Agriculture	21,698	26,284	**121%**	1%	In the 2019 TRM, deemed saving for MMID 3091 were used for *ex ante* savings. Neither 2019 TRM nor 2020 TRM has MMID 4695. The whitepaper titled "LED Fixtures, High Bay" has both MMID 3091 and 4695 listed with updated deemed savings.
3386	Grain Dryer, Energy Efficient, Hybrid	40,224	20,072	**50%**	2%	Percentage moisture shrinkage, as verified by producer, was less than the *ex ante* moisture shrinkage. This increases throughput capacity (bushels per hour) of new system but reduces savings. Average moisture shrinkage of 2018, 2019, and verified 2020 values was used to calculate *ex post* savings vs. projected value (8.8% vs. 11.8%).
3836	Grain Dryer, Energy Efficient, Hybrid	33,800	28,167	**83%**	2%	Harvest varied from projected 2020 value in application. *Ex post* calculation uses average harvest of past 3 years instead of projected 2020 value (375,000 bushels vs. 450,000 bushels).
4282	VFD, Constant Torque, Agriculture	29,538	8,876	**30%**	1%	*Ex ante* savings assumed significantly greater annual run time than what was verified with customer. Difference was about a factor of two and resulted in reduction of baseline energy use by nearly the same. Load profile in application was also more aggressive than what was verified by customer. Application has average VFD load of ~50%, but verified load is closer to 75%.
4701	<=180W LED, replacing or instead of 6L T8 or 4L T5HO, Agriculture	45,395	45,623	**101%**	2%	*Ex post* savings are result of stated assumptions for agriculture in the TRM. Resulting per-unit savings (554 kWh) are slightly higher than deemed per-unit savings (552 kWh). This difference contributes to the slightly higher kWh savings.
3386	Grain Dryer, Energy Efficient, Hybrid	17,956	14,463	**81%**	1%	Percentage moisture shrinkage, as verified by producer, was less than *ex ante* moisture shrinkage. This increases the throughput capacity (bushels per hour) of new system but reduces saving. Average moisture shrinkage of 2018, 2019, and verified 2020 values was used to

MMID	Project Measure	Savings (MMBtu)		Real. Rate	Share of Offering	Notes
		Ex Ante	*Ex Post*			
						calculate *ex post* savings vs. projected value (10.0% vs. 11.8%).
4901	Grain Dryer Tune-Up	26	21	**83%**	0%	*Ex ante* savings were calculated assuming equipment was a tower dryer. Installed dryer was verified to be a continuous flow bin dryer. *Ex post* savings use deemed TRM savings for a continuous flow bin dryer (0.00293 kWh/bushel and 0.00490 therms/bushel vs. 0.00366 kWh/bushel and 0.00613therms/bushel).

Schools Offering (Schools and Government Solution)

The evaluation team found very few discrepancies in realization rates for sampled projects in the CY 2020 Schools Offering within the Schools and Government Solution. 23 of 26 projects in the impact sample achieved a 100% energy realization rate. Of those with discrepancies, the deviation was within a few percentage points from 100%. Specific details related to projects with significant and/or impactful discrepancies are provided in Table J-20.

Table J-20. CY 2020 Schools Offering Sample Detailed Projects

MMID	Project Measure	Savings (MMBtu)		Real. Rate	Share of Offering	Notes
		Ex Ante	*Ex Post*			
4354	LED Fixture, Downlights, Interior	6	6	**101%**	0%	*Ex ante* lifetime kWh savings is calculated using EUL of 9.88 years. This appears to be an error. *Ex post* lifetime kWh savings are calculated using EUL in the 2020 TRM (10 years).
3400	LED Fixture, 2x2, Low Output, DLC Listed	13	12	**97%**	0%	TRM is accurate but differs from *ex ante* savings for these projects because *ex ante* was built on outdated SPECTRUM savings. TRM has 83 kWh/unit for MMID 3400 in Schools and Government, but 86 kWh/unit was used for *ex ante*. Lag for SPECTRUM is suspected.
3400	LED Fixture, 2x2, Low Output, DLC Listed	152	146	**97%**	0%	TRM is accurate but differs from *ex ante* savings for these projects because *ex ante* was built on outdated SPECTRUM savings. TRM has 83 kWh/unit for MMID 3400 in Schools and Government, but 86 kWh/unit was used for *ex ante*. Lag for SPECTRUM is suspected.

Government Offering (Schools and Government Solution)

The evaluation team found a few discrepancies in realization rates for sampled projects in the CY 2020 Government offering. In the impact sample, 17 of 21 projects achieved a 100% energy realization rate. Of those with discrepancies, deviations were within 20% of 100% realization. Specific details related to projects with significant and/or impactful discrepancies are provided in Table J-21.

Table J-21. CY 2020 Government Offering Sample Detailed Projects

MMID	Project Measure	Savings (MMBtu)		Real. Rate	Share of Offering	Notes
		Ex Ante	*Ex Post*			
2215	Boiler, Flue Gas Heat Recovery	230,760	248,225	**108%**	6%	This is a custom boiler stack economizer measure. *Ex ante* calculations incorporated many assumptions that could not be easily validated for given system. *Ex ante* savings were based on system operating at same firing rate all year. Application included detailed manufacture data for installed system capacities and efficiencies. Verified *ex post* calculation used temperature bin-based model from TRM hours and manufacture data to refine calculation.
2650	Waste Water Treatment, Not Otherwise Specified	108,656	114,935	**106%**	3%	Baseline values were estimated using actual measured trend data, so these values remained unchanged in *ex post* analysis. Proposed operation was using conservative assumptions to estimate proposed energy use. Main contributing factors to difference between *ex ante* and *ex post* savings were use of rated horsepower rather than operating BHP to determine proposed full load kW, not accounting for VFD efficiency, and assumption of linear VFD curve for proposed pump operation. A linear relation between pump speed and pump power is relatively conservative.
2650	Waste Water Treatment, Not Otherwise Specified	1,221,800	1,884,520	**154%**	33%	Project involved retrofitting two of 12 biosolid sludge dryers with new burners to utilized landfill gas (LFG) instead of natural gas (NG). This project used estimates of the amount of Landfill Gas (LFG) that was historically being sent to a flare to determine the amount of maximum amount of gas that could be used in dryers retrofitted to burn the LFG. The LFG burned would offset natural gas consumption. The dyers are only able to consume a maximum or 300 Dth/day of LFG. This limit was used to determine how much of the historical amounts of LFG being sent to the flare could be utilized by the dryers. This total amount of historically available LFG was used to calculate the ex ante natural gas offset and averages out to be 92.6 Dth/day/dryer. This included both the historically available conforming and non-conforming LFG. The ex post savings were calculated based on 80 days of LFG use in the newly retrofitted dryers. The average amount of LFG being consumed by the dryers during this period was 142.8 Dth/day/dryer. This additional LFG was made available by diverting a portion of the LFG supply from solar turbines that were historically used on site. The additional average consumption of LFG resulted in additional natural gas offsets and additional therm savings.
2727	Aeration, Not Otherwise Specified	196,558	222,648	**113%**	5%	Project was confirmed to have been installed as expected. Original analysis was conducted using BHP values provided by contractor. Ultimately, project installed a different set of blowers than those for reported BHP values. *Ex post* analysis has updated savings estimates based on performance curve for selected model of blower. End result is that reported savings were conservative relative to actual implementation.

Prescriptive Offering (New Construction Solution)

The evaluation team found a few discrepancies in realization rates for sampled projects in the CY 2020 Prescriptive offering in the Nonresidential New Construction Solution. In the impact sample, 21 of 30 projects achieved a 100% energy realization rate. Of those with discrepancies, all deviations were within 20% of 100% realization. Specific details related to projects with significant and/or impactful discrepancies are provided in Table J-22.

Table J-22. CY 2020 Prescriptive Offering Sample Detailed Measures

MMID	Project Measure	Savings (MMBtu)		Real. Rate	Share of Offering	Notes
		Ex Ante	*Ex Post*			
2314	Energy Recovery Ventilator	46,405	47,160	**102%**	1%	Documentation audit revealed that calculations use a heating system efficiency of 96% but boiler efficiency is 94.5%. *Ex post* savings use correct boiler efficiency, which results in slightly higher therm savings because of slight increase in avoided heating energy.
4948	Interior New Construction Lighting LPD Below Code	31,555	28,767	**91%**	0%	Claimed savings are based on floor area from COMcheck. Using lighting plans, evaluator measured a smaller floor area, specifically for shop area. Measured floor office area floor plan was similar to the *ex ante* value provided by COMcheck.
4948	Interior New Construction Lighting LPD Below Code	330	293	**89%**	0%	Project files provided a spec sheet and invoice that did not match model number and fixture wattage (123 W) used in *ex ante* calculations. *Ex post* savings calculations use 140.3 watts for fixture model shown on invoice according to DesignLights Consortium.
3045	Water Heater, High Usage, >=90% TE, NG	2,177	1,754	**81%**	0%	Savings calculations represent 4 water heaters combined; therefore, standby losses should be multiplied by 4, which decreases ex post savings. Reason for minor savings difference is *ex ante* calculations use standby loss of 1,089 BTUH for proposed water heater, but AHRI certificate shows rated standby loss at 1,075 BTUH.
4948	Interior New Construction Lighting LPD Below Code	540,198	557,944	**103%**	7%	*Ex post* calculations are based on post-installation verification form, which appears to indicate fewer fixtures installed than used in *ex ante* calculations.

Design Assistance/Review Offering (New Construction Solution)

The evaluation team found a few discrepancies in realization rates for sampled projects in the CY 2020 Whole Building Design Assistance/Review offering in the Nonresidential New Construction Solution. In the impact sample, 26 of 29 projects achieved a 100% energy realization rate. Of those with discrepancies, all deviations were within 5% of 100% realization. Specific details related to projects with significant and/or impactful discrepancies are provided in Table J-23.

Table J-23. CY 2020 Design Assistance/Review Offering Sample Detailed Measures

MMID	Project Measure	Savings (MMBtu)		Real. Rate	Share of Offering	Notes
		Ex Ante	*Ex Post*			
2970	Project Savings Verification	84,509	88,881	**105%**	1%	Site contact reported that two measures (DCV in dining area and energy recovery in locker room and gym) in selected bundle were implemented, but implementer did not count them as installed in final verification (unclear why). *Ex post* savings increase slightly when these are added back in.

RECIP Offering

The evaluation team found many small discrepancies in realization rates for sampled projects in the CY 2020 RECIP Offering. In the impact sample, one of nine projects achieved a 100% energy realization rate. Of those with discrepancies, all deviations were within 11% of 100% realization. Specific details related to projects with significant and/or impactful discrepancies are provided in Table J-24.

Table J-24. CY 2020 RECIP Offering Sample Detailed Measures

MMID	Project Measure	Savings (MMBtu)		Real. Rate	Share of Offering	Notes
		Ex Ante	*Ex Post*			
2819	Solar PV	11,063	12,281	**111%**	4%	*Ex ante* kWh savings were calculated using NREL PVWatts calculator; *ex post* savings followed 2020 TRM methodology.
2819	Solar PV	22,613	24,298	**107%**	8%	
2819	Solar PV	5,075	4,972	**98%**	2%	
2819	Solar PV	3,874	3,800	**98%**	1%	
2819	Solar PV	7,871	8,756	**111%**	3%	
2819	Solar PV	5,829	6,181	**106%**	2%	
2819	Solar PV	3,159	3,434	**109%**	1%	
2819	Solar PV	13,542	14,250	**105%**	5%	*Ex ante* savings are calculated using PV watts for 414W x 355W panels whereas installed quantity is 332W x 370W panels. This leads to difference in *ex post* savings using TRM deemed values.

Appendix K. Net Savings Analysis

For the CY 2020 evaluation of Focus on Energy's offerings, the evaluation team applied net-to-gross (NTG) adjustments drawn mostly from primary research. This appendix presents three general approaches used to assess net savings—national sales data modeling, self-report NTG, and billing analyses—and explains how they were applied to each offering.

Net Savings Overview

As described in Volume II, the evaluation of a solution and its offerings involves reviewing the reported gross savings to ensure that the measures installed have remained installed and are working as intended. The evaluation team then applies any adjustments found during that review to calculate verified gross savings.

Net savings are savings that would not have occurred in the absence of a given offering. These are the final savings attributed to an offering, as determined by an independent evaluator. To determine these savings, the evaluator deducts reported savings that are associated with freeriders (participants who would have undertaken the same action and achieved the same savings in the absence of an offering) and adds spillover savings (savings that are the result of an offering's influence, but for which no incentive was paid and for which no offering has recorded savings).

Net savings represent the total savings achieved through the investment of ratepayer dollars into the offering. These net savings are the primary benefits factored into the benefit/cost analysis used to help design offerings and ensure that they are operating in a manner that returns a net positive benefit to ratepayers. Focus on Energy also uses net savings to track progress toward the savings targets established for it by the Public Service Commission of Wisconsin (PSC).

This appendix discusses the specific approaches the evaluation team used to derive net savings for the CY 2020 Focus on Energy solutions and their offerings. Since CY 2013, the evaluation team has incorporated net savings estimation approaches that are driven by sales data or an experimental design as well as by survey results. One example of a data-driven approach is national sales data modeling, which measures the lift in retail sales resulting from the influence of the offering.

Focus on Energy's long-term goals are to use these data-driven approaches as broadly as possible and to limit reliance on self-reporting methods. The Evaluation Work Group approved the use of these approaches and supports expanding their use when evaluators can obtain reliable data with reasonable cost and effort.

The evaluation team conducted various NTG analysis methods to assess the performance of measures offered throughout the Focus on Energy portfolio. In some cases, the team combined methods to determine savings-weighted average offering NTG ratios. Table K-1 shows the evaluation methods used to determine net savings for each offering for the CY 2020 evaluation.

Table K-1. CY 2020 Net Savings Methodology by Offering

CY 2020 Offerings	Net Savings Methodologies
Residential Offering	
Appliance Recycling	CY 2020 Self-Report
Online Marketplace	CY 2020 Self-Report
Packs	CY 2020 Self-Report
Farmhouse Kits	Applied results from Packs CY 2020 Self-Report
Retail	National Sales Data Modeling and CY 2020 Self-Report
Rural Retail	CY 2020 Self-Report
Heating and Cooling (Tier 1)	CY 2020 Standard Market Practice and CY 2020 Self-Report
Heating and Cooling (Tier 2)	Assumed 1.0 NTG
Insulation and Air Sealing (Tier 1 and Tier 2)	CY 2020 Billing Analysis
Renewable Energy	CY 2019 Self-Report
Residential New Construction	CY 2019 Billing Analysis
Nonresidential Offering	
Agriculture	CY 2020 Self-Report
Commercial and Industrial	CY 2020 Self-Report
Large Industrial	CY 2020 Self-Report
Government	CY 2020 Self-Report
Schools	CY 2020 Self-Report
New Construction Design Assistance/Review	CY 2020 Self-Report
New Construction Prescriptive	CY 2020 Self-Report
Renewable Energy Competitive Incentive Program Offering	CY 2019 Self-Report
Midstream Offering	
Midstream	Assumed 1.0 NTG

Retail Offering National Sales Data Modeling

The evaluation team estimated the CY 2020 NTG for LEDs sold through the upstream channel in the Retail offering using a national sales data model, the same approach it used in CY 2019 and past evaluations. The primary objective of the model is to quantify the relationship between program intensity (e.g., program spending per household) and LED sales (percentage of light bulb purchases that are LEDs), which the model then uses to estimate an NTG ratio for the upstream lighting offering. This is the fifth year that Focus on Energy has used the sales data modeling approach for estimating lighting NTG. Though the CY 2015 model included all efficient lighting technologies (CFLs and LEDs), all models since then have focused exclusively on sales and market shares of LEDs.[52] This reflects the dominance of LEDs as the preferred energy-efficient lighting technology and the substantial decrease in CFL sales.

In addition to estimating NTG, the data provide helpful insights into what other factors drive LED purchases and opportunities for benchmarking Wisconsin lighting efficiency shares and program spending against other states. This section presents these additional analyses as well.

Data Sources

The evaluation team relied on a variety of data sources for the analysis, primarily sales data prepared by the Consortium for Retail Energy Efficiency Data (CREED).[53] This consortium of program administrators, retailers, and manufacturers work together to collect the data necessary for better planning and evaluation of energy efficiency programs. LightTracker is CREED's first initiative, focused on acquiring full-category lighting data including incandescent, halogen, CFL, and LED bulb types for all distribution channels in the entire United States. As a consortium, CREED speaks as one voice for program administrators nationwide as they request, collect, and report on the sales data needed by the energy efficiency community.

The sales data were primarily generated from two sources: POS state sales data (representing grocery, drug, dollar, discount, mass merchandiser, and selected club stores) and National Consumer Panel (NCP) state sales data (representing home improvement, hardware, online, and selected club stores). The evaluation team also purchased raw datasets from third-party vendors and through a CREED initiative. The evaluation team then cleaned and processed all data for analysis.[54, 55] Besides the sales data made

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52 Focus on Energy did not conduct update lighting NTG based on the CY 2018 analysis.

53 LightTracker. "Consortium for Retail Energy Efficiency Data." https://www.creedlighttracker.com/

54 The information contained herein is based in part on data reported by IRI, Inc., through its Advantage service for, and as interpreted solely by, LightTracker, Inc. Any opinions expressed herein reflect the judgment of LightTracker Inc. and are subject to change. IRI disclaims liability of any kind arising from the use of this information.

55 Data presented include LightTracker calculations based in part on data reported by Nielsen through its Strategic Planner and Homescan Services for the lighting category for the 52-week period ending approximately December 31, 2020, for the available state-level markets and Expanded All Outlets Combined (xAOC) and Total Market Channels. Copyright © 2020, Nielsen.

available through LightTracker, the model inputs are a combination of program data collected by the evaluation team and household and demographic data collected through various publicly available websites. These are the sources for the primary model input data:

- National bulb sales
  - POS data (grocery, drug, dollar, discount, mass merchandiser, and selected club stores)
  - NCP data (home improvement, hardware, online, and selected club stores)
- U.S. Census Bureau import data (CFL and LED imports)
- DSM Insights, an E Source database of utility program data
- ENERGY STAR Lighting Program data (utility lighting program budgets)
- ENERGY STAR shipment data (released by the U.S. Environmental Protection Agency)
- North American Electrical Manufacturers Association shipment data
- American Community Survey (ACS) data (household characteristics and demographic data)
- Retailer square footage per state (based on Internet searches)
- General population surveys, lighting saturation studies, and other secondary data collection made publicly available through evaluation reports

Lighting Sales

The LightTracker POS dataset includes lighting sales data for grocery, drug, dollar, club, and mass market distribution channels. These data represent actual sales that are scanned at the cash register for participating retailers.

The NCP represents a panel of approximately 100,000 residential households that are provided a handheld scanner for their homes and instructed to scan every purchase they make that has a bar code. For Wisconsin, the NCP collected data from approximately 1,600 households in 2020. The use of a scanner avoids potential "recall bias," which is prevalent in self-report methods that ask about lighting purchases. IRI's analysis of scanner sales patterns estimates that approximately 60% of the homes are in full compliance and scan all purchases; NCP removes from the analysis any homes in which all products were not scanned.

Although the dataset included detailed records of lighting data purchases, the evaluation team spent considerable time ensuring data integrity and inclusion of all the necessary bulb attributes. For example, not all records were populated with some of the more critical variables such as bulb type, style, and wattage or the data had clearly erroneous values (e.g., 60-watt LEDs). After thorough review and quality control of the dataset, the evaluation team reclassified, standardized, and populated missing records, created additional variables, and performed general enhancements to the data.

To populate missing records, validate existing records, and include additional bulb attributes, CREED created a Universal Product Code (UPC) database from multiple sources:

- Product catalogs downloaded from manufacturer and retailer web sites via "web scraping"
- Automated lookups of online UPC databases, such as www.upcitemdb.com

- Bulb attributes entered as part of shelf-stocking studies from research conducted in California and the Northwest

CREED then merged the UPC database with the POS data, populating fields based on a hierarchy of data sources believed to be most reliable. Prioritization was typically based in the following order: manufacturer specifications, UPC lookups, and original POS-based database values. The CREED team also conducted manual website lookups on over 200 high-volume bulbs to verify final assignments.

Additionally, the CREED team investigated the bulb assignment and the quantity of bulbs per package by examining the average price per unit and identifying outliers in terms of per bulb prices. This process helped identify misclassification of certain bulb types (e.g., bulbs that were flagged as low-cost LEDs but were really LED nightlights and needed to be moved to the "other" lamp type bin), bulb counts that sometimes represented box shipments (e.g., a package identified as having 36 bulbs was really a six-pack of LEDs that was shipped with six packages per box), or high-cost LEDs that were really Wi-Fi-enabled smart LEDs. The CREED team also used lumens per watt (LPW) as a check on bulb assignments (efficient bulbs should have higher LPW values than inefficient bulbs). The sales model is restricted to screw-based bulbs, so any bulbs classified as type "other" were not included in the model.

CREED estimated missing lumen values and missing lamp styles. Regarding lumens, CREED leveraged ordinary least squares (OLS) regression models that predicted lumens based on the type of light and the wattage of the bulb. Regarding style (e.g., A-line, reflector, globe, candelabra), CREED leveraged classification and regression trees (CART), a method commonly used for classification problems, to populate the style attribute for lamps that were missing data.

After accounting for the smaller states that lacked sufficient sample size from the panel data or had incomplete program data available, the final model contained 42 states. The lighting dataset included these key aspects:

- 2020 sales volume and pricing for CFLs, LEDs, halogens, and incandescent bulbs for all channels combined and broken out by the POS and non-POS channels
- Data reporting by state (with 42 states included in both POS and non-POS) and bulb type
- Inclusion of all bulb styles (A-lamps, reflectors, globes, and candelabras)

As detailed below, the dependent variable of the model was the percentage of LED sales, rather than total LED sales, to normalize for states with greater or lesser bulb sales (LED or standard) because of differences in number of households, number of sockets, existing saturation, and other factors that drive lighting sales.

Program Activity

To research upstream lighting program activity in the 42 states, the evaluation team used internal resources and conducted a literature review of publicly available reports found on the internet or

provided by program administrators or their evaluators.[56] The evaluation team contacted local utilities in areas where reports with relevant information were not available. Additionally, the evaluation team accessed DSM Insights, an E Source product that provides a detailed breakdown of program-level spending, including incentives, marketing, and delivery for over 100 program administrators around the country.[57]

The evaluation team collected these program data:

- Total number of claimed LED upstream program bulbs reported by each program (where possible, broken out by bulb style and with fixtures and/or giveaway bulbs removed)
- Upstream LED incentives
- Total upstream program budget

The evaluation team used actual program expenditures and, where unavailable, used ENERGY STAR reported expenditures as a proxy.[58, 59] After accounting for the states with incomplete program data, the final model included 42 states (detailed below).

To determine upstream lighting offering activity in Wisconsin, the evaluation team used the SPECTRUM database and implementer's tracking data to determine the number of program-supported bulbs sold in the state. Year-end Focus on Energy expense reports and implementer data provided the incentives and the overall program expenditures (summarized in Table K-2).

Table K-2. 2020 Focus on Energy Upstream Lighting Offering Statistics

Offering Expenses	LED Incentives	Quantity			
		LED	A-Lamp	Reflector	Globe & Candelabra
$10,788,830	$7,920,793	5,387,507	4,441,312	764,961	181,234

Presence and Absence of Retailers (Channel Variables)

The evaluation team conducted secondary internet research to determine the number and total square footage of store locations in each state for five primary energy-efficient bulb retailers—The Home

[56] In particular, the evaluation team began by searching the ENERGY STAR Summary of Lighting Programs website, accessed February 2021: ENERGY STAR Summary of Lighting Programs) and referenced the Database of State Incentives for Renewables & Efficiency, accessed February 2021: https://www.dsireusa.org

[57] E Source. "DSM Insights." Accessed February 1, 2021: https://www.esource.com/dsm-insights-and-measure-insights

[58] ENERGY STAR. "ENERGY STAR Summary of Lighting Programs: August 2019 Update." 2019. https://www.energystar.gov/productfinder/downloads/2019/2019%20ENERGY%20STAR%20Summary%20of%20Lighting%20Programs.pdf

[59] Note that because the ENERGY STAR report included only expenditure ranges, the evaluation team used the midpoints of the ranges to represent the expenditures.

Depot, Lowe's, Walmart, Costco, and Menards. The evaluation team used these data as explanatory variables in the model since these retailers sell a large quantity of energy-efficient bulbs and the percentage of efficient bulb sales could differ in states with more or fewer retail locations. The non-POS data (derived from the NCP) does include purchases made through online retailers.

State-Level Household and Demographic Characteristics

The evaluation team gathered state-level demographic data from the ACS, including annual state-level data for the population, total number of households, household tenure (own versus rent), home age, education, income, and average number of rooms in the home. As explained below, the evaluation team then combined these data with other possible explanatory variables, including political index, average cost of living, and average electric retail rates.

Analysis of the Combined Dataset (Descriptive Statistics)

The primary objective of this model was to determine the impacts of program spending on the market share of LEDs to derive state-level NTG estimates. A secondary, but no less important, objective was to relate these national lighting sales and program activity data to an assessment of some of the key factors driving LED market share specifically in Wisconsin. By accessing national lighting sales data and researching the largest known compilation of state program activity (incentives, overall expenditures, bulb volumes), the evaluation team could analyze and summarize lighting program activity in a way that has not been possible before.

Some of the key lighting program attributes the evaluation team developed were these:

- **Market share distribution.** LED market share distribution for the United States, Wisconsin vs. the U.S., as well as across each state and across retail channels.
- **Program intensity.** LED lighting market share relative to overall program expenditures per household.
- **Program incentives.** Average LED lighting program incentives per bulb.
- **ENERGY STAR market share distribution.** LED market share distribution in Wisconsin compared to states that do not run an upstream lighting program.

Market Trends

Figure K-1 shows the national market share of the four bulb types (incandescent, halogen, CFL, and LED) across the past six years. LEDs continue to gain substantial market share, rising from 19% in 2015 to 70% in 2020. From 2015 to 2017, LEDs largely displaced sales of CFLs only. In 2018, LEDs began to displace inefficient bulbs. Even so, inefficient lighting (incandescent bulbs and halogens) still represents almost a third of the lighting market.

Figure K-1. Year-Over-Year Total U.S. Market Share by Lamp Type

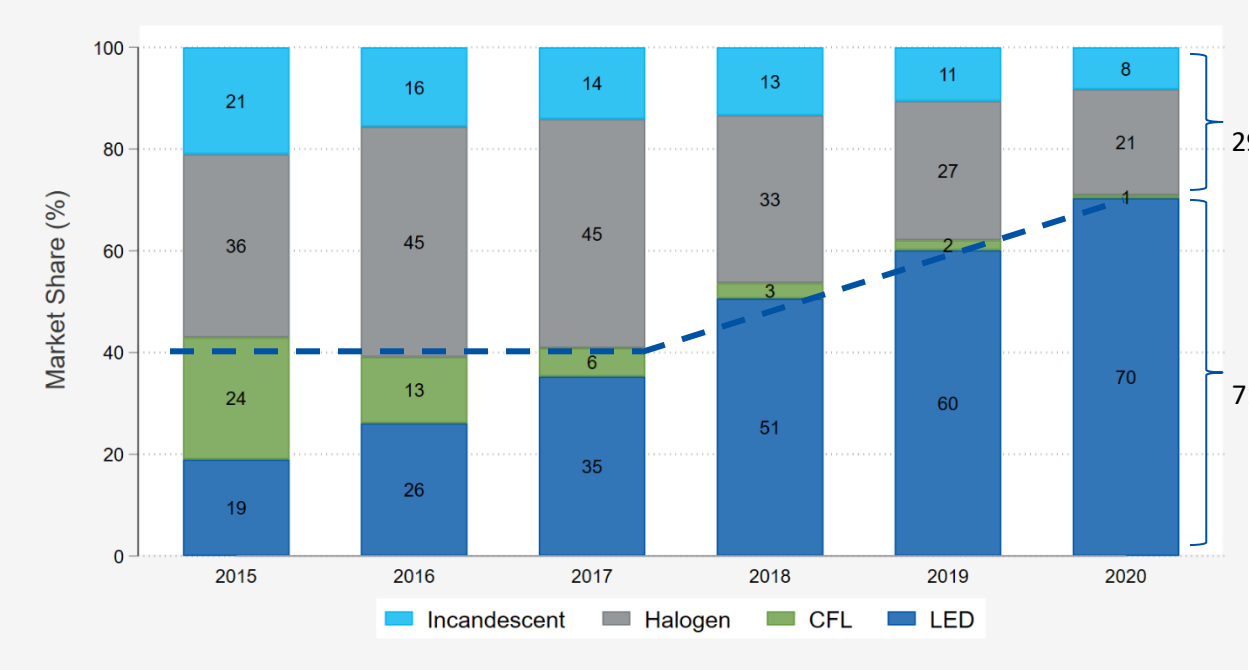


Figure K-2 compares the data in Figure K-1 to Wisconsin market shares. In terms of LED market share, Wisconsin distanced itself from the national market share in 2016. Since then, Wisconsin LED market share has consistently been greater than national market share. In 2020, LED market share in Wisconsin was nearly 10 percentage points greater than the national market share (80.1% and 70.4% respectively).

Figure K-2. Wisconsin and Total U.S. Year-Over-Year Market Share by Bulb Type

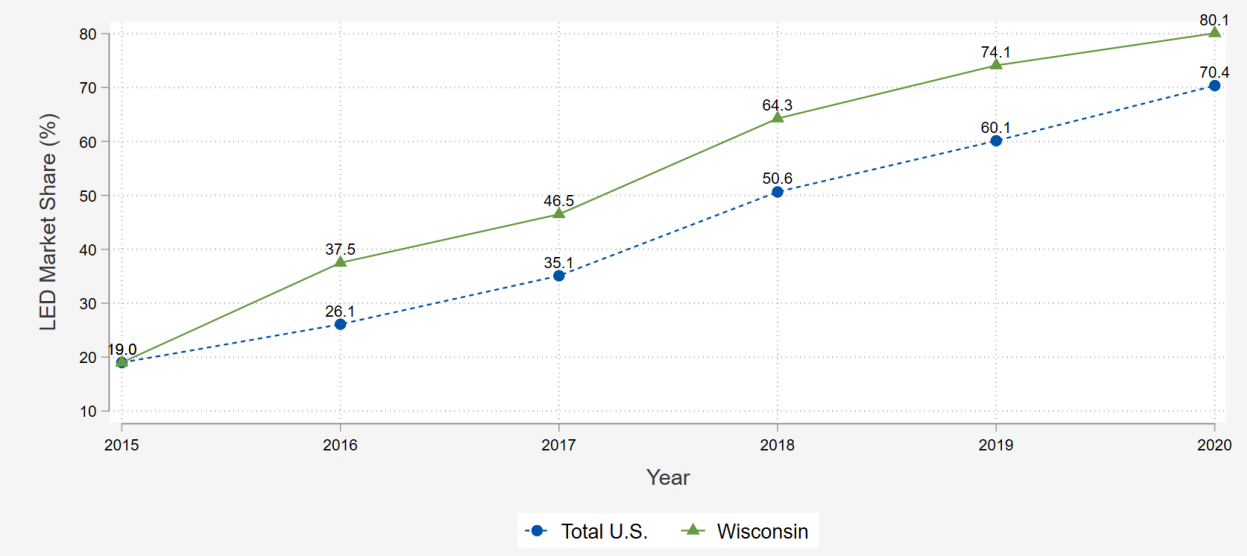
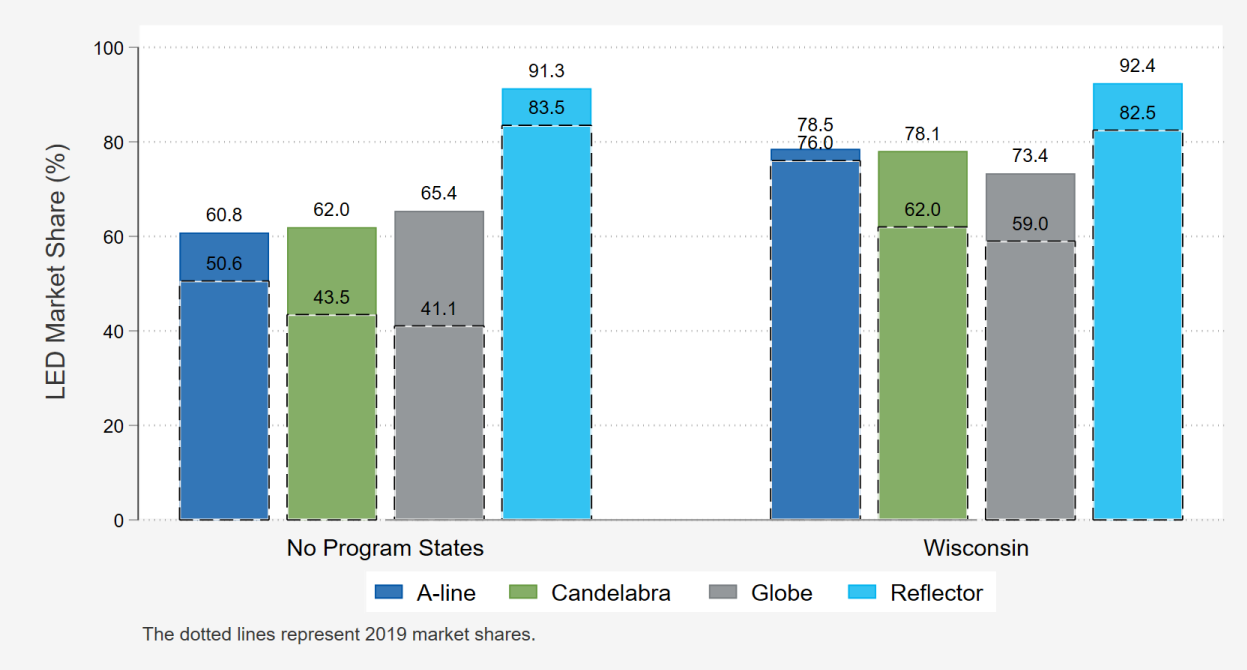


Figure K-3 shows the LED market share by lamp style. Breakouts are shown for non-program states and Wisconsin across 2019 and 2020.[60] The market shares differ by style, with LEDs representing a majority of all bulb styles even in states without programs. LED market shares in Wisconsin tend to exceed LED market shares in non-program states by several percentage points. For A-lines in particular, the LED market share in Wisconsin is nearly 20 percentage points higher than the share in non-program states in 2020. Reflectors are on the other end of the spectrum, where the 2020 LED market share in Wisconsin is only slightly greater than the market share in states without upstream lighting programs.

Figure K-3. LED Market Share by Lamp Style (2019-2020)

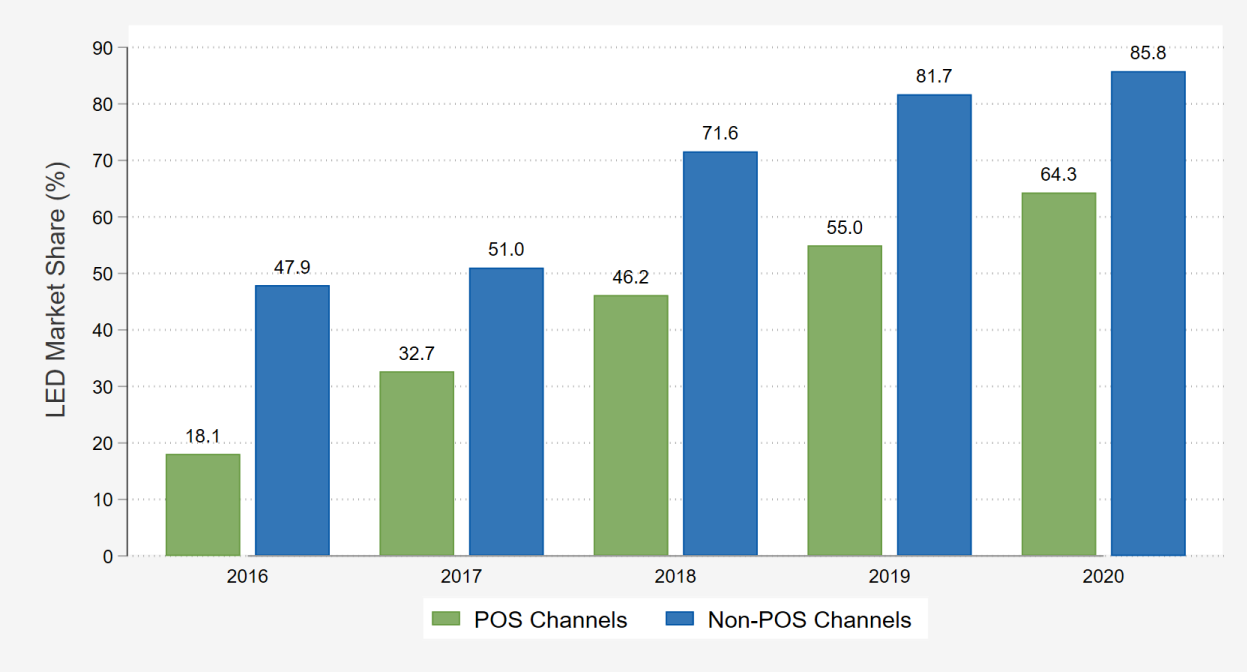


Analysis of the sales data model revealed that sales of LEDs had greater market share in the non-POS retail channels than the POS retail channels, as shown in Figure K-4.[61] In 2020, approximately 86% of the lighting purchases made in the non-POS channel were LEDs, compared to approximately 64% in the POS channel. LED market share has increased in both retail channels since 2016.

[60] The "no program" states in 2020 are Alabama, Kansas, Kentucky, Mississippi, Nebraska, Tennessee, and Wyoming. California did not have programs in 2020 but has higher LED market shares than any other state due to the enforcement of EISA and prior program activity. California was therefore not included in the 2020 model or any "no program" state summaries.

[61] In total, approximately 73.4% of bulbs were purchased in the non-POS channels.

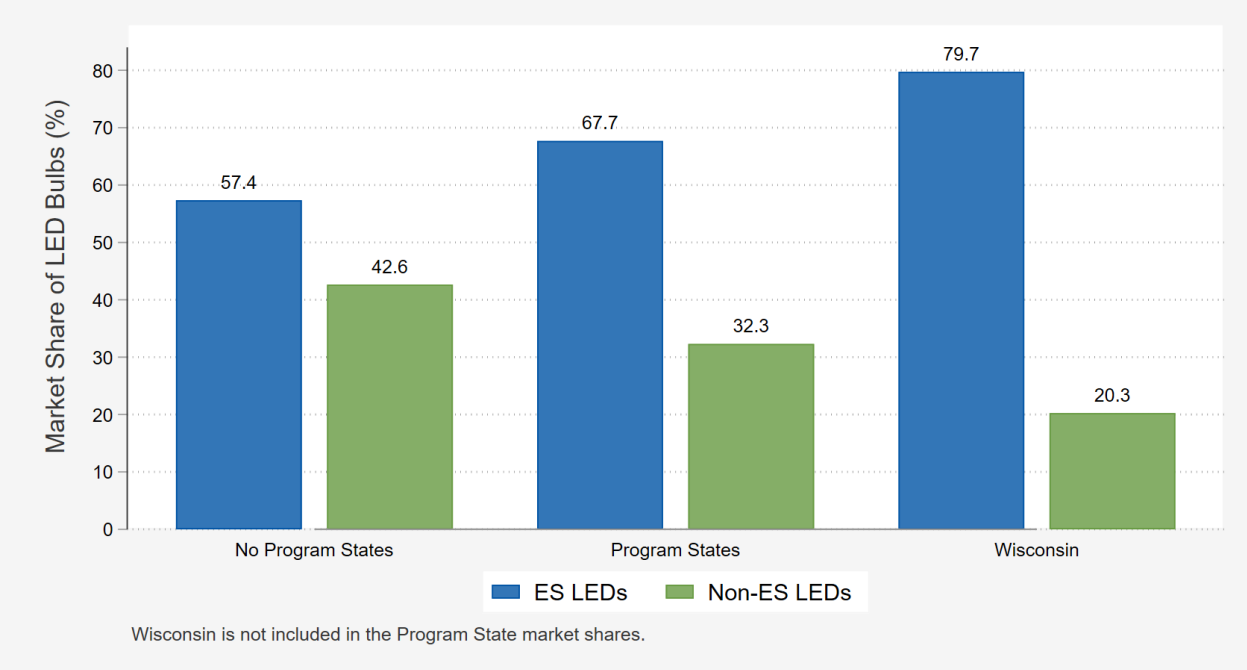
Figure K-4. Wisconsin LED Market Share by Retail Channel



The evaluation team looked at ENERGY STAR LED distribution when there was sufficient resolution.[62] In Figure K-5, the POS retail channel shows that 80% of LED purchases in Wisconsin were ENERGY STAR LEDs, compared to only 68% of LED purchases in other program states (excluding Wisconsin). States that did not run programs had the lowest share of ENERGY STAR LEDs of the three groups (57%).

[62] Because the ENERGY STAR website does not include the UPCs of qualifying lamps, the evaluation team had to identify ENERGY STAR-qualified lamps using make, model, and rated lifetime. In total, the evaluation team was successful at attributing 97% of LED sales with an ENERGY STAR attribute (that is, an LED was designated ENERGY STAR or was not). The evaluation team could not identify the remaining 3% of LEDs, which are excluded in Figure K-5. In addition, the evaluation team conducted this analysis using only the POS data, as the panel data did not contain sufficient sample size to stratify by ENERGY STAR designation.

Figure K-5. ENERGY STAR LED Wisconsin Share (2020 POS Channels)

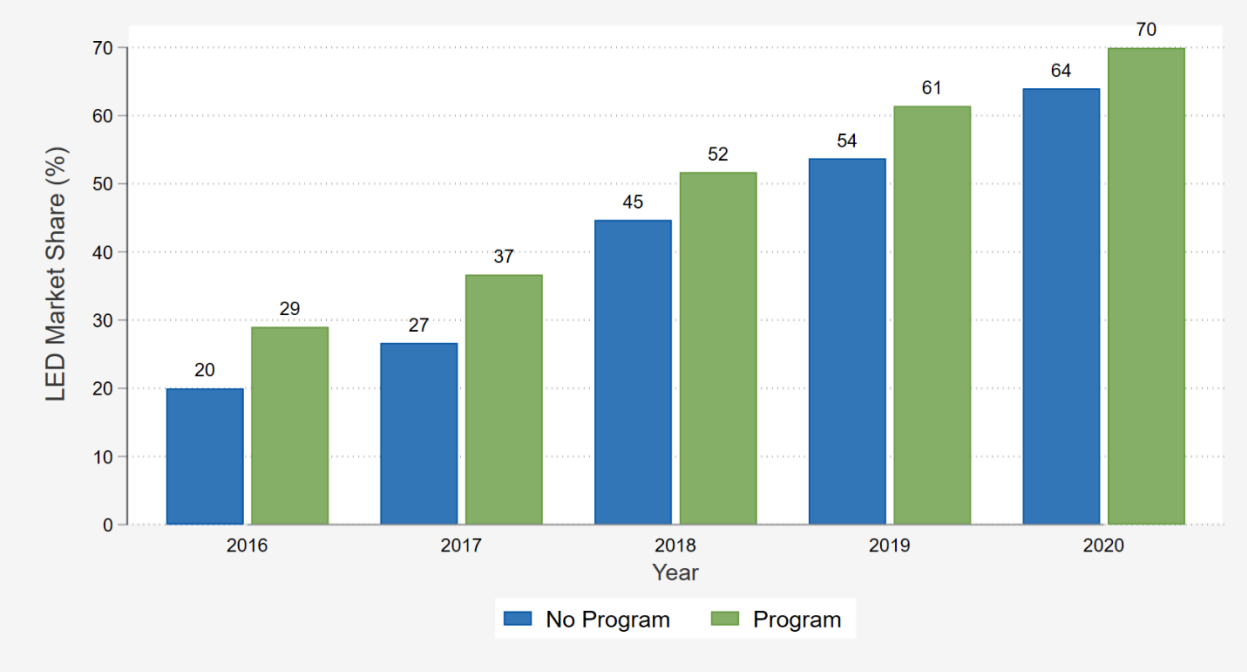


Program Activity

Figure K-6 shows the state-level LED share as a function of program activity (program state or non-program state). It is important to note that the number of states in each bin varies by year. In 2020, there were seven states in the "no program" bin and 35 states in the "program moderate" bin.[63] There are two key takeaways from the figure: first, LED share is higher in program states, although the gap has decreased from about 10 percentage points in 2016 and 2017 to about six percentage points in 2020. Second, LED share in "no program" states typically lags LED share in program states by about one year (e.g., in 2018 the average LED market share was 52% in program states, and in 2019 the no program states had an LED market share of about 54%).

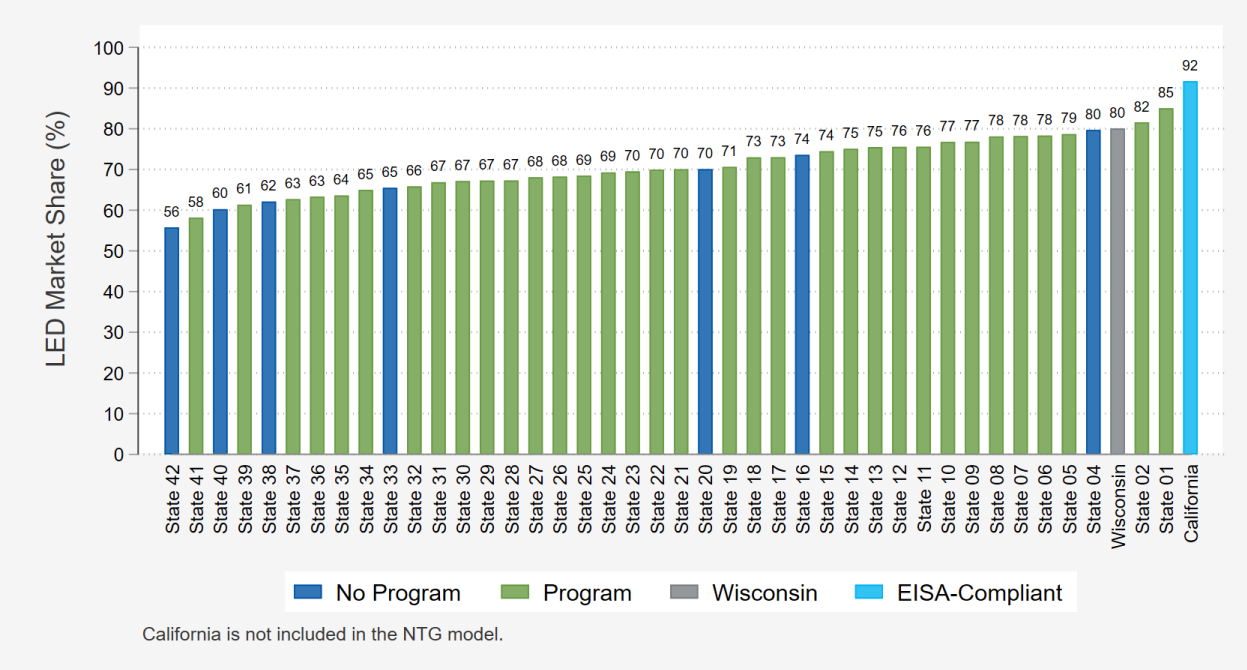
[63] As noted elsewhere, the "no program" states in 2020 are Alabama, Kansas, Kentucky, Mississippi, Nebraska, Tennessee, and Wyoming. California is not included in this figure or the model due to its activation of EISA in 2020. Two prior non-program states—Virginia and Delaware—offered programs in 2020.

Figure K-6. Relationship Between Program Activity and LED Sales



Similarly, Figure K-7 shows how LED sales in Wisconsin compare to the 42 modeled states. States highlighted in green represent states with programs. Blue bars represent states that did not offer a lighting program. There are a handful of program states with low LED market shares, but states without programs generally have lower LED market shares. Note that most of the non-program states have LED market share below 70% (the national average).

Figure K-7. LED Sales Distribution Across States (2020)



Program Intensity

Figure K-8 shows the distribution of programs lamps per household for states in which the evaluation team had sufficient data. Wisconsin's upstream lighting offering incented approximately two LED lamps per household. This ranks above the average (1.48 LEDs per household) and median (1.20 LEDs per household) values for the included states.

Figure K-8. Average Number of Program Lamps per Household (2020)

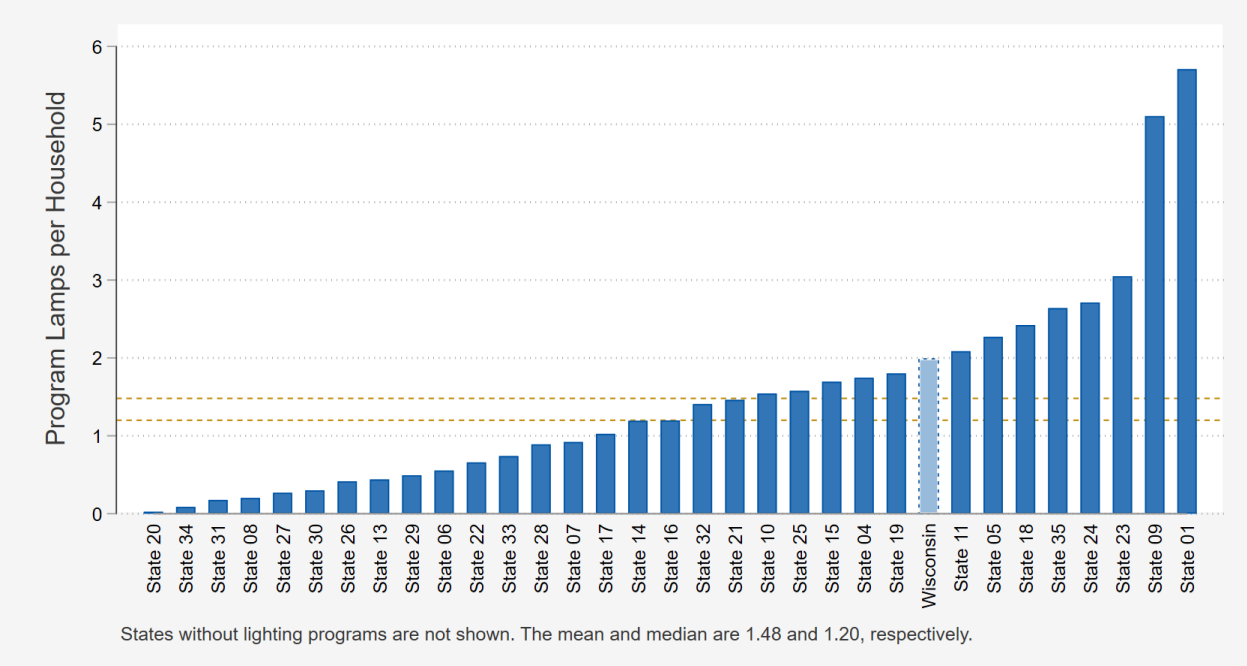
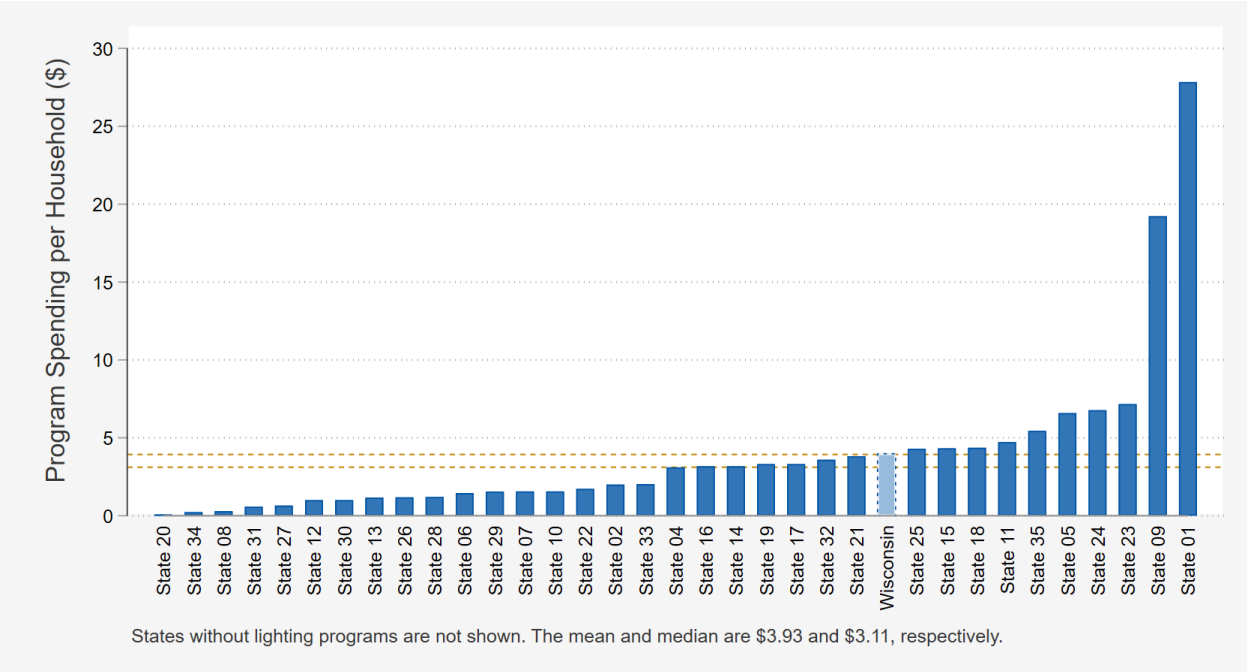


Figure K-9 shows the distribution of program spending per household for states in which the team had sufficient data. In most states, upstream lighting offerings spend fewer than $5 per household. Across states, the average and median values were $3.93 and $3.11 per household. Wisconsin's upstream lighting offering falls slightly above the mean at $3.98 per household.

Figure K-9. Average Program Spending per Household



As shown in Figure K-10, the evaluation team also compared the average incentive offered per LED across states in which LED incentive information was collected. A simple calculation of incentive dollars divided by bulb units yielded average incentives per state. In the 16 states that had sufficient data, LED incentives ranged from approximately $0.75 to $4.50 per LED bulb, with most of these states offering between $1 and $2 per LED. The mean and median LED incentive are $1.83 and $1.78, respectively. At $1.47 per LED, Wisconsin is just slightly below the national average incentive.

Figure K-10. Average Upstream Lighting Incentive Per LED (2020)

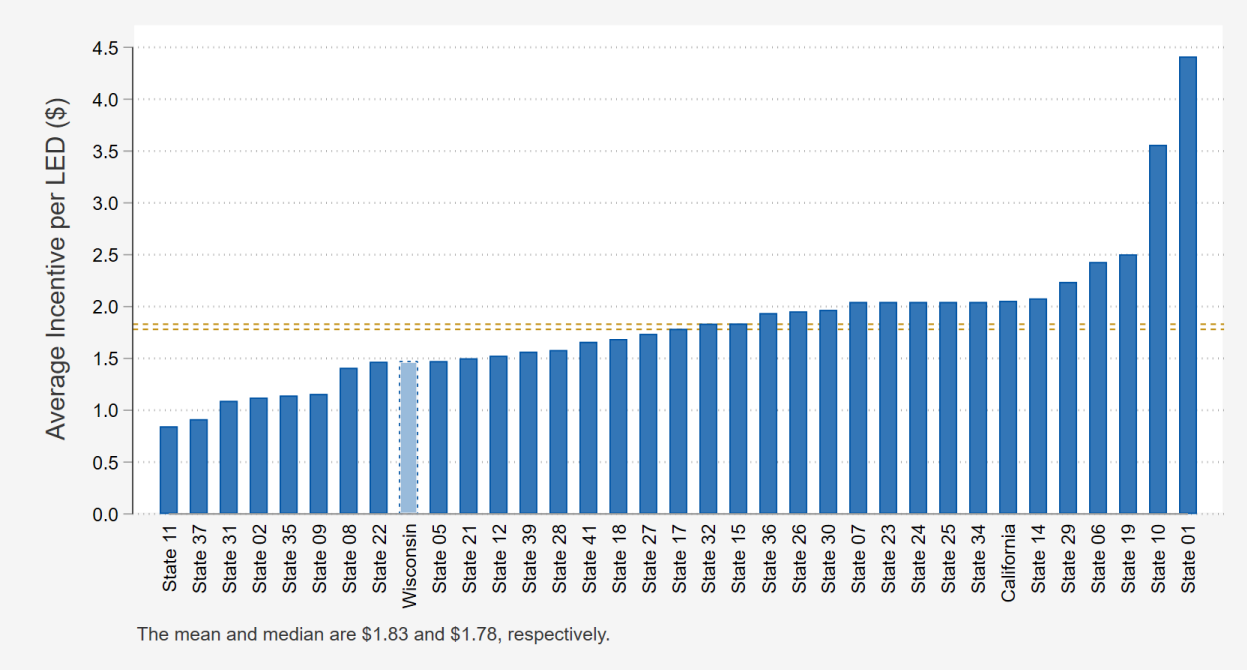
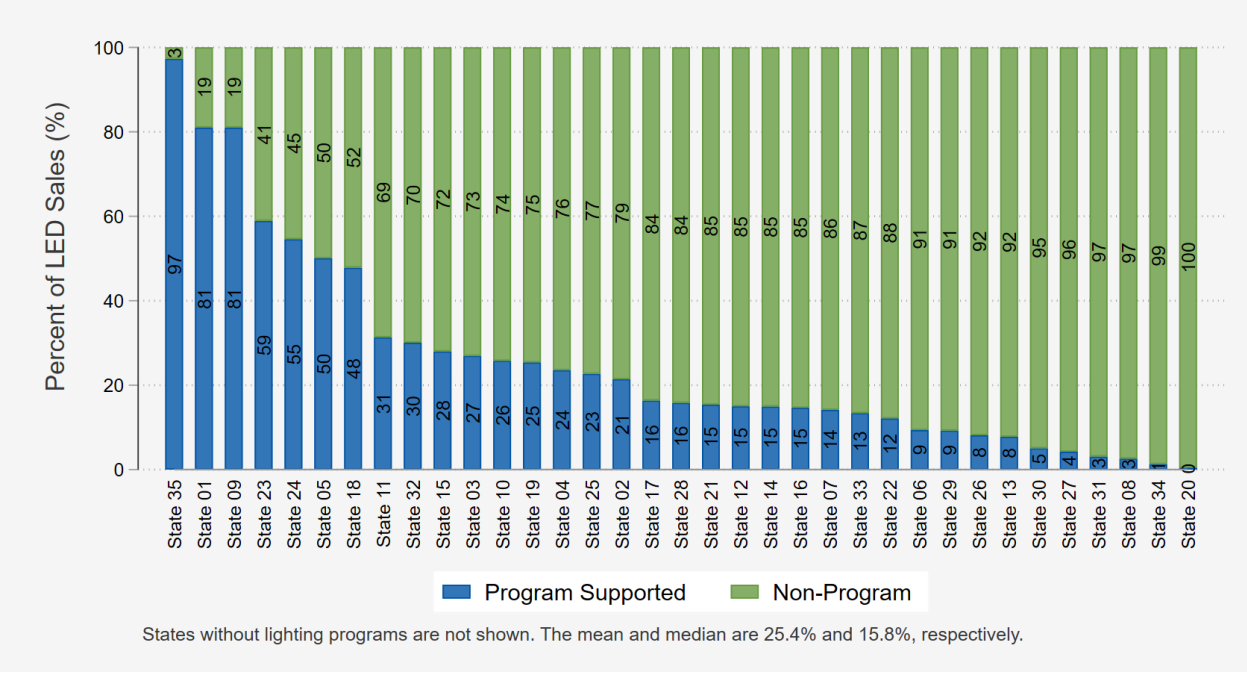


Figure K-11 shows the percentage of LED sales, by state, that were incented by an upstream lighting program (where this percentage is calculated by dividing the number of incented LED bulbs by the total LED bulbs sold in the state). Across all states, the average percentage was 25% and the median was 16%. Wisconsin falls slightly above the average state at 27%.

Figure K-11. Percentage of LED Sales Supported by Upstream Lighting Program



It is clear from the data used for the national sales model that program spending was at least partially responsible for an increased market share of LED sales. Although these figures help illustrate program activity in relation to LED sales, the regression analysis provided information about what other factors could be influencing the marketplace and a better understanding of the programmatic impacts. The next section presents the key findings from the national sales model.

Modeling Methods

As previously stated, the primary objective of the model was to quantify the impact of state-level retail lighting program activity on the sales of LEDs, while controlling for demographic, household characteristics, and retail channel variables that could affect consumers' uptake of efficient lighting products.

The general form of the model is specified below, followed by a more detailed discussion of the data sources for each variable. The evaluation team considered the comprehensive set of variables listed below; the final model, presented in Table K-3 under *Key Findings*, lists the variables ultimately selected for inclusion based on their statistical significance and ability to improve the model specification (see the *Multivariate Regression Model* section under *Key Findings* for more information).

$$LED\ Market\ Share_i = \beta_0 + \beta_1 * Program\ Spending\ Variable_i + \beta_2 * Program\ Age\ Variable_i$$

$$+ \beta_3 * \sum_{1}^{3} Channel\ Variables_i + \beta_4 * \sum_{1}^{7} Demographic\ Variables_i + \epsilon_i$$

Where:

LED Market Share$_i$	=	Proportion of total LED sales in state 'i'. Equal to [LED sales/total bulb sales]
β_0	=	The model intercept
β_1	=	The primary coefficient of interest. This represents the marginal effect of program intensity
β_2	=	Another coefficient of interest. This represents the marginal effect of program age
Program Spending Variable$_i$	=	A numeric variable that summarize state-level retail lighting program dollars per household in state 'i'. Two different program spending variables were tested; Table K-3 lists additional detail.
Program Age Variable$_i$	=	The number of years state 'i' has been running an upstream lighting program. Two different program age variables were tested; Table K-3 lists additional detail.
β_3 *and* β_4	=	Array of regression coefficients for the channel and demographic variables
Channel Variables	=	Numeric variables summarizing state-level retailer characteristics. Table K-3 lists additional detail
Demographic Variables	=	Numeric variables that summarize state-level population, housing, and economic attributes. Table K-3 lists additional detail.
ϵ_i	=	Error term

Table K-3. Program Intensity, Channel, and Demographic Variable Descriptions

Type of Variable	Description
Program Intensity Variables	
Program Spending per Household$_i$	Total upstream program budget in state 'i' divided by the number of households in state 'i'.
SQRT (Program Spending per Household)$_i$	Square root of the program spending per household.
Program Age$_i$	Number of years program administrators in state 'i' have operated upstream lighting programs (CFL or LED).
SQRT (Program Age)$_i$	Square root of the program age.
Channel Variables	
Sqft NonPOS per HH$_i$	Average non-POS retail square footage per household in state 'i.' Equal to non-POS square footage divided by the number of households in state 'i'.
Percent Sqft NonPOS$_i$	Percentage of total retail square footage belonging to non-POS retailers in state 'i.' Equal to non-POS square footage divided by (POS sqft + non-POS sqft).
Sqft POS per HH$_i$	Average POS retail square footage per household in state 'i.' Equal to POS square footage divided by the number of households in state 'i'.
Demographic Variables	
Political Index$_i$	A state-level partisan voter index developed by Gallup using presidential election voting results as a state-level partisan proxy. A higher than 1.0 value represents greater democratic influence and a value less than 1.0 indicates greater republican influence.[a]
Average Electricity Cost$_I$	State-level average residential retail rate of electricity sourced directly from the Energy Information Agency. [b]
Cost of Living$_i$	State-level cost of living indices developed by the Missouri Economic Research and Information Center. [c]
Percentage of Renters Paying Utilities$_i$	All state-level demographic and household variables were derived from the most current U.S. Census ACS. [d]
Median Income$_i$	
Percentage Owner Occupied$_i$	
Percentage of Population with College Degree$_i$	

[a] Gallup. "State of the States." Accessed February, 2021: news.gallup.com/poll/125066/state-states.aspx

[b] US Electricity Information Association. "Electricity." Accessed February 2021: https://www.eia.gov/electricity/data/state/

[c] Missouri Economic Research and Information Center. "Cost of Living Data Series 2020 Annual Average." Accessed February 2021: https://meric.mo.gov/data/cost-living-data-series

[d] American Community Survey. Accessed February 2021: https://data.census.gov/cedsci/all?q=S25&d=ACS%201-Year%20Estimates%20Subject%20Tables&tid=ACSST1Y2019.S2504

Correlation of the Independent (Explanatory) Variables

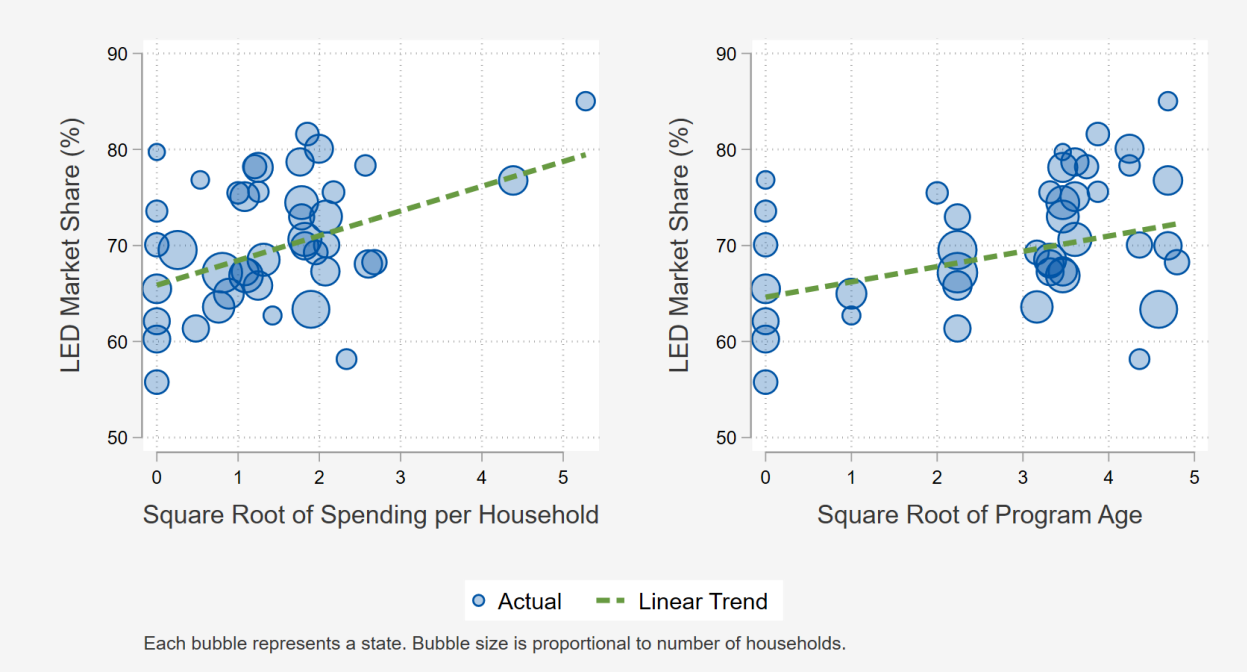
Table K-4 shows the correlation between the dependent variable (LED market share) and 14 potential explanatory variables—the four program intensity variables (spending per household, square root of spending per household, program age, and square root of program age) and the 10 channel and demographic/household variables. Twelve of the variables are positively correlated with LED market share (green bars) and two are negatively correlated (red). The absolute value of the correlation coefficient indicates the strength of the linear correlation.

Table K-4. Independent Variable Correlation Table

Explanatory Variable	Correlation with LED Market Share
Spending per Household	0.386
Square Root of Spending per Household	0.435
Program Age	0.327
Square Root of Program Age	0.386
Non-POS Square Footage per Household	0.202
POS Square Footage per Household	-0.154
Percentage of Square Footage in Non-POS	0.184
Political Index	0.068
Median Income	0.245
Average Electricity Cost	0.015
Cost of Living	0.022
Percentage of Renters Paying Utilities	-0.204
Percentage Owner Occupied	0.198
Percentage of Population with College Degree	0.312

As expected, of the 14 variables, program age and program spending show the strongest correlation with LED market share (i.e., higher LED market shares typically occurring in states with more program spending and longer-running programs). Notably, the square root transformations of program spending and program age show greater correlation with LED market share than the non-transformed versions. Figure K-12 visualizes the correlation between these key variables and LED market share.

Figure K-12. LED Market Share against Program Intensity



In addition to being correlated with LED market share, many of the explanatory variables are correlated with each other. Table K-5 shows a pairwise correlation matrix among the potential independent variables. When multiple independent variables that are correlated with one another are included in a regression model, the model will have difficulty precisely estimating the effect of either term. This issue is compounded by the relatively low number of observations in the dataset.

Because of the complexity of the relationships and numerous combinations of these channel, demographic, and household characteristic variables, the evaluation team tested several different model options. In general, the models provided similar results, with square root of program spending and square root of program age being the two most significant predictors of LED market share. The final model is discussed in more detail in the *Key Findings* section.

Table K-5. Covariance Table of Potential Independent Variables

	LED Market Share	Spending per Household	Square Root of Spending per Household	Program Age	Square Root of Program Age	Non-POS Square Footage per Household	POS Square Footage per Household	Percentage of Square Footage in Non-POS	Political Index	Median Income	Average Electricity Cost	Cost of Living	Percentage of Renters Paying Utilities	Percentage Owner Occupied
Spending per Household	0.39													
Square Root of Spending per Household	0.44	0.90												
Program Age	0.33	0.61	0.78											
Square Root of Program Age	0.39	0.53	0.75	0.95										
Non-POS Square Footage per Household	0.20	-0.21	-0.12	-0.19	-0.10									
POS Square Footage per Household	-0.15	-0.42	-0.47	-0.64	-0.61	0.24								
Percentage of Square Footage in Non-POS	0.18	0.44	0.51	0.65	0.61	-0.03	-0.96							
Political Index	0.07	0.56	0.64	0.65	0.61	-0.27	-0.81	0.78						
Median Income	0.24	0.51	0.56	0.53	0.48	0.08	-0.65	0.73	0.69					
Average Electricity Cost	0.01	0.72	0.63	0.62	0.48	-0.34	-0.62	0.61	0.62	0.50				
Cost of Living	0.02	0.50	0.53	0.67	0.56	-0.42	-0.82	0.80	0.77	0.70	0.68			
Percentage of Renters Paying Utilities	-0.20	-0.57	-0.61	-0.63	-0.49	0.39	0.58	-0.53	-0.59	-0.57	-0.64	-0.69		
Percentage Owner Occupied	0.20	-0.12	-0.13	-0.31	-0.26	0.51	0.43	-0.37	-0.36	-0.33	-0.33	-0.60	0.29	
Percentage of Population with College Degree	0.31	0.38	0.44	0.50	0.46	0.17	-0.51	0.57	0.53	0.87	0.39	0.50	-0.43	-0.23

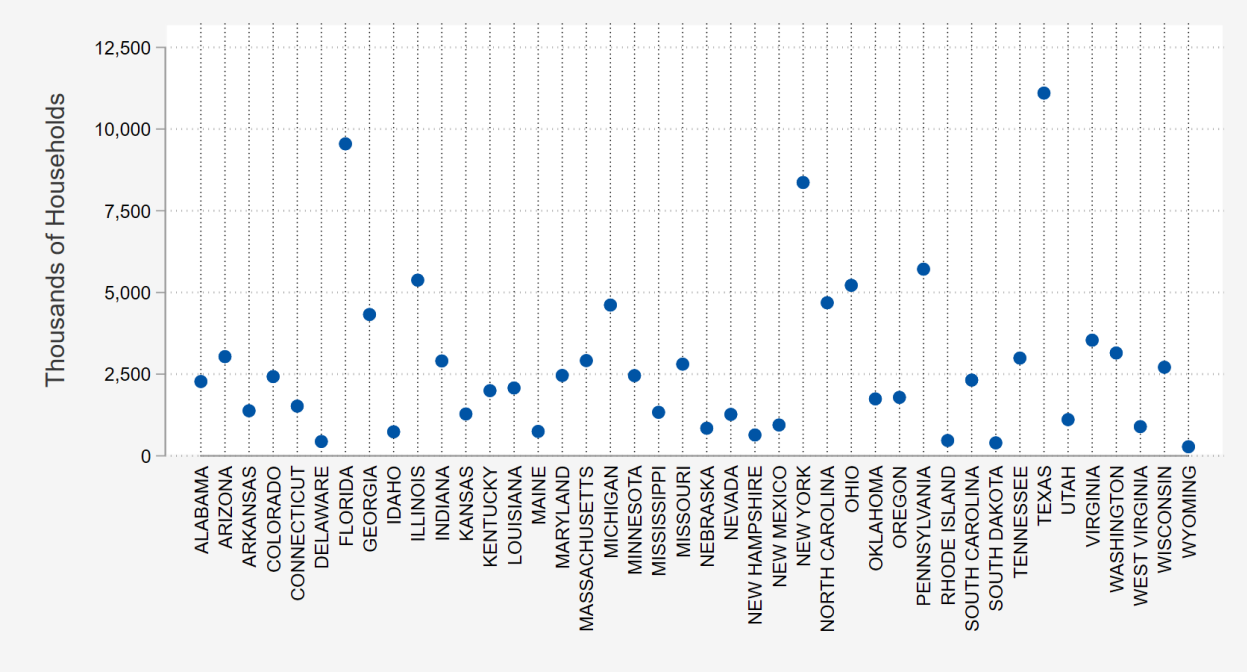
Model Weighting

Another key consideration in developing the model was how to weight each of the states. Each state is a single observation in the model, but the data for that state comprise summarized observations from sales and panel data. Weighting each state equally would not have accounted for larger states having larger sample sizes in the panel data and bigger impacts on the lighting market as a whole. To capture these differences, the evaluation team considered using either the number of households or total bulb sales as the weight. The evaluation team determined that using total bulb sales as analytic weights in the model was inappropriate because sales are correlated with the dependent variable. Specifically, states with high LED market share tend to have lower total lamp sales because efficient lamps have longer measure lives than inefficient lamps so the sockets turn over less frequently.

In the NCP data, the sample size was generally proportional to number of households, and large states represented a larger share of the overall U.S. lighting market than smaller states. Given the difference in panel sizes, the average lighting share in large states was based on more measurements than small states, with a commensurate increase in aggregate measurement precision. Therefore, the evaluation team used number of households per state as the weight.

Figure K-13 shows the distribution of households for each of the 42 states in the model.

Figure K-13. Number of Households by State



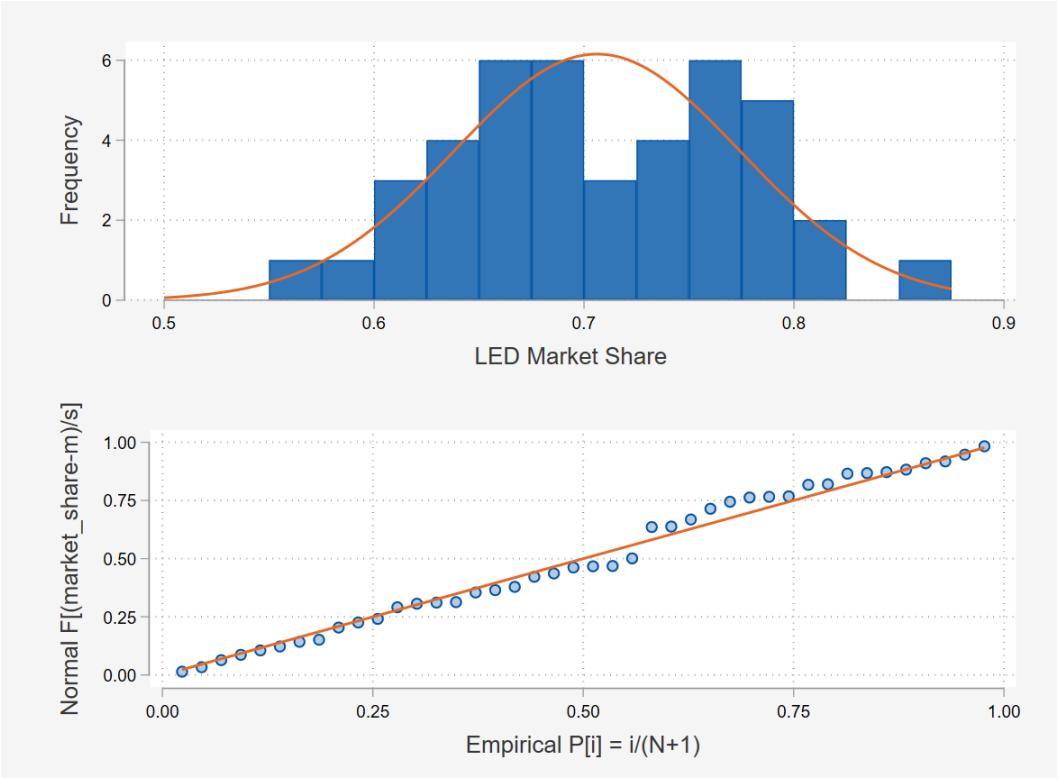
Model Functional Form

Another critical decision in the modeling process is the selection of the functional form of the model. A key input in this decision is the distribution of the dependent variable. Figure K-14 contains a histogram

and a standardized normal probability plot for the LED market share of the 42 states in the analysis dataset and indicates that the data are approximately normally distributed.[64]

LED market share is constrained by 0 and 1. In other words, it cannot be less than 0% and it cannot be greater than 100%. The evaluation team looked at functional forms that impose these limits to produce the top half of an S-curve. Since the LED market share values only range from 56% to 85%, and so much of that variation is explained by program intensity and program age, the evaluation team elected to estimate the model using ordinary least squares (OLS) regression. Using OLS did not result in any unrealistic predictions (e.g., less than 0% or greater than 100%).

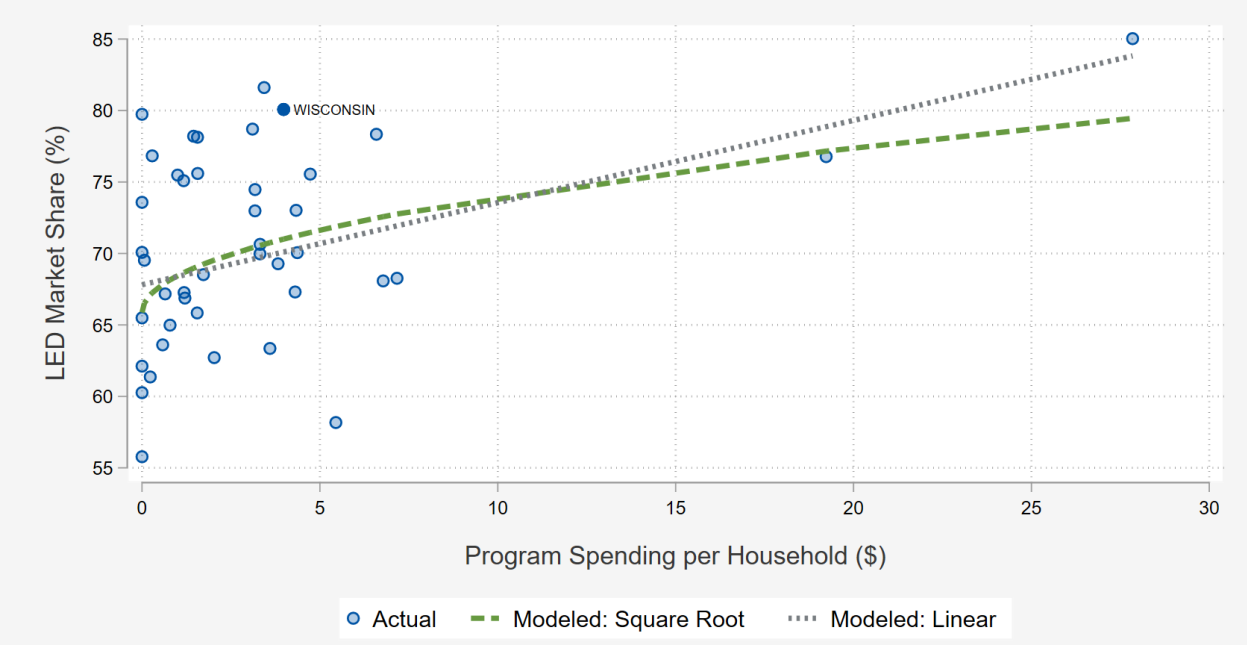
Figure K-14. Histogram and Standardized Normal Probability Plot



The evaluation team also explored transformations of independent variables, including the square root of spending as the program intensity variable. Figure K-15 shows that the square root model tapers LED market share as the square root of spending increases. This reflects diminishing returns in terms of market share as program spending increases and graphically provides a good fit for the data.

[64] The team also ran a Shapiro-Wilk test for normality, where the null hypothesis is that the data are normally distributed. The p-value of this test was 0.90. At the 95% confidence level, there is no reason to reject the hypothesis that LED market share is normally distributed.

Figure K-15. Linear vs. Non-Linear Modeling



NTG Estimates

Using the results of the regression models, efficient bulb sales data, and the program tracking databases, the evaluation team estimated NTG ratios for LEDs in 2020. The evaluation team derived NTG ratios by first using the model to predict the share of efficient bulbs with and without a program (determining the counterfactual of no program activity by setting the program spending variable to zero). This change in share represents the program lift, or net increase in the share of efficient bulbs resulting from program activity.

To then calculate NTG, the evaluation team multiplied the change in share by the total number of bulbs—for all bulb types—sold in 2020, as determined by the sales data analysis described above. This value represents the net impact of the program (i.e., the total lift in the number of LEDs sold), which the evaluation team then divided by the total number of program bulbs sold (the gross number of bulbs) to determine NTG:

$$NTGR = \frac{(\#\ LED\ bulbs\ sold\ with\ program - \#\ LED\ bulbs\ sold\ with\ no\ program)}{\#\ of\ program\ incented\ LED\ bulbs\ sold}$$

Key Findings

The following section presents the findings from applying the multivariate regression model.

Multivariate Regression Model

The regression coefficients for the program intensity variables, and subsequent estimates of the NTG ratio, proved relatively stable across a number of model specifications. Table K-6 displays the relevant statistics for the 2020 model. As in prior years, the 2020 model includes independent variables for

program intensity, channel effects, and demographic/household effect. However, the set of independent variables in the model is not the same set used in prior years because the previous model was a poor fit in CY 2020 (though it did return a similar NTG estimate). In addition, the adjusted R2 value is lower than it has been in previous years (66.7% in 2017, 46.9% in 2019, and 22.1% in 2020).[65]

Table K-6. Model Summary Statistics (n=42 States)

Independent Variables	Model Coefficient	P-Value of Coefficient
Intercept	0.408	0.002
Program Spending per Household (square root)	0.019	0.146
Program Age (square root)	0.009	0.319
Non-POS Square Feet per Household	0.015	0.359
% of Homes that are Owner-Occupied	0.003	0.194
Model Adjusted R-squared	**22.1%**	

The evaluation team believes this is partially a reflection of the market transformation. The gap between LED market shares in program and non-program states is narrowing, and there is less variation in LED market shares across states in 2020 than there has been in prior years. This makes it more difficult to predict LED market share, as the program intensity variables simply do not have the explanatory power they used to have, which is reflected by the lower R2 value.

There are a few potential limitations to the model that are worth noting. It is possible that the model omitted variables that might better explain LED market share. In addition, the use of comparison states in the baseline will not reflect any potential interstate influence on non-program states. In other words, Focus on Energy upstream lighting offering, combined with the millions of dollars spent on lighting in other program states, has impacted the retailer sales of lamps in non-program and moderate program states. That impact would increase the baseline/comparison area sales and mean that the program spending coefficient was being underestimated, thus resulting in a conservative NTG.

The positive and significant coefficient for program age indicates that prior program activity does positively influence efficient market share in the current year. This may reflect a number of factors, including “momentum” in terms of customer awareness, education, and preference for efficient lighting, as well as retailer knowledge and promotion of efficient lighting. Program age might also be thought of as an indicator for market effects, meaning the portion of efficient lighting sales from potentially permanent changes in the market are a result of ongoing program activity.

One final note is that the model underpredicts LED market share for Wisconsin by about 8.2 percentage points (80.1% actual and 71.9% predicted). Though seen initially above in Figure K-15, Figure K-16 shows actual LED market share against predicted LED market share, and

[65] In the context of this research, R2 represents the percentage of the variation in LED market share that can be explained by the model. Higher values are better, as they indicate the model does a better job of predicting LED market share.

Figure K-17 shows the residual for each state (where residuals are calculated as actual market share minus predicted market share). As shown in the figures, the underprediction of 8.2 percentage points for Wisconsin represents one of the largest underpredictions made by the model.

Figure K-16. Actual LED Market Share against Predicted LED Market Share

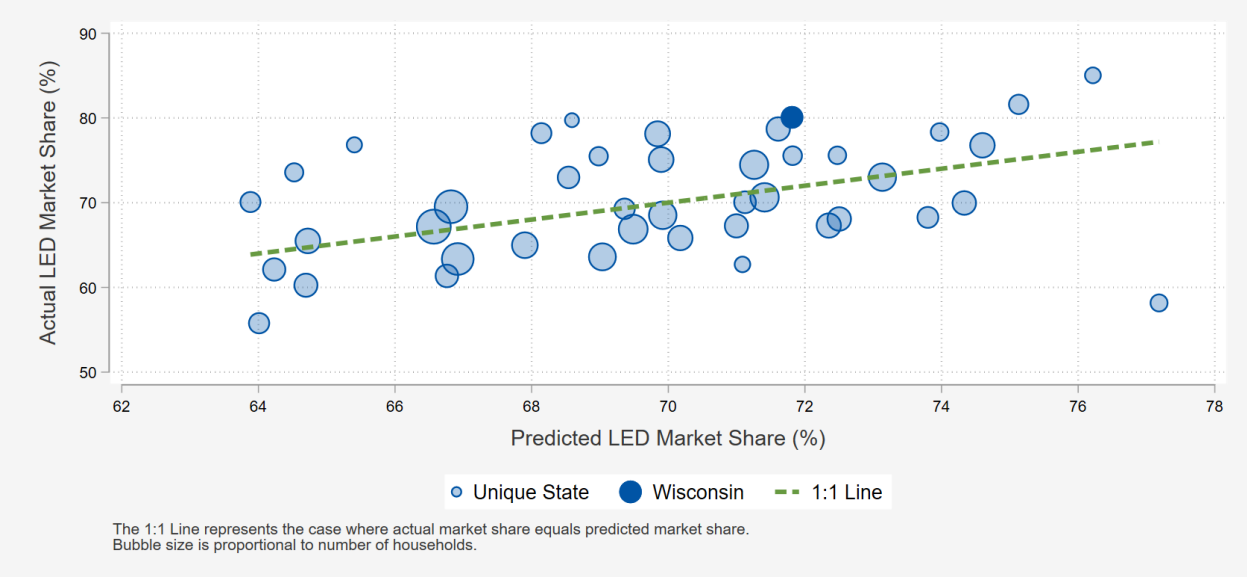
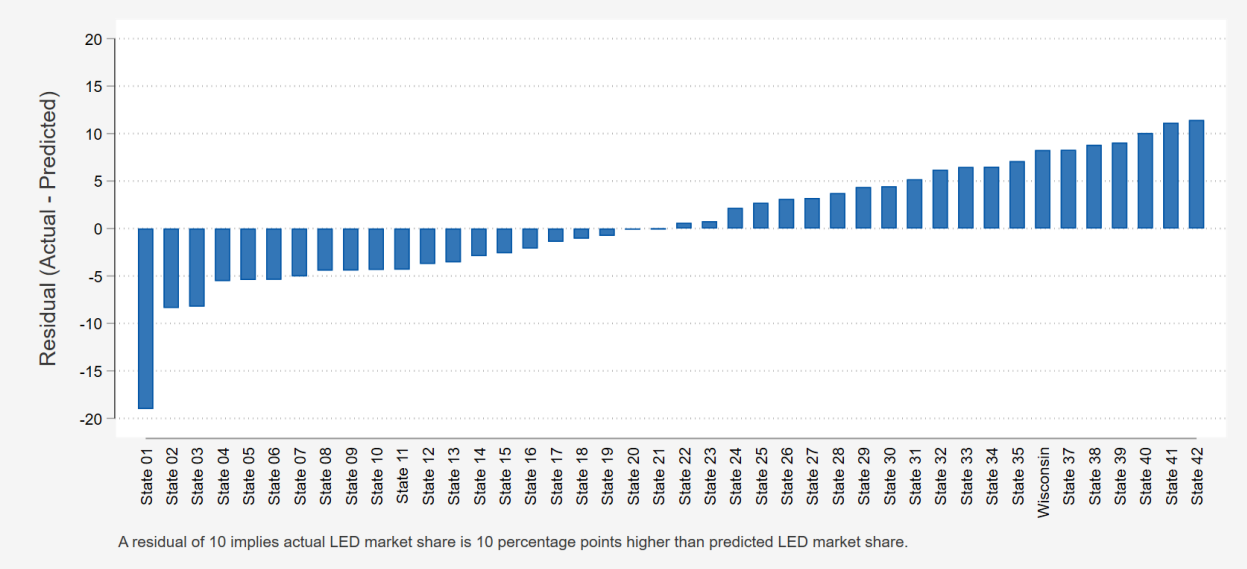


Figure K-17. Model Residuals



Though differences between predicted and actual may reflect omitted variables in the model, the higher-than-predicted market share for Wisconsin may also reflect improved program efficacy compared to other upstream lighting offerings in the U.S. (i.e., Wisconsin achieved a higher LED share per dollar spent by the upstream lighting offering). As discussed below, the evaluation team corrects the model underprediction by making an adjustment as part of the NTG calculation.

NTG Estimates

The evaluation team determined NTG by first calibrating the model to the actual market share. Because the model underpredicts actual LED market share for Wisconsin (see Figure K-16 or Figure K-17), the evaluation team adjusted the counterfactual under the assumption that it may be underpredicted as well. The adjusted counterfactual is calculated as follows:

$$Adjusted\ Counterfactual = Unadjusted\ Counterfactual * \frac{Actual\ LED\ Market\ Share}{Predicted\ LED\ Market\ Share}$$

This adjustment can be seen in Table K-7, where the ratio of the actual LED market (80.1%, Row H) to the predicted LED market share (71.9%, Row G) is 1.114 (Row I).[66]

Next, the evaluation team calculated the counterfactual scenario in which the program spending per household (or the square root of program spending per household) is set to zero. Regarding program age, there are two options when developing the counterfactual:

- Programs have never existed (program age is set to 0).
- Programs did not exist in the year 2020 (subtract 1 year from the program age).

Table K-7, which shows the NTG calculations, includes separate NTG ratios for each of the two options identified above. In the "Current and Past Influence" scenario (i.e., the "offering never existed" scenario), the adjusted counterfactual (i.e., using the model calibration in Row I) LED market share is 71.6% (Row J), implying that LED share would be about two-thirds of all bulbs sold (or 17,871,567 bulbs, Row K) if the Focus on Energy upstream lighting offering had never existed. With the offering, however, LED share is based on the actual value of 80.1% (Row H), with a total of 19,985,580 LEDs sold (both program and non-program LEDs, Row L). The "lift" resulting from the offering is the difference of these two figures, or 2,114,013 LEDs (Row M). Since the offering claimed 5,387,507 LEDs in 2020, the NTG is 39.2% (the net "lift" in LED sales divided by the gross number of bulbs claimed). Using a similar approach, but examining the influence of the current program under the assumption that influences up to one year prior would have continued if the current program was terminated, the net "lift" in LED sales is only 1,070,954, with a NTG ratio of 19.9%.[67]

[66] Note, in prior years the modeled vs. actual "with offering" scenarios were closer and did not include this adjustment.

[67] Not including the model calibration adjustment provides "current and past influence" and "current offering spending and age influence" NTG ratios of 35.2% and 17.8%, respectively.

Table K-7. Wisconsin NTG Calculations

Calculation Term	Current and Past Influence	Current Offering Spending and Age Influence
Total (All technologies) Wisconsin Bulbs 2020 (A)	24,957,782	24,957,782
Offering $ per HH Actual (B)	$3.98	$3.98
Offering $ per HH Counterfactual (C)	$0.00	$0.00
Offering Age Actual (D)	18	18
Offering Age Counterfactual (E)	0	17
LED Market Share Counterfactual (F)	64.3%	68.0%
LED Market Share Modeled (G)	71.9%	71.9%
LED Market Share Actual (H)	80.1%	80.1%
Ratio Actual: Modeled (I = H/G)	1.114	1.114
Adjusted LED Market Share Counterfactual (J)	71.6%	75.8%
LED Qty Counterfactual (K = A*J)	17,871,567	18,914,626
LED Qty Actual (L)	19,985,580	19,985,580
Net LEDs Modeled (M = L-K)	2,114,013	1,070,954
Claimed Bulbs 2020 (N)	5,387,507	5,387,507
NTG Modeled (O = M/N)	**39.2%**	**19.9%**
Market Effects (P = Difference of NTG of columns)	**19.4%**	**N/A**
Market Effects Lamps (Q = N*P)	**1,043,059**	**N/A**

Incorporating of Market Effects

As in prior years, the evaluation team recommends including past program influence (market effects) when calculating program savings and adding it in at the end of the program quadrennium. The evaluation team recommends this for the following reasons:

- **The program seeks to have long-term market effects impacts that are likely being reflected in the program age variable.** The program incentives, and marketing and outreach, seek to impact customer awareness and demand for energy efficient lighting, as well as retailer stocking and promotion of efficient lighting. Program age can be thought of as a proxy for these effects, measuring long-term trends due to multiple years of running programs. These effects, therefore, should reflect positively, rather than negatively, in the NTG estimate.
- **The savings are new estimates realized in 2020.** The change in market share due to prior program activities was realized in 2020 (i.e., prior program activities helped bump up the current market share). This represents increased sales of LEDs in 2020 that were not counted in prior years (i.e., they were not being double counted), and if they are not claimed in the current year they are program-induced impacts that are never credited at any time to program spending (past or present).
- **The timing of expenditures and savings is already modified for the upstream lighting offering.** The gross savings analysis for the offering already accounts for the future installation of program lamps in the current offering year (i.e., although the first-year in-service rate is less than 100%,

an installation trajectory is used to model and claim discounted savings for lamps that are installed in future years). Rather than accelerating future savings, as is done with the in-service rate, claiming impacts from prior expenditures is effectively using a lagged impact savings analysis. Savings that accrue today from programs in previous years, along with the savings from current programs, together comprise a reasonable estimate of energy efficiency offering impacts over the long term.

Applying Market Effects

To apply these market effects, the evaluation team recommends calculating the energy savings, incremental cost, expected useful life, and any other cost-effectiveness inputs for the year in which the market effects occurred then adding these benefits and costs back in at the end of the quadrennium. This is particularly important because the LED market is extremely dynamic, and these parameters can vary from year to year. As shown above, the additional lamps due to market effects for 2020 is 936,093 (the difference in net "lift" between the two scenarios), and the evaluation team recommends that the final average gross savings and incremental cost be applied to this total. To the extent a comparable model or approach is used in the future (and breaks out market effects), the evaluation team recommends a similar calculation be done for 2021 and future years in the current quadrennium, using the appropriate inputs in place for each specific calendar year (i.e., the 2020 market effects lamps would use the gross savings and incremental cost in place for 2020, and any market effects lamps determined for 2021 would use the gross savings and incremental cost for 2021). Summing the totals for each year will determine the total additional market effects savings and costs over the quadrennium that can be applied to quadrennial impact and cost-effectiveness analysis.

Comparison to Prior Years

As shown in Table K-8, the NTG excluding market effects held fairly steady between 2016 and 2017, but dropped steeply from CY 2017 to CY 2019 and then again from CY 2019 to CY 2020. Looking at the LED market share trends above in the *Analysis of the Combined Dataset (Descriptive Statistics)* section, it is clear that 2018 was a "watershed" year in which LEDs began to displace sales of inefficient lamps, and the trend continued along with substantial gains in LED market share in non-program states in 2019 and 2020.

The NTG including market effects also dropped steeply in CY 2020. As noted above, the evaluation team sees this as a reflection of a changing lighting market, where even states without upstream lighting offerings are seeing LED market shares in the 60-70% range. In other words, the baseline is a scenario in which six or seven out of every 10 light bulbs sold are LEDs. However, even at a lower NTG ratio than prior years, the program led to an additional 2.1 million LEDs being sold in Wisconsin in 2020 (see row M in Table K-7).

Table K-8. CY 2016 – CY 2020 Program Intensity and NTG Results

Value	CY 2016	CY 2017	CY 2018 (No model Run)	CY 2019	CY 2020
Program Intensity					
Program $ per HH Actual	$4.13	$4.23	N/A	$4.26	$3.98
Gross Program LEDs	3,405,692	4,732,792	N/A	5,621,136	5,387,507
Predicted Market "Lift"					
LED counterfactual share (market effects scenario)	23.5%	28.9%	N/A	51.2%	71.6%
LED modeled share	33.0%	41.7%	N/A	66.9%	80.1%
"Lift" in LED share	9.5%	12.8%	N/A	15.7%	8.5%
Net-to-Gross					
NTG – No Market Effects	46.7%	51.0%	N/A	29.5%	19.9%
NTG with Market Effects	**71.0%**	**71.6%**	N/A	**69.5%**	**39.2%**

Appliance Recycling Offering Self-Report NTG Methodology and Findings

The evaluation team used the following formula to estimate net savings for recycled refrigerators and freezers:

$$Net\ savings = Gross\ Savings - Freeridership\ and\ Secondary\ Market\ Impacts$$

Where:

Evaluated Gross Savings = The evaluated *in situ* unit energy cost (UEC) for the recycled unit, adjusted for part-use

Freeridership and Secondary Market Impacts = Offering savings that would have occurred in absence of that offering

Secondary market impacts require a decision-tree approach for calculating and presenting net savings for the Appliance Recycling offering. The decision tree—populated by the responses of surveyed participants—presents savings under all possible scenarios concerning the participants' actions regarding the recycled equipment. Through these scenarios, the evaluation team used a weighted average of savings to calculate net savings attributable to the offering. This section includes specific portions of the decision tree to highlight specific aspects of the net savings analysis. Figure K-20 and Figure K-21 at the end of this section illustrate the full decision trees.

Freeridership

The Appliance Recycling survey first asked participants if they considered discarding the appliance prior to learning of the offering. If participants did not previously consider appliance disposal, the evaluation team categorized them as non-freeriders and excluded them from subsequent freeridership analysis.[68]

Next, the survey asked all remaining participants (i.e., those who considered discarding their existing appliance before learning about the Appliance Recycling offering) a series of questions to determine, in the offering's absence, the distribution of participating units likely to have been kept or discarded. Actions independent of offering intervention follow three scenarios:

- Unit is discarded and transferred to someone else
- Unit is discarded and destroyed
- Unit is kept in the home

To determine the percentage of participants who followed each scenario, the survey asked respondents about the likely fate of their recycled appliance had it not been decommissioned through the Appliance Recycling offering. The evaluation team grouped their responses into these categories:

- Kept the appliance
- Sold the appliance to a private party (i.e., via an acquaintance or through a posted advertisement)
- Sold or gave the appliance to a used appliance dealer
- Gave the appliance to a private party, such as a friend or neighbor
- Gave the appliance to a charity organization
- Left the appliance on the curb with a "free" sign
- Had the appliance removed by the dealer from whom the new or replacement appliance had been obtained
- Hauled the appliance to a landfill or recycling center
- Had the appliance picked up by a local waste management company

Using the survey responses, the evaluation team determined the participants' actions independent of the offering. The team then used these results to calculate the percentage of refrigerators and freezers participants kept or discarded (Table K-9).

[68] For this analysis, respondents who answer "Don't know" are also excluded from further analysis. Typically, the number of "Don't know" responses is no more than two or three respondents. In CY 2020, however, 21 respondents were excluded due to "Don't know" responses.

Table K-9. Final Distribution of Kept and Discarded Appliance

Stated Action Absent Offering	Indicative of Freeridership	Refrigerators (n=94)	Freezer (n=68)
Kept	No	34%	34%
Discarded	Varies by Discard Method	66%	66%
Total		**100%**	**100%**

As shown in Table K-9, the share of respondents who would not have kept their appliance was the same, at 66%, for both refrigerator and freezers. Of these, 71% of refrigerator respondents and 76% of freezer respondents would have discarded the appliance by one of these actions:

- Take their appliance to the dump
- Hire someone to take the appliance to the dump
- Have a retailer pick up their appliance

Having the retailer pick up the appliance is not necessarily indicative of freeridership. This action depends on the retailer's decision whether or not to resell the unit. Not all appliances would be viable for resale. The evaluation team used age as a proxy for secondary market viability and assumed any appliance over 15 years old is unlikely to be resold by a retailer. All of the respondents who said they would have had their appliance picked up by a retailer had recycled an appliance over 15 years old.

Together, these actions resulted in a freeridership rate of 47% for refrigerators. Freeridership was lower for respondents who recycled freezers. Of the 66% who would not have kept their freezer, 76% would have taken one of the three actions above that would have led to the appliance being removed from the grid. Thus, freeridership for freezers was 50%.[69]

Secondary Market Impacts

If, in the absence of the Appliance Recycling offering, a participant would have directly or indirectly (through a market actor) transferred the unit to another customer, the evaluation team estimated what actions the would-be acquirer might have taken, given the unit would be unavailable without the offering.

Some would-be acquirers in the market for a refrigerator or freezer would find another unit. Others would not (that is, would take the unit only opportunistically). Difficulties arise in trying to quantify the change in the total number of refrigerators and freezers (overall and used) in use before and after implementation of the Appliance Recycling offering and what effect the offering has on the total. Without this information, the Uniform Methods Project (UMP) recommends that evaluators assume

[69] Sixty-six percent of respondents who did not keep their refrigerator multiplied by 71% of respondents who reported taking one of the three actions leading to freeridership equals 47% freeridership. For freezers, 66% times 76% equals 50%.

one-half of would-be acquirers would find an alternate unit.[70] Without information to the contrary, the evaluation team applied the UMP recommendation to this evaluation.

The team then determined whether the alternate unit would likely be another used appliance (similar to those recycled through the offering) or a new standard-efficiency unit (presuming fewer used appliances would be available due to offering activity).[71]

Again, as discussed, definitively estimating this distribution proves difficult. The UMP recommends adopting a midpoint approach when primary research is unavailable: evaluators should assume one-half of the would-be acquirers who would have acquired an alternate unit would find a similar used appliance, and one-half would acquire a new, standard-efficiency unit.

The evaluation team calculated energy consumption of a new, standard-efficiency appliance using the ENERGY STAR calculator.[72] The team then averaged the reported energy consumption of new, standard-efficiency appliances with sizes and configurations comparable to the offering units.

Figure K-18 details the evaluation team's methodology for assessing the impact of the Appliance Recycling offering on the secondary refrigerator market and for applying the recommended midpoint assumptions when primary data were unavailable (provides a freezer-specific diagram). As is evident, accounting for market effects results in three savings scenarios:

- Full per-unit gross savings
- No savings
- Partial savings (i.e., the difference between energy consumption of the offering unit and the new, standard-efficiency appliance acquired alternatively)

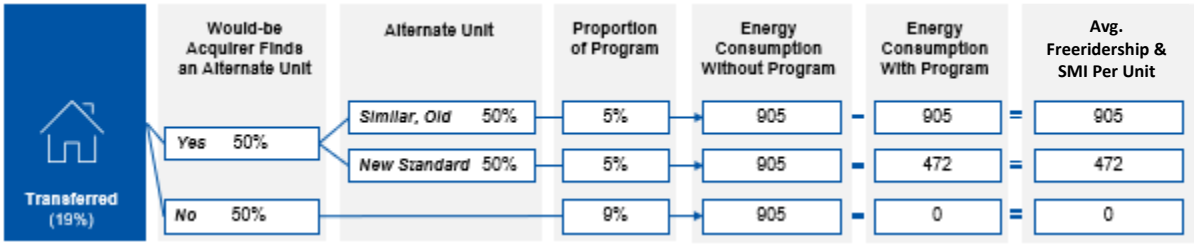
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70 National Renewable Energy Laboratory. September 2017. *Uniform Methods Project for Determining Energy Efficiency Program Savings for Specific Measures.* "Chapter 7: Refrigerator Recycling Evaluation Protocol." https://www.nrel.gov/docs/fy17osti/68563.pdf

71 It is also possible that the would-be acquirer would select a new ENERGY STAR unit. However, the evaluation team assumed most customers who are in the market for a used appliance would upgrade to the next lowest price point (a baseline, standard-efficiency unit).

72 ENERGY STAR. "Flip Your Fridge Calculator." http://www.energystar.gov/index.cfm?fuseaction=refrig.calculator

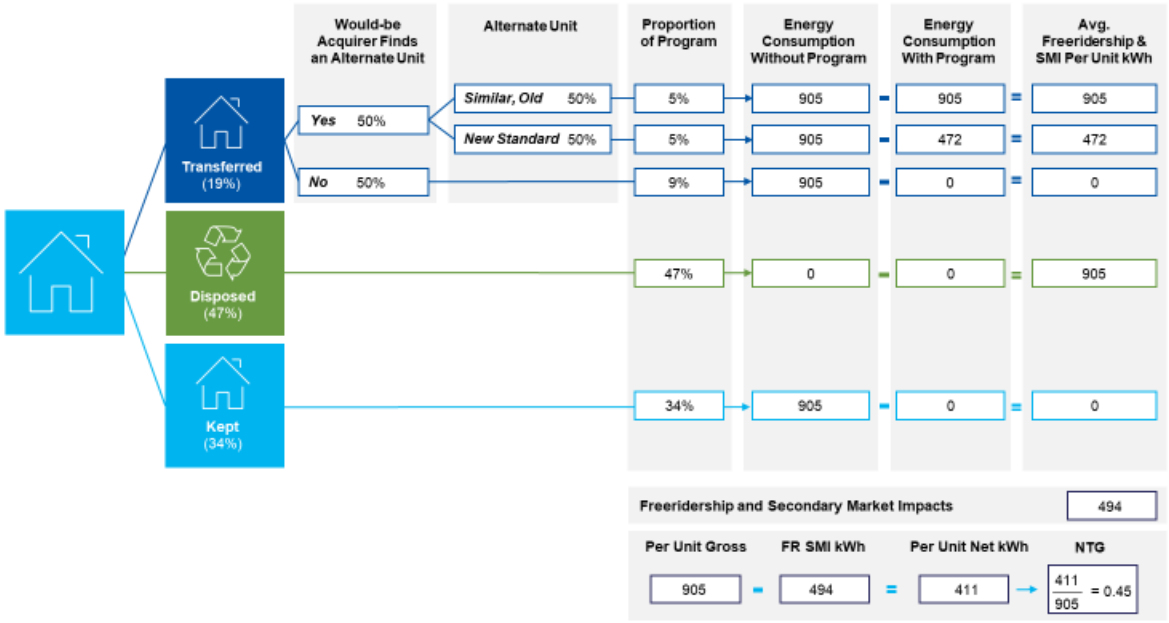
Figure K-18. Secondary Market Impacts—Refrigerators



Integration of Freeridership and Secondary Market Impacts

After estimating the parameters of freeridership and secondary market impacts, the evaluation team used the UMP decision tree to calculate average per-unit savings, net of their combined effect. As shown in Figure K-19, the evaluation team integrated these values into an estimate of savings net of freeridership and secondary market impacts. The final savings net of freeridership and secondary market impacts is calculated as the weighted average of the savings for each of the decision tree categories.

Figure K-19. Savings Net of Freeridership and Secondary Market Impacts—Refrigerators



Spillover

As previously described, spillover refers to additional savings generated by participants but not captured in offering records. Spillover occurs when participants choose to purchase energy-efficient measures or adopt energy-efficient practices after being influenced by an offering or marketing activity, but they do not apply for an incentive and are therefore not captured through any other Focus on Energy offerings.

The UMP protocol recommends against spillover for appliance recycling programs. This is because recycling programs are unlikely to generate like spillover (participants are unlikely to have additional

appliances that they recycle without getting an incentive), and opportunities for non-like spillover are limited because recycling programs do not provide comprehensive energy education, as with a whole-home audit.

Additional savings from appliance recycling programs are most likely generated by the greater likelihood of participants to participate in other available residential programs (particularly upstream lighting where participants cannot be tracked via upstream delivery), though these savings are captured in other program evaluations. Therefore, the evaluation team did not include spillover questions in the Appliance Recycling offering participant survey for CY 2020.

Final Net-to-Gross Analysis

As shown in Table K-10, the evaluation team determined final net savings as evaluated gross per-unit savings, less per-unit freeridership and secondary market impacts.

Table K-10. CY 2020 NTG Ratios

Appliance	Gross Per-Unit Savings (kWh)	Freeridership and Secondary Market Impacts (kWh)	Net Per-Unit (kWh)	NTG
Refrigerator	905	494	411	45%
Freezer	707	399	308	44%

The decision trees used to calculate NTG are shown in Figure K-20 for refrigerators and Figure K-21 for freezers.

Figure K-20. Refrigerator NTG Combined Decision Tree

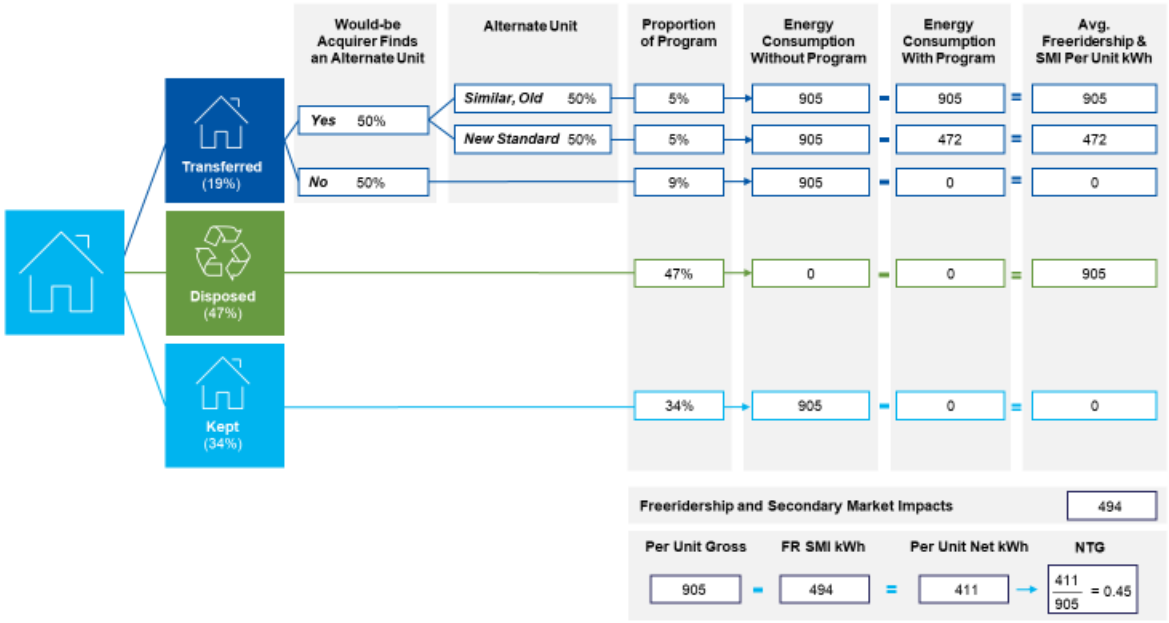
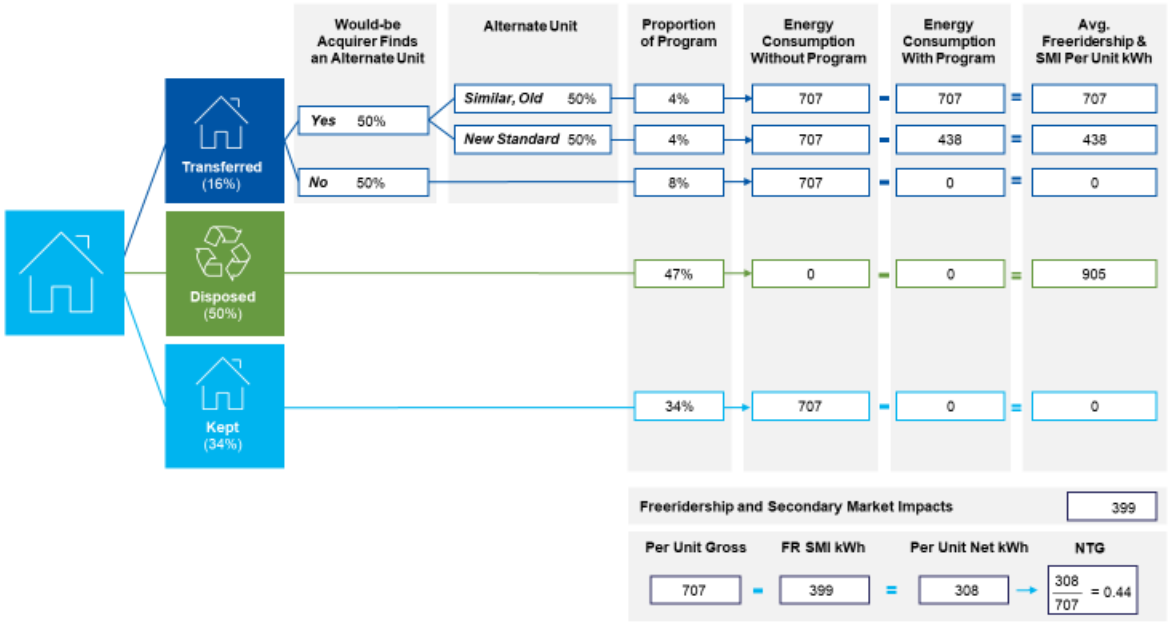


Figure K-21. Freezer NTG Combined Decision Tree



Insulation and Air Sealing Offering Billing Analysis

In CY 2019, the Insulation and Air Sealing offering (formerly named the Home Performance with ENERGY STAR Program, whole home path) began claiming prescriptive project completion *ex ante* savings based on the average per-participant savings from the CY 2017 billing analysis. Table K-11 shows the *ex ante* savings estimates for the measure completion measures by Tier 1 (standard track) and Tier 2 (income-qualified track).

Table K-11. CY 2019 Measure *Ex Ante* Estimates

Tracks	Project Completion Measure	Electric *Ex Ante* (kWh)	Gas *Ex Ante* (therms)
Tier 1	Natural Gas Heat	641	150
	Natural Gas Heat Only	0	150
	Electric Heat	2,465	0
Tier 2	Natural Gas Heat	749	238
	Natural Gas Heat Only	0	238
	Electric Heat	2,880	0

CY 2020 was the first year the evaluation team could conduct additional billing analyses to determine the continued accuracy of these savings. The team conducted a billing analysis of CY 2019 participants, which allowed comparison of one year pre-participation to one year of post-participation billing data. The team used weather-normalized regression models to measure the impact of energy efficiency measures on consumption for CY 2019 participants and compared them to the *ex ante* estimates from Table K-11. By evaluating the pre- and post-installation energy consumption, and accounting for variables such as weather, the team measured impacts for offering-related installations.

The analysis included a control group of nonparticipants, which allowed the billing analysis to provide an estimate of net savings by comparing the change in energy consumption for participants to the results of a similar analysis conducted for nonparticipants. This difference resulted in total verified net savings from the Insulation and Air Sealing offering. The team identified the nonparticipant group by sampling future offering participants—that is, customers who participated *after* the analysis period. Sampling from this group helped account for exogenous factors that might have occurred simultaneous to offering activity.

The evaluation team conducted six separate billing analyses to evaluate verified net savings for the Insulation and Air Sealing offering.

The evaluation team requested gas and electric billing data for all Tier 1 and Tier 2 customers who participated in the Home Performance with ENERGY STAR Program during CY 2019 and the Insulation and Air Sealing offering in CY 2020. These data were from most of the utilities in Wisconsin and covered the period from January 2018 through February 2021. Focus on Energy also provided detailed tracking data from SPECTRUM for participants in all of its offerings from CY 2019 and CY 2020.

The evaluation team received billing data for these electric utilities:

- Algoma Utility Commission
- Alliant (Wisconsin Power & Light)
- Black Earth Electric Utility
- Black River Falls Municipal Electric & Water
- Bloomer City of Electric Utility
- Cedarburg Light & Water
- Elkhorn Light and Water
- Hartford City of Utilities
- Jefferson Water and Electric Department
- Kaukauna Utilities
- Madison Gas and Electric Company
- Manitowoc Public Utilities
- Menasha Electric & Water Utilities
- Mount Horeb Electric Utility
- New Holstein Public Utility
- New Richmond Municipal Electric Utility
- Northern States Power Company (Xcel Energy-Wis)
- Northwestern Wisconsin Electric Company
- Pardeeville Public Utilities
- Plymouth Utilities
- Richland Center Electric Utility
- River Falls Municipal Utilities,
- Rock Energy Cooperative
- Sauk City Municipal Water & Light Utility
- Shawano Municipal Utilities
- Spooner Municipal Utilities
- Stoughton Utilities
- Sturgeon Bay Utilities
- Sun Prairie Water & Light Commission
- Superior Water Light and Power Company
- Two Rivers Water & Light Utility
- Waunakee Water and Light Commission
- Waupun Public Utilities
- Wisconsin Dells Municipal Electric Utility
- Wisconsin Electric Power Company (WE Energies)
- Wisconsin Public Service Corporation
- Wisconsin Rapids Waterworks & Light

The evaluation team received billing data for these gas utilities:

- Alliant (Wisconsin Power & Light)
- Madison Gas and Electric Company
- Midwest Natural Gas Incorporated
- Northern States Power Company (Xcel Energy-Wis)
- St Croix Valley Natural Gas Company
- Superior Water Light and Power Company
- Wisconsin Electric Power Company (We Energies)
- Wisconsin Public Service Corporation

Through the billing analyses, the evaluation team determined the net savings from gas and electric customers in the Tier 1 and Tier 2 tracks to validate the measure *ex ante* estimates listed above in Table K-11. To control for exogenous factors during the analysis period, the team used a nonparticipant group that included future participants. The percentage change in this group's energy use allowed the team to calculate the net savings and also the overall and pre-participation use quartile energy savings from the CY 2019 Home Performance with ENERGY STAR Program and the CY 2020 Insulation and Air Sealing offering.

For each participant, the evaluation team obtained these data:

- SPECTRUM ID and customer ID
- Customer name and address including zip code
- Heating fuel
- Minimum measure installation date
- Maximum measure installation date
- Total *ex ante* gas therm savings
- Total *ex ante* electric kWh savings
- Minimum installation date of other Focus on Energy solution measure(s)
- Maximum installation date for other Focus on Energy solution measure(s)
- Total therm *ex ante* savings from participation in other Focus on Energy solution(s)
- Total kWh *ex ante* savings from participation in other Focus on Energy solution(s)
- Measure-level flags including air sealing, attic insulation, foundation insulation, sill-box insulation, wall insulation, bonus measures, and other low-cost water-heating measures (showerheads, aerators, water heater replacement, pipe wrap), CFLs, LEDs, and a measure completion indicator[73]

[73] Since we are validating the ex-ante estimates – the billing analysis results ultimately only included participants that received completion measures only to isolate the impacts accurately.

The evaluation team then combined the customer-level tracking information with the electric and gas billing data by SPECTRUM ID and service address. Next, the team followed these steps to conduct the billing analysis of the Tier 1 and Tier 2 tracks:

4. Check each participant account against the complete measure tracking data for participation in other offerings occurring in the analysis period
5. Use zip code mapping to determine the nearest weather station for each zip code
6. Obtain daily average temperature weather data from January 2018 through February 2021 for 30 National Oceanic and Atmospheric Administration (NOAA) weather stations, representing all zip codes associated with the participants
7. Use daily average temperatures to determine base 45 through base 85 heating degree days (HDDs) and cooling degree days (CDDs) for each station
8. Obtain typical meteorological year 3 (TMY3; 1991 through 2005) annual normal and cooling degree days to weather normalize the billing data
9. Match billing data periods with the CDDs and HDDs from the associated stations

Comparison Group

An important aspect of the CY 2019 billing analysis quasi-experimental design is to compare the participant, or treatment group, to a group of nonparticipants to account for exogenous factors that may have occurred simultaneous to offering activity. These factors can include COVID-19 impacts, macroeconomic effects, increases or decreases in energy rates, or other interactions that may have affected energy consumption outside of offering influence. For the Tier 1 and Tier 2 tracks in the Insulation and Air Sealing offering, nonparticipant groups can be identified by sampling future offering participants—that is, late CY 2020 customers who participated *after* the CY 2019 analysis period.

This approach has several advantages over randomly selecting from the customer population. First, the future participants are more representative of the participant treatment group because they are more likely to be aware of saving energy and to have similar pre-offering building characteristics. Second, this population has received offering measures (though after the analysis period), so the installation period can be isolated to ensure this group had no impact during the analysis period.

Because comparison group pre-period use may not be identical to participant pre-period use, the evaluation team used a percentage of pre-period use to obtain the net participant savings. The following formula depicts this specific calculation for adjusted gross participant savings:

$$Net\ Savings = (Pre\ Part\ Usage)\left(\frac{Part\ Change\ In\ Usage}{Pre\ Part\ Usage} - \frac{NonPart\ Change\ In\ Usage}{Pre\ NonPart\ Usage}\right)$$

Instead of taking the difference between the participant savings delta and the nonparticipant savings delta (i.e., a difference-of-differences approach), the calculation can obtain the percentage reduction of both the participant and the nonparticipant groups. The percentage reduction that represents net savings is the participant percentage reduction minus the nonparticipant percentage reduction. This net percentage reduction can then be multiplied by the participant pre-period use to obtain the net

participant savings, thus effectively accounting for the differences in pre-period use between participants and nonparticipants.

The evaluation team defined the future nonparticipant group as participants who installed measures from August 2020 through December 2020. This group did not have sufficient post-period billing data to be used in the participant group but did have sufficient pre-participation billing data.

The evaluation team defined the participant pre-installation period as the one year before the first measure installation and the post-installation period as the one year after the last measure installation. It assigned the nonparticipant periods using the average participant installation date of July 15, 2016. The nonparticipant pre-period was August 2018 through July 2019, and the post-period was August 2019 through July 2020.

The evaluation team relied primarily on the PRInceton Scorekeeping Method (PRISM) to develop savings estimates because its models are easier to summarize across various groups and yield better precision than the more complex Conditional Savings Analysis (CSA) fixed-effects modeling approach. The evaluation team used the CSA approach to corroborate PRISM findings at the overall offering level only.

Data Screening

The evaluation team removed these items from the analysis:

- Billing data readings that spanned less than 15 days or more than 65 days
- Electric billing data monthly readings where the use was less than 1 kWh per day
- Participant customers with fewer than 10 pre- and 10 post-installation months
- Nonparticipant customers with fewer than 10 pre- and 10 post-installation months

This ensured that the pre- and post-installation periods were well balanced and that all seasons were represented in the PRISM models.

PRISM Modeling Approach

In the next step of the screening process, the evaluation team estimated PRISM models for pre- and post-installation billing data. These models provided weather-normalized pre- and post-installation annual use for each account and an alternate check to savings obtained from the fixed-effects model.

The PRISM electric model used the following specification:

$$ADC_{it} = \alpha_i + \beta_1 AVGHDD_{it} + \beta_2 AVGCDD_{it} + \varepsilon_{it}$$

Where for each customer i and month t:

ADC_{it}	=	Average daily kWh consumption in the pre-/post-installation period
α_i	=	Participant intercept; represents the average daily kWh base load
β_1	=	Model space heating parameter value
β_2	=	Model cooling parameter value

$AVGHDD_{it}$	=	Base 45-65 average daily HDDs for the specific location
$AVGCDD_{it}$	=	Base 65-85 average daily CDDs for the specific location
ε_{it}	=	Error term

Using this model, the evaluation team computed weather-normalized annual consumption (N/AC) for each heating and cooling reference temperature, as follows:

$$NAC_i = \alpha_i * 365 + \beta_1 LRHDD_i + \beta_2 LRCDD_i$$

Where for each customer 'i':

N/AC_i	=	Normalized annual kWh consumption
α_i	=	Intercept is the average daily or base load for each participant; it represents the average daily base load from the model
$\alpha_i * 365$	=	Annual base load kWh usage (non-weather sensitive)
β_1	=	Heating parameter value; in effect, this is usage per heating degree day from the model above
$LRHDD_i$	=	Annual, long-run HDDs of a typical meteorological year (TMY3) in the 1991–2005 series from NOAA, based on the home location
$\beta_1 * LRHDD_i$	=	Weather-normalized annual weather sensitive heating usage, also known as HEATN/AC
β_2	=	Cooling parameter value; in effect, this is usage per CDD from the model above
$LRCDD_i$	=	Annual, long-run CDDs of a typical meteorological year (TMY3) in the 1991–2005 series from NOAA, based on home location
$\beta_2 * LRCDD_i$	=	Weather-normalized annual weather sensitive cooling usage, also known as COOLN/AC

Furthermore, if the heating and cooling models above yielded negative intercepts, negative heating parameters, or negative cooling parameters, the evaluation team estimated additional models that included only the cooling usage (cooling-only models) or the heating usage (heating-only models). From these models with correct signs on all of the parameters, the best model chosen for each participant for the pre- and post-installation periods was the model that had the highest R-square.

The PRISM gas models used the following specification:

$$ADC_{it} = \alpha_i + \beta_1 AVGHDD_{it} + \varepsilon_{it}$$

Where for each customer 'i' and month 't':

ADC_{it}	=	Average daily therms consumption in the pre-/post-program period
α_i	=	Participant intercept; represents the average daily therms base load
β_1	=	Model space heating parameter value
$AVGHDD_{it}$	=	Base 45-65 average daily HDDs for the specific location

e_{it} = Error term

Using this model, the evaluation team computed N/AC for each heating and cooling reference temperature, as follows:

$$NAC_i = \alpha_i * 365 + \beta_1 LRHDD_i$$

Where for each customer 'i':

N/AC_i	=	Normalized annual therms consumption
α_i	=	Intercept is the average daily or base load for each participant; it represents the average daily base load from the model
$\alpha_i * 365$	=	Annual base load therms usage (non-weather sensitive)
β_1	=	Heating parameter value; in effect, this is usage per heating degree day from the model above
$LRHDD_i$	=	Annual, long-run HDDs of a typical month year (TMY3) in the 1991–2005 series from NOAA, based on the home location
$\beta_1 * LRHDD_i$	=	Weather-normalized annual weather sensitive heating usage, also known as HEATN/AC

Once the pre- and post-installation uses were obtained for each customer, the evaluation team applied other PRISM-based screening steps and excluded these items:

- Accounts where the post-installation weather-normalized (POSTN/AC) use was 70% higher or lower than the pre-installation weather-normalized (PREN/AC) use. Such large changes could indicate property vacancies when adding or removing other electric equipment that are unrelated to the offering.
- Accounts that had missing PREN/AC or POSTN/AC estimates (because of negative heating/cooling slopes or negative intercepts) because they probably indicated problems with the billing data
- Accounts that received additional measures through other offerings in the analysis period
- Accounts where the *ex ante* claimed savings was less than 1% of the PREN/AC
- Electric accounts where PREN/AC or POSTN/AC was less than 1,500 kWh or more than 65,000 kWh
- Gas accounts where PREN/AC or POSTN/AC was less than 150 therms or more than 6,000 therms

Finally, the evaluation team performed a billing data screen that examined the gas and electric monthly billing data for one customer at a time and plotted average monthly use. To avoid confounding the billing analysis, the team removed accounts with outliers, vacancies, seasonal use, and equipment changes in the pre- or post-installation periods.

Attrition for Insulation and Air Sealing Offering for Gas Accounts

Table K-12 summarizes attrition for the Tier 1 track for the Insulation and Air Sealing offering gas account participants from the various screens. The data showed that 2,486 participants received project completion gas measures from January 2019 through July 2020. Attrition removed approximately 41% because billing data did not match and there were insufficient months of billing data.[74] Another 3% were removed from individual billing review problems and 3% from PRISM screening, large percentage changes, or participation in other offerings during the analysis period. Another 1% were removed because they installed other Home Performance with ENERGY STAR measures other than the completed measures evaluated with the billing analysis. The final analysis group involved 1,295 participants.

Table K-12. Tier 1 Insulation and Air Sealing Gas Participant Account Attrition

Screen	Participants Remaining	Percentage Remaining	Number Dropped	Percentage Dropped
Original Gas Accounts	**2,486**	**100%**	**0**	**0%**
Matched to Billing Data Provided	2,317	93%	169	7%
Less than 10 Months of Pre- or Post-Period Billing Data	1,463	59%	854	34%
Usage/Percentage Change Screens + PRISM Screening	1,423	57%	40	2%
Participated in Other Offerings During Analysis Period	1,402	56%	21	1%
Individual Customer Bill Review: Outliers, Vacancies, Seasonal Usage, and Equipment Changes	1,326	53%	76	3%
Drop customers that received any other Home Performance with ENERGY STAR measures other than Completion Measures	1,295	52%	31	1%
Final Analysis Group	**1,295**	**52%**	**1,191**	**48%**

Table K-13 lists attrition of Tier 1 track gas account nonparticipants from the various screens. From August 2020 through December 2020, there were 204 nonparticipant gas accounts that had project completions. Attrition removed approximately 28% because billing data did not match and there were insufficient months of billing data. Another 3% attrition was from PRISM screening, large percentage changes, or participation in other offerings during the analysis period. Another 1% were due to individual billing review problems. The final analysis group involved 138 nonparticipants.

[74] Most of the attrition is from customers who installed measures before October 2018 or after February 2020, where there were insufficient pre- and post- period billing data.

Table K-13. Tier 1 Insulation and Air Sealing Gas Nonparticipant Account Attrition

Screen	Nonparticipants Remaining	Percentage Remaining	Number Dropped	Percentage Dropped
Original Gas Accounts	**204**	**100%**	**0**	**0%**
Matched to Billing Data Provided	188	92%	16	8%
Less than 10 Months of Pre- or Post-Period Billing Data	148	73%	40	20%
Usage/Percentage Change Screens + PRISM Screening	141	69%	7	3%
Participated in Other Offerings During Analysis Period	140	69%	1	0%
Individual Customer Bill Review: Outliers, Vacancies, Seasonal Usage, and Equipment Changes	138	68%	2	1%
Drop customers that received any other Home Performance with ENERGY STAR measures other than Completion Measures	138	68%	0	0%
Final Analysis Group	**138**	**68%**	**66**	**32%**

Table K-14 lists attrition of Tier 2 track gas account participants from the various screens. From January 2018 through July 2020, 410 participants received project completion gas measures. Attrition removed approximately 36% because billing data did not match and there were insufficient months of billing data.[75] Another 6% were removed because of individual billing review problems and 5% because of PRISM screening or large percentage changes. Another 11% were removed because customers installed Home Performance with ENERGY STAR measures other than the measures evaluated with the billing analysis. The final analysis group involved 168 participants.

Table K-14. Tier 2 Insulation and Air Sealing Gas Participant Account Attrition

Screen	Participants Remaining	Percentage Remaining	Number Dropped	Percentage Dropped
Original Gas Accounts	**410**	**100%**	**0**	**0%**
Matched to Billing Data Provided	402	98%	8	2%
Less than 10 Months of Pre- or Post-Period Billing Data	262	64%	140	34%
Usage/Percentage Change Screens + PRISM Screening	248	60%	14	3%
Participated in Other Offerings During Analysis Period	239	58%	9	2%
Individual Customer Bill Review: Outliers, Vacancies, Seasonal Usage, and Equipment Changes	215	52%	24	6%
Drop customers that received any other Home Performance with ENERGY STAR measures other than Completion Measures	168	41%	47	11%
Final Analysis Group	**168**	**41%**	**242**	**59%**

Table K-15 lists attrition of Tier 2 track gas account nonparticipants from the various screens. From August 2020 through December 2020, 55 nonparticipant gas accounts had project completions. Attrition removed approximately 11% because billing data did not match and from insufficient months of billing

[75] Most of the attrition is from customers who installed measures before October 2018 or after February 2020, so there were insufficient pre- and post- period billing data.

data. Another 4% were removed because customers had participated in other offerings during the analysis period. The final analysis group involved 47 nonparticipants.

Table K-15. Tier 2 Insulation and Air Sealing Gas Nonparticipant Account Attrition

Screen	Nonparticipants Remaining	Percentage Remaining	Number Dropped	Percentage Dropped
Original Gas Accounts	**55**	**100%**	**0**	**0%**
Matched to Billing Data Provided	54	98%	1	2%
Less than 10 Months of Pre- or Post-Period Billing Data	49	89%	5	9%
Usage/Percentage Change Screens + PRISM Screening	49	89%	0	0%
Participated in Other Offerings During Analysis Period	47	85%	2	4%
Individual Customer Bill Review: Outliers, Vacancies, Seasonal Usage, and Equipment Changes	47	85%	0	0%
Drop customers that received any other Home Performance with ENERGY STAR measures other than Completion Measures	47	85%	0	0%
Final Analysis Group	**47**	**85%**	**8**	**15%**

Attrition for Insulation and Air Sealing Offering for Electric Accounts

Table K-16 lists the Tier 1 track electric account participants from the various screens. From January 2019 through July 2020, 2,585 participants received project completion electric measures. Attrition removed approximately 43% because billing data did not match and from insufficient months of billing data.[76] Another 9% were removed from individual billing review problems, and 3% were removed because of PRISM screening, large percent changes, and participation in other offerings during the analysis period. Another 1% of the customers were removed because they installed Home Performance with ENERGY STAR measures other than the measures evaluated with the billing analysis. The final analysis group involved 1,124 participants.

[76] Most of the attrition is from customers that installed measures before October 2018 or after February 2020, where there was insufficient pre- and post-installation period billing data.

Table K-16. Tier 1 Insulation and Air Sealing Electric Participant Account Attrition

Screen	Participants Remaining	Percentage Remaining	Number Dropped	Percentage Dropped
Original Electric Accounts	**2,585**	**100%**	**0**	**0%**
Matched to Billing Data Provided	2,403	93%	182	7%
Less than 10 Months of Pre- or Post-Period Billing Data	1,465	57%	938	36%
Usage/Percentage Change Screens + PRISM Screening	1,423	55%	42	2%
Participated in Other Offerings During Analysis Period	1,392	54%	31	1%
Individual Customer Bill Review: Outliers, Vacancies, Seasonal Usage, and Equipment Changes	1,154	45%	238	9%
Drop customers that received any other Home Performance with ENERGY STAR measures other than Completion Measures	1,124	43%	30	1%
Final Analysis Group	**1,124**	**43%**	**1,461**	**57%**

Table K-17 lists the attrition of Tier 1 track electric account nonparticipants from the various screens. From August 2020 through December 2020, there were 210 nonparticipant electric accounts that had project completions. Attrition removed approximately 29% because billing data did not match and there were insufficient months of billing data. Another 7% were removed because of PRISM screening, large percentage changes, or participation in other offerings during the analysis period, and 2% were removed because of individual billing review problems. The final analysis group involved 130 nonparticipants.

Table K-17. Tier 1 Insulation and Air Sealing Electric Nonparticipant Account Attrition

Screen	Nonparticipants Remaining	Percentage Remaining	Number Dropped	Percentage Dropped
Original Electric Accounts	**210**	**100%**	**0**	**0%**
Matched to Billing Data Provided	187	89%	23	11%
Less than 10 Months of Pre- or Post-Period Billing Data	150	71%	37	18%
Usage/Percentage Change Screens + PRISM Screening	137	65%	13	6%
Participated in Other Offerings during Analysis Period	135	64%	2	1%
Individual Customer Bill Review: Outliers, Vacancies, Seasonal Usage, and Equipment Changes	130	62%	5	2%
Drop customers that received any other Home Performance with ENERGY STAR measures other than Completion Measures	130	62%	0	0%
Final Analysis Group	**130**	**62%**	**80**	**38%**

Table K-18 lists the attrition of Tier 2 track electric account participants from the various screens. From January 2019 through July 2020, 411 participants received project completion electric measures. Attrition removed approximately 39% because billing data did not match and there were insufficient

months of billing data.[77] Another 3% were removed because of participation in other offerings during the analysis period and 3% because of PRISM screening and large percentage changes. Another 13% were removed because of individual billing review problems and 9% because customers installed Home Performance with ENERGY STAR measures other than the measures evaluated with the billing analysis. The final analysis group included 134 participants.

Table K-18. Tier 2 Insulation and Air Sealing Electric Participant Account Attrition

Screen	Participants Remaining	Percentage Remaining	Number Dropped	Percentage Dropped
Original Electric Accounts	**411**	**100%**	**0**	**0%**
Matched to Billing Data Provided	391	95%	20	5%
Less than 10 Months of Pre- or Post-Period Billing Data	250	61%	141	34%
Usage/Percentage Change Screens + PRISM Screening	239	58%	11	3%
Participated in Other Offerings During Analysis Period	227	55%	12	3%
Individual Customer Bill Review: Outliers, Vacancies, Seasonal Usage, and Equipment Changes	172	42%	55	13%
Drop customers that received any other Home Performance with ENERGY STAR measures other than Completion Measures	134	33%	38	9%
Final Analysis Group	**134**	**33%**	**277**	**67%**

Table K-19 lists attrition of Tier 2 track electric account nonparticipants from the various screens. From August 2020 through December 2020, there were 55 nonparticipant electric accounts that had project completions. Attrition removed approximately 13% because the billing data did not match and there were insufficient months of billing data. The final analysis group involved 48 nonparticipants.

[77] Most of the attrition is from customers that installed measures before October 2018 or after February 2020, where there was insufficient pre- and post- period billing data.

Table K-19. Tier 2 Insulation and Air Sealing Electric Nonparticipant Account Attrition

Screen	Nonparticipants Remaining	Percentage Remaining	Number Dropped	Percentage Dropped
Original Electric Accounts	**55**	**100%**	**0**	**0%**
Matched to Billing Data Provided	54	98%	1	2%
Less than 10 Months of Pre- or Post-Period Billing Data	48	87%	6	11%
Usage/Percentage Change Screens + PRISM Screening	48	87%	0	0%
Participated in Other Offerings During Analysis Period	48	87%	0	0%
Individual Customer Bill Review: Outliers, Vacancies, Seasonal Usage, and Equipment Changes	48	87%	0	0%
Drop customers that received any other Home Performance with ENERGY STAR measures other than Completion Measures	48	87%	0	0%
Final Analysis Group	**48**	**87%**	**7**	**13%**

Following all of these screens, the final gas analysis groups for Tier 1 track involved 1,295 participants (52% of the original total) and 138 nonparticipants (68% of the original total), and for Tier 2 track involved 168 participants (41% of the original total) and 47 nonparticipants (85% of the original total).

The final electric analysis groups for Tier 1 track involved 1,124 participants (43% of the original total) and 130 nonparticipants (62% of the original total), and for Tier 2 track involved 134 participants (33% of the original total) and 48 nonparticipants (87% of the original total).

From the screened billing analysis samples, the evaluation team summarized the PRISM average Difference in Normalized Annual Consumption (DN/AC = PREN/AC – POSTN/AC) for participants and nonparticipants to yield the average gross savings for the offerings. The evaluation team also used the PRISM method to obtain the weather-normalized pre-installation period usage (PREN/AC) to determine the percentage savings. The difference between the participant and nonparticipant percentage change in use yielded the adjusted gross savings.

Tier 1 Billing Analysis Results

Electric Savings Results

Table K-20 presents the Tier 1 natural gas heat track gross and net realized electric savings estimated by the PRISM models along with the NTG rates and the standard errors around the savings estimates. The participant group reduced energy use by 624 kWh or 6.6%. The nonparticipant group showed a statistically significant increase in usage of 212 kWh, or 2.4%, over the same period. As a result, participants achieved a net reduction in use of 854 kWh, or 9.1% savings.

Table K-20. Tier 1 Insulation and Air Sealing
Gross and Net Electric Savings from Billing Analysis – N/ATURAL GAS Heat

Group	*N*	*Ex Post* Model Savings (kWh)	*Ex Ante* Savings per Participant	NTG Rate	Precision at 90% Level	PREN/AC	*Ex Ante* Expected Percent Savings	*Ex Post* Percent Savings
Participant Gross	1,088	624	641	**N/A**	11%	9,429	6.80%	6.62%
Nonparticipant	130	-212	N/A	**N/A**	75%	8,670	N/A	-2.44%
Participant Net	1,088	854	641	**133%**	20%	9,429	6.80%	9.06%

Table K-21 summarizes the Tier 1 natural gas heat track net electric savings overall and by quartile, based on consumption during the pre-installation period.[78] The average participant achieved net electric savings of 854 kWh. Compared to the *ex ante* savings estimate of 704 kWh, this represents a 133% NTG rate. With an average pre-installation period use of 9,429 kWh, the savings represent a reduction in use of approximately 9.1%.

Table K-21. Tier 1 Insulation and Air Sealing
Evaluated Electric Net Energy Savings by Quartile – N/ATURAL GAS Heat

Group	*N*	*Ex Post* Model Savings (kWh)	*Ex Ante* Savings per Participant	NTG Rate	Precision at 90% Level	PREN/AC	*Ex Ante* Expected Percent Savings	*Ex Post* Percent Savings
Quartile 1	272	303	641	**47%**	57%	4,764	13.5%	6.4%
Quartile 2	272	462	641	**72%**	38%	7,314	8.8%	6.3%
Quartile 3	272	876	641	**137%**	21%	9,654	6.6%	9.1%
Quartile 4	272	1776	641	**277%**	15%	15,985	4.0%	11.1%
Overall	**1,088**	**854**	**641**	**133%**	**20%**	**9,429**	**6.8%**	**9.1%**

The evaluation team also separated the gas heated electric PREN/AC uses into four quartiles. Net savings represented approximately 6% of pre-installation period consumption for the lowest quartile and 11% for the highest use quartile. The *ex ante* expected consumption savings as a percentage of pre-installation period consumption ranged from 4% to 14%. Since the *ex ante* savings are based on an average value of 641 kWh from the previous billing analysis, they do not vary by quartile. Thus, it is expected that NTG rates are only 47% in the lowest quartile and 277% in the highest quartile.

Table K-22 presents the Tier 1 electric heat track gross and net realized electric savings estimated by the PRISM models, NTG rates, and the standard errors around the savings estimates. The electrically heated participant group reduced energy use by 1,889 kWh or 9.1%. The nonparticipant group showed a statistically significant increase in usage of 212 kWh, or 2.4% over the same period. As a result, participants achieved a net reduction in use of 2,395 kWh, or 11.9%, in savings.

[78] Quartiles are defined as equal groups of participants sorted by pre-installation period consumption (lowest to highest).

Table K-22. Tier 1 Insulation and Air Sealing
Gross and Net Electric Savings from Billing Analysis – ELECTRIC Heat

Group	*N*	*Ex Post* Model Savings (kWh)	*Ex Ante* Savings per Participant	NTG Rate	Precision at 90% Level	PREN/AC	*Ex Ante* Expected Percent Savings	*Ex Post* Percent Savings
Participant Gross	36	1,889	2,465	**N/A**	25%	20,711	11.90%	9.12%
Nonparticipant	130	-212	N/A	**N/A**	75%	8,670	N/A	-2.44%
Participant Net	36	2,395	2,465	**97%**	21%	20,711	11.90%	11.56%

Table K-23 summarizes the Tier 1 electric heat track net electric savings overall and by quartile, based on consumption during the pre-installation period.[79] The average participant achieved net electric savings of 2,395 kWh. Compared to the *ex ante* savings estimate of 2,465 kWh, this represents a 97% NTG rate. With an average pre-installation period use of 20,711 kWh, the savings represent a reduction in use of approximately 11.6%.

The evaluation team also separated the electric heat electric PREN/AC uses into four quartiles. Net savings represented approximately 8% of pre-installation period consumption for the lowest quartile and as high as 16% in the second quartile. The *ex ante* expected consumption savings as a percentage of pre-installation period consumption ranged from 6% to 32%. Since the *ex ante* savings are based on an average value of 2,465 kWh from the previous billing analysis, they do not vary by quartile. Thus, it is expected that that the NTG rates are only 25% in the lowest quartile, and 159% in the highest quartile.

Table K-23. Tier 1 Insulation and Air Sealing
Evaluated Electric Net Energy Savings by Quartile – ELECTRIC Heat

Group	*N*	*Ex Post* Model Savings (kWh)	*Ex Ante* Savings per Participant	NTG Rate	Precision at 90% Level	PREN/AC	*Ex Ante* Expected Percent Savings	*Ex Post* Percent Savings
Quartile 1	9	605	2,465	**25%**	130%	7,784	31.7%	7.8%
Quartile 2	9	2,036	2,465	**83%**	40%	13,371	18.4%	15.2%
Quartile 3	9	3,025	2,465	**123%**	26%	22,602	10.9%	13.4%
Quartile 4	9	3,914	2,465	**159%**	25%	39,086	6.3%	10.0%
Overall	**36**	**2,395**	**2,465**	**97%**	**21%**	**20,711**	**11.9%**	**11.6%**

[79] Quartiles are defined as equal groups of participants sorted by pre-installation period consumption (lowest to highest).

Gas Savings Results

Table K-24 presents the Tier 1 track gross and net gas savings estimated by the PRISM models, NTG rates, and the standard errors around the savings estimates. The participant group reduced energy use by 122 therms or 12%. However, the nonparticipant group increased energy use by 13 therms, or 1.4%, over the same period. As a result, participants achieved a net reduction in use of 135 therms, or 14%, in savings.[80]

Table K-24. Tier 1 Insulation and Air Sealing Gross and Net Gas Savings from Billing Analysis

Group	*N*	*Ex Post* Model Savings (therms)	*Ex Ante* Savings per Participant	NTG Rate	Precision at 90% Level	PREN/AC	*Ex Ante* Expected Percent Savings	*Ex Post* Percent Savings
Participant Gross	1,295	122	150	**N/A**	5%	982	15.28%	12.38%
Nonparticipant	138	-13	N/A	**N/A**	84%	925	N/A	-1.37%
Participant Net	1,295	135	150	**90%**	9%	982	15.28%	13.75%

Table K-25 summarizes the Tier 1 track net gas savings overall and by quartile. The average Tier 1 participant achieved net gas savings of 150 therms. Compared to the *ex ante* savings estimate of 387 therms, this represents a 39% NTG rate. With an average pre-installation period use of 973 therms, the savings represent a reduction in use of approximately 15%.

Table K-25. Tier 1 Insulation and Air Sealing Evaluated Gas Net Energy Savings by Quartile

Group	*N*	*Ex Post* Model Savings (therms)	*Ex Ante* Savings per Participant	NTG Rate	Precision at 90% Level	PREN/AC	*Ex Ante* Expected Percent Savings	*Ex Post* Percent Savings
Quartile 1	323	69	150	**46%**	17%	558	26.9%	12.3%
Quartile 2	324	108	150	**72%**	12%	799	18.8%	13.5%
Quartile 3	324	134	150	**89%**	10%	1,026	14.6%	13.1%
Quartile 4	324	229	150	**153%**	9%	1,544	9.7%	14.8%
Overall	**1,295**	**135**	**150**	**90%**	**9%**	**982**	**15.3%**	**13.7%**

The evaluation team also separated the gas PREN/AC uses into four quartiles. Net savings represented approximately 12% of pre-installation period consumption for the lowest quartile and 15% for the highest quartile. The *ex ante* expected savings as a percentage of pre-installation period consumption were as high as 27% for the first quartile (i.e., the lowest pre-installation period consumption) to 10% for the highest quartile. Thus, the realized savings were very low for the lowest quartile group, at only 46% of claimed savings, whereas for the highest consumption quartile, realized savings were 153% of claimed savings. The quartile variation in NTG results are expected since the *ex ante* expected savings were

[80] The evaluation team checked the PRISM savings estimate against an alternate monthly fixed effects model specification using the average PRISM reference temperatures. The fixed effects models yielded a very similar net savings estimate of 136 therms, with a similar precision of 9%. As noted, the evaluation team used the PRISM approach to obtain the final savings estimates.

deemed to the average 150 therms based on the previous billing analysis, i.e., there is no variation in *ex ante* expected savings by quartile.

Tier 2 Billing Analysis Results

Electric Savings Results

Table K-26 lists the Tier 2 gas heat track gross and net realized electric savings estimated by the PRISM models, NTG rates, and the standard errors around the savings estimates. The gas heat participant group reduced energy use by 945 kWh or 10.2%. The nonparticipant group showed an increase in usage of 154 kWh, or 2.0%, over the same period. However, this change in usage was not statistically significant from 0 (relative precision was 236%). As a result, participant net savings are the same as the gross savings because the insignificant nonparticipant adjustment was not applied.

Table K-26. Tier 2 Insulation and Air Sealing
Gross and Net Electric Savings from Billing Analysis – Natural Gas Heat

Group	*N*	*Ex Post* Model Savings (kWh)	*Ex Ante* Savings per Participant	NTG Rate	Precision at 90% Level	PREN/AC	*Ex Ante* Expected Percent Savings	*Ex Post* Percent Savings
Participant Gross	134	945	749	**126%**	22%	9,316	8.04%	10.15%
Nonparticipant	48	-154	N/A	N/A	236%	7,551	N/A	-2.03%
Participant Net [a]	134	945	749	**126%**	22%	9,316	8.04%	10.15%

[a] Nonparticipant change in usage was not statistically significant from 0. Nonparticipant adjustment not applied.

Table K-27 lists the Tier 2 gas heat track net electric savings overall and by quartile. The average Tier 2 participant achieved net electric savings of 945 kWh. Compared to the *ex ante* savings estimate of 749 kWh, this represents a 126% NTG rate. With an average pre-installation period use of 9,316 kWh, the savings represent a reduction in use of approximately 10%.

Table K-27. Tier 2 Insulation and Air Sealing
Evaluated Electric Net Energy Savings by Quartile – Natural Gas Heat

Group	*N*	*Ex Post* Model Savings (kWh)	*Ex Ante* Savings per Participant	NTG Rate	Precision at 90% Level	PREN/AC	*Ex Ante* Expected Percent Savings	*Ex Post* Percent Savings
Quartile 1	34	302	749	**40%**	50%	4,191	17.9%	7.2%
Quartile 2	33	443	749	**59%**	62%	7,044	10.6%	6.3%
Quartile 3	33	1.399	749	**187%**	24%	9,833	7.6%	14.2%
Quartile 4	34	1,637	749	**219%**	39%	16,146	4.6%	10.1%
Overall	**134**	**945**	**749**	**126%**	**22%**	**9,316**	**8.0%**	**10.1%**

The team also separated the gas heat electric PREN/AC uses into four quartiles. Net savings represent approximately 7% of pre-installation period consumption for the lowest quartile and 10% to 14% for the two highest quartiles.

The *ex ante* expected consumption savings as a percentage of pre-installation period consumption ranged from 4% to 18%. The realized savings were low for the lowest quartile group, at only 40% to 60% of claimed savings, whereas for the two highest consumption quartiles, realized savings were 187% and 219% of claimed savings, respectively. Since the *ex ante* savings are based on an average of 749 kWh from the previous billing analysis, they do not vary by quartile. Thus, it is expected that the NTG rates are only 40% in the lowest quartile and 219% in the highest quartile.

There were only two electric heat Tier 2 participants and, therefore, not a usable sample to determine savings.[81] Because separate Tier 2 results could not be obtained, the 97% Tier 1 electric heat NTG rate (see Table K-22) was applied to Tier 2 participants.

Gas Savings Results

Table K-28 presents the Tier 2 track gross and net realized gas savings estimated by the PRISM models, NTG rates, and the standard errors around the savings estimates. The participant group reduced use by 186 therms or 16.3%. Though the nonparticipant group decreased use by 13 therms, or 1.4%, over the same period, this change in usage was not statistically significant from 0 (relative precision was 154%). As a result, participant net savings are the same as the gross savings because the insignificant nonparticipant adjustment was not applied. As a result, the participant group achieved a net reduction of 186 therms in use, or 16% savings.[82]

Table K-28. Tier 2 Insulation and Air Sealing Gross and Net Gas Savings from Billing Analysis

Group	*N*	*Ex Post* Model Savings (therms)	*Ex Ante* Savings per Participant	NTG Rate	Precision at 90% Level	PREN/AC	*Ex Ante* Expected Percent Savings	*Ex Post* Percent Savings
Participant Gross	168	186	238	**78%**	12%	1,138	20.92%	16.33%
Nonparticipant	47	13	N/A	**N/A**	154%	965	N/A	1.38%
Participant Net [a]	168	186	238	**78%**	12%	1,138	20.92%	16.33%

[a] Nonparticipant change in usage was not statistically significant from 0. Nonparticipant adjustment not applied.

Table K-29 summarizes the Tier 2 track net savings overall and by quartile. The average Tier 2 participant achieved net gas savings of 186 therms. Compared to the *ex ante* savings estimate of 238 therms, this represents a 78% NTG rate. With an average pre-installation period use of 1,138 therms, the savings represent a reduction in use of approximately 16%.

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81 The two electric heat Tier 2 participants were not included in a feasible analysis and therefore were dropped and do not appear in the final analysis group attrition counts, i.e., counts for Tier 2 electric are just for homes heated with gas.

82 The evaluation team checked the PRISM savings estimate against an alternate monthly fixed effects model specification using the average PRISM reference temperatures. The fixed effects models yielded a very similar net savings estimate of 187 therms, with a similar precision of 12%. As noted, the team used only the PRISM approach to obtain the final savings estimates.

Table K-29. Tier 2 Insulation and Air Sealing Evaluated Gas Net Energy Savings by Quartile

Group	*N*	*Ex Post* Model Savings (therms)	*Ex Ante* Savings per Participant	NTG Rate	Precision at 90% Level	PREN/AC	*Ex Ante* Expected Percent Savings	*Ex Post* Percent Savings
Quartile 1	42	78	238	33%	27%	620	38.4%	12.6%
Quartile 2	42	146	238	62%	19%	908	26.2%	16.1%
Quartile 3	42	194	238	81%	17%	1,209	19.7%	16.0%
Quartile 4	42	325	238	136%	18%	1,814	13.1%	17.9%
Overall	**168**	**186**	**238**	**78%**	**12%**	**1,138**	**20.9%**	**16.3%**

The team also separated the gas PREN/AC uses into four quartiles. Net savings represent approximately 13% of pre-installation period consumption for the lowest quartile, increasing to 18% for the highest use quartile. The *ex ante* expected consumption savings as a percentage of pre-installation period consumption were as high as 38% for the first quartile (i.e., lowest pre-installation period consumption) to 13% for the highest quartile. Thus, the realized savings were very low for the lowest quartile, at only 33% of *ex ante* savings, whereas for the highest consumption quartile, realized savings were 136% of *ex ante* savings. The quartile variation in NTG results are expected since the *ex ante* expected savings were deemed to the average 238 therms based on the previous billing analysis, i.e., there is no variation in *ex ante* expected savings by quartile.

Summary Billing Analysis Results

The following section summarizes the billing analysis findings for the evaluated completion measure groups.

Billing Analysis for Electric Savings

The evaluation team used PRInceton Scorekeeping Method models to estimate NTG rates and the standard errors around the savings estimates for each offering. Table K-30 shows the *ex ante* and verified electric net energy savings as well as the NTG rates for each track. The PREN/AC variable in the table represents the pre-installation weather-normalized usage.

Table K-30. Insulation and Air Sealing Offering
Verified Electric Net Energy Savings from Billing Analysis

Track	Completion Measure	*Ex Ante* Savings per Participant (kWh)	Verified Net Model Savings (kWh)	NTG	PREN/AC	*Ex Ante* Savings Per Customer	Verified Savings Per Customer
Tier 1	Gas Heat	641	854	133%	9,429	6.8%	9.1%
Tier 1	Electric Heat	2,465	2,395	97%	20,711	11.9%	11.6%
Tier 2	Gas Heat	749	945	126%	9,316	8.0%	10.1%
Tier 2	Electric Heat			97% [a]			

[a] There were only two electric heat Tier 2 participants so a separate NTG ratio could not be calculated. Instead, the evaluation team applied the NTG ratio from Tier 1 to Tier 2. A feasibility analysis also could not be conducted so was dropped and does not appear in the final analysis group attrition counts. The counts for Tier 2 electric are only for homes heated with gas.

On average, Tier 1 participants with gas heat saved 854 kWh. Compared to the *ex ante* savings estimate of 641 kWh, this represents a NTG of 133%. With an average pre-installation period usage of 9,429 kWh, the savings represent a 9.1% reduction in usage.

Tier 1 participants with electric heat saved 2,395 kWh. Compared to the *ex ante* savings estimate of 2,465 kWh, this represents a NTG of 97%. With an average pre-installation period usage of 20,711 kWh, the savings represent an 11.6% reduction in usage.

Billing Analysis for Gas Savings

The evaluation team used PRISM models to estimate NTG and the standard errors around the savings estimates for each offering track. Table K-31 shows the *ex ante* and verified electric net energy savings as well as the NTG rates for each track. On average, Tier 1 participants saved 135 therms. Compared to the *ex ante* savings estimate of 150 therms, this represents an NTG of 90%. With an average pre-installation period usage of 982 therms, the savings represent approximately 14% reduction in usage.

Table K-31. Home Performance with ENERGY STAR
***Ex Ante* and Verified Natural Gas Net Energy Savings from Billing Analysis**

Track	*Ex Ante* Savings per Participant (therms)	Verified Net Model Savings (therms)	NTG	PREN/AC (therms)	*Ex Ante* Expected Savings Per Customer	Verified Savings Per Customer
Tier 1	150	135	90%	982	15.3%	13.7%
Tier 2	238	186	78%	1,138	20.9%	16.3%

NTG Rates

Table K-32 lists NTG rates and precision achieved for each analysis in CY 2019. The team applied these results to the CY 2020 projects.

Table K-32. CY 2019 Insulation and Air Sealing Billing Analysis Results Applied to CY 2020 Projects

Track	Completion Measure	Savings Type	NTG	Precision at 90% Confidence
Tier 1	Natural Gas Heat	Electricity	133%	±20%
Tier 1	Natural Gas Heat	Natural Gas	90%	±9%
Tier 1	Natural Gas Heat Only	Natural Gas	90%	±9%
Tier 1	Electric Heat	Electricity	97%	±21%
Tier 2	Natural Gas Heat	Electricity	126%	±22%
Tier 2	Natural Gas Heat	Natural Gas	78%	±12%
Tier 2	Natural Gas Heat Only	Natural Gas	78%	±12%
Tier 2	Electric Heat	Electricity	97%[a]	±21%

[a] The team applied the Tier 1 electric heat realization NTG rate because of the small analysis sample size.

Heating and Cooling Offering Standard Market Practice (SMP) Approach

The evaluation team applied the standard market practice (SMP) approach to the Heating and Cooling offering to determine therm savings for Tier 1 natural gas furnaces and kWh savings for Tier 1 air conditioners.[83] Using offering tracking data, market sales data, and historical Heating and Cooling offering home audit data,[84] the team defined market baseline efficiency ratings. Then, for each master measure identification (MMID), the team calculated the average energy consumption of a market baseline measure and compared it to the average energy consumption of measures installed through the offering. The differences in consumption constitute each MMID's market savings,[85] which are the offering's verified net savings. To determine MMID-specific NTG ratios, the team compared verified net (market) savings to verified gross savings.

Tier 2 measures were not subject to the SMP analysis.

Market Baseline Data Sources

The evaluation team determined market baselines for select Heating and Cooling offering measure categories using these two sources of sales and installation data:

- 2019 D+R International sales data for Wisconsin
- CY 2017 through CY 2019 home audit data

The team relied on both data sources to determine market baseline annual fuel utilization efficiency (AFUE) ratings for Tier 1 natural gas furnaces and market baseline seasonal energy efficiency ratings (SEERs) for Tier 1 air conditioners. In previous years, the team also used D+R International data to determine a market baseline for electronically commutated motors (ECMs). However, the federal standard for furnace motor efficiency was updated in July 2019, which surely induced a large shift in market furnace motor efficiency. But the D+R International data encompassed all of 2019, so it reflected a mixed market and could not be applied to the 2020 market furnace motor baseline. Therefore, the team did not complete this analysis or make an adjustment to ECM net savings in CY 2020.

Multistage furnace MMIDs introduced in the 2020 Technical Reference Manual (TRM) replaced legacy furnace MMIDs from the 2019 TRM. This transition occurred between March and May 2020; therefore, legacy furnace MMIDs appeared in tracking data for the Heating and Cooling offering through May 2020. The team applied SMP methods to legacy MMIDs that contained sufficient make and model information for actual installed measures in SPECTRUM. For legacy MMIDs with insufficient data, the team applied CY 2017 SMP results to determine market savings.

Table K-33 details how the team calculated market saving for each fuel type by measure category.

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[83] Tier 2 measures were not subject to SMP analysis.

[84] Formerly the Home Performance with ENERGY STAR Program.

[85] In previous SMP analyses, verified net savings were called "net-of-freeridership savings."

Table K-33. Tier 1 Measures and Savings Assessed with Standard Market Practice Methodology

Tier 1 Measure Type	TRM Year	Market Baseline Data Source(s)	
		Electric (kWh) Savings	Gas (therm) Savings
Natural Gas Furnaces	2019 TRM	CY 2017 SMP analysis	D+R International market data Home Performance with ENERGY STAR home assessment data
	2020 TRM	Verified gross baseline [a]	
LP or Oil Furnaces	2019 TRM	CY 2017 SMP analysis	None
Air Conditioners	2019 TRM	CY 2017 SMP analysis	None
	2020 TRM	D+R International market data Home Performance with ENERGY STAR home assessment data	

[a] For natural gas furnace electric savings with insufficient market and home assessment data, the evaluation team set market baselines (and, therefore, verified net savings) equal to verified gross savings baselines.

D+R International 2019 HVAC Sales Data

D+R International Ltd. has an exclusive license with Heating, Air Conditioning, and Refrigeration Distributors International (HARDI) that authorizes D+R to collect data from HARDI members and to aggregate member data to produce analysis and reports. The evaluation team purchased a D+R report of residential HVAC measures sold in Wisconsin in 2019. The report used sales data reported to D+R International by HARDI members participating in the Unitary HVAC Market Report and contained summaries of quantities of observed sales by efficiency level and estimations of the size of each measure's total market. The team then combined these data to produce average annual fuel utilization efficiency (AFUE) and seasonal energy efficiency rating (SEER) penetration values.

Insulation and Air Sealing Offering Historical Home Audit Data

CLEAResult, the implementer for the Insulation and Air Sealing offering (previously the Home Performance with ENERGY STAR Program), has compiled data for all home audits (i.e., before upgrades were made) since the inception of the offering in CY 2012. The data contains information on efficiency and age of household equipment such as furnaces and air conditioners. Since the last SMP analysis in CY 2017, the data have been updated to include home audits conducted from CY 2018 onward as well. The team relied on multiple years of recent home audit data to help inform market baseline AFUE and SEER.

Measure-Specific Analyses

The evaluation team applied SMP methods, relying on D+R sales data and historical home audit data, to determine market savings for Tier 1 natural gas furnaces (therms) and Tier 1 air conditioners (kWh) installed through the Heating and Cooling offering.

Currently, 2020 TRM baselines are based on the PY 2016 SMP analysis conducted in CY 2015 rather than a federal standard or code. As such, the differences between CY 2020 market baselines and TRM baselines represent increases in efficiency that naturally occurred in appliance markets (irrespective of the Heating and Cooling offering's influence) starting in 2015 through 2020. Therefore, the team attributed differences in energy savings from comparing market and TRM baselines to the market rather than the offering. For the purposes of the SMP analysis, the team has labeled these savings as market-

based freeridership. However, it is important to distinguish market-based trends observed here from consumer behavior, the latter of which is derived from self-reported participant survey responses and also typically called freeridership.

Table K-34, replicated from Table 51 in Volume II, lists the results of the CY 2020 SMP analysis by MMID within each measure category, showing per-unit verified gross savings, per-unit verified net (market) savings, and market-based freeridership percentages (calculated as *1 –(Market Savings/Verified Gross Savings)*).

Table K-34. CY 2020 Summary of Market-Based Freeridership by Measure

Measure	MMID	Electric (kWh) Savings			Natural Gas (therm) Savings		
		Verified Gross	Market[a]	Market-Based Free-ridership	Verified Gross	Market[a]	Market-Based Free-ridership
NG Furnace with ECM, 95%+ AFUE (Existing)	1981	416.0	338.9	18.5%	20.9	16.2	22.3%
Furnace And A/C, ECM, 95% + AFUE, >= 16 SEER	2990	555.5	452.5	18.5%	34.7	29.5	14.8%
NG Furnace with ECM, 97%+ AFUE	3440	416.0	338.9	18.5%	42.4	36.9	12.8%
LP Furnace with ECM, 90%+ AFUE (Existing)	3679	416.0	338.9	18.5%	0.0	0.0	N/A
NG Furnace with ECM, 96%+ AFUE	3868	416.0	338.9	18.5%	30.3	25.3	16.8%
NG Furnace with ECM, 98%+ AFUE	3869	416.0	338.9	18.5%	49.7	44.4	10.6%
MF NG Furnace, Multistage+, 95% AFUE	4950	110.3	110.3	0%	144.0	73.8	48.7%
MF NG Furnace, Multistage+, 96% AFUE	4951	193.8	193.8	0%	134.7	72.8	46.0%
MF NG Furnace, Multistage+, 97% AFUE	4952	208.7	208.7	0%	162.4	92.2	43.2%
MF NG Furnace, Multistage+, 98%+ AFUE	4953	187.8	187.8	0%	176.3	102.7	41.7%
MF NG Furnace, Single-stage, 95% AFUE	4958	0.0	0.0	N/A	131.4	67.4	48.7%
MF NG Furnace, Single-stage, 96% AFUE	4959	0.0	0.0	N/A	135.1	73.5	45.6%
NG Furnace, Multistage+, 95% AFUE	4962	165.4	165.4	0%	18.1	13.6	24.9%
NG Furnace, Multistage+, 96% AFUE	4963	128.9	128.9	0%	30.1	25.0	16.8%
NG Furnace, Multistage+, 97% AFUE	4964	123.7	123.7	0%	42.8	37.3	12.9%
NG Furnace, Multistage+, 98%+ AFUE	4965	165.2	165.2	0%	51.2	45.7	10.6%
NG Furnace, Single-stage, 95% AFUE	4970	0.0	0.0	N/A	18.4	13.9	24.7%
NG Furnace, Single-stage, 96% AFUE	4971	0.0	0.0	N/A	28.7	24.0	16.3%
A/C 16+ SEER	4974	218.0	177.5	18.6%	0.0	0.0	N/A

[a] The team included market savings values highlighted in green in the current SMP analysis. For legacy furnace and air conditioner measures, the team applied CY 2017 SMP results to market savings values highlighted in blue.

Tier 1 Natural Gas Furnaces

This section describes the SMP methodology for Tier 1 natural gas furnaces by energy savings fuel type.

Natural Gas (Therm) Savings

To estimate market therm savings for Tier 1 natural gas furnaces, the evaluation team first calculated weighted average market baseline efficiency (AFUE) using the two baseline data sources. Because of

offsetting strengths and weaknesses in these data sources, the team averaged the market baseline efficiencies for an average of 93.34 AFUE (Table K-35).

Table K-35. CY 2020 Tier 1 Natural Gas Furnace Market Baseline AFUE by Data Source

Data Source	Market Baseline AFUE
D+R International Sales Data (2019)	93.76
Heating and Cooling Offering Home Audit Data (CY 2017 – CY 2020)	92.92
Average	**93.34**

The evaluation team then used the average AFUE (93.34) as the baseline efficiency to calculate the market average baseline consumption. Similarly, the evaluation team used the weighted-average efficiency of all units in the Heating and Cooling offering tracking database to calculate the actual average energy consumption of installed units, as described in the main chapter.

The team used the following equation to calculate market baseline and actual installed energy consumption for each Tier 1 natural gas furnace.

$$Annual\ therms = \frac{MBTU/h\ *EFLH}{\frac{AFUE}{100}}$$

Table K-36 documents the source(s) that the team used to derive the inputs for the equation above.

Table K-36. CY 2020 Tier 1 Natural Gas Furnace SMP Input Sources

Variable Name	Description	Source(s)
MBTU/h	Heating capacity	SPECTRUM CY 2020 data
EFLH	Estimated full load heating hours	2020 Wisconsin TRM
AFUE	Market baseline average efficiency rating	D+R International sales data (2019) Heating and Cooling offering home audit data (2017-20)
	Actual installed average efficiency rating	SPECTRUM CY 2020 data

For each of the inputs in Table K-36, Table K-37 shows the values used to calculate market baseline and actual installed energy consumptions for furnaces.

Table K-37. CY 2020 Tier 1 Natural Gas Furnace SMP Input Values

Measure Name	MMID	MBTU/h	EFLH	AFUE	
				Market Baseline	Actual Installed
NG Furnace with ECM, 95%+ AFUE (Existing)	1981	64.5	1,158	93.3	95.3
Furnace And A/C, ECM, 95% + AFUE, >= 16 SEER	2990	71.2	1,158	93.3	96.6
NG Furnace with ECM, 97%+ AFUE	3440	75.0	1,158	93.3	97.2
NG Furnace with ECM, 96%+ AFUE	3868	70.4	1,158	93.3	96.1
NG Furnace with ECM, 98%+ AFUE	3869	73.1	1,158	93.3	98.2
MF NG Furnace, Multistage+, 95% AFUE	4950	63.0	1,158	86.7	95.0
MF NG Furnace, Multistage+, 96% AFUE	4951	55.6	1,158	86.7	96.1
MF NG Furnace, Multistage+, 97% AFUE	4952	63.0	1,158	86.7	97.3
MF NG Furnace, Multistage+, 98%+ AFUE	4953	66.0	1,158	86.7	98.1
MF NG Furnace, Single-stage, 95% AFUE	4958	57.5	1,158	86.7	95.0
MF NG Furnace, Single-stage, 96% AFUE	4959	55.3	1,158	86.7	96.3
NG Furnace, Multistage+, 95% AFUE	4962	62.3	1,158	93.3	95.0
NG Furnace, Multistage+, 96% AFUE	4963	70.0	1,158	93.3	96.1
NG Furnace, Multistage+, 97% AFUE	4964	76.5	1,158	93.3	97.2
NG Furnace, Multistage+, 98%+ AFUE	4965	75.1	1,158	93.3	98.2
NG Furnace, Single-stage, 95% AFUE	4970	62.9	1,158	93.3	95.0
NG Furnace, Single-stage, 96% AFUE	4971	64.5	1,158	93.3	96.2

Table K-38 lists the average natural gas energy consumptions of market baseline and actual installed units for each MMID in the Heating and Cooling offering. The difference between the market baseline and actual installed consumptions yields the market savings for each measure.

Table K-38. CY 2020 Tier 1 Natural Gas Furnace SMP Market Savings (therms)

Measure Name	MMID	Energy Consumption (therms)		
		Market Baseline	Actual Installed	Market Savings
NG Furnace with ECM, 95%+ AFUE (Existing)	1981	800.2	784.0	16.2
Furnace And A/C, ECM, 95% + AFUE, >= 16 SEER	2990	883.3	853.8	29.5
NG Furnace with ECM, 97%+ AFUE	3440	930.5	893.5	36.9
NG Furnace with ECM, 96%+ AFUE	3868	873.4	848.1	25.3
NG Furnace with ECM, 98%+ AFUE	3869	906.9	862.5	44.4
MF NG Furnace, Multistage+, 95% AFUE	4950	781.6	767.9	73.8
MF NG Furnace, Multistage+, 96% AFUE	4951	689.8	670.1	72.8
MF NG Furnace, Multistage+, 97% AFUE	4952	781.6	749.6	92.2
MF NG Furnace, Multistage+, 98%+ AFUE	4953	818.8	779.1	102.7
MF NG Furnace, Single-stage, 95% AFUE	4958	713.4	700.9	67.4
MF NG Furnace, Single-stage, 96% AFUE	4959	686.1	665.3	73.5
NG Furnace, Multistage+, 95% AFUE	4962	772.9	759.3	13.6
NG Furnace, Multistage+, 96% AFUE	4963	868.4	843.4	25.0
NG Furnace, Multistage+, 97% AFUE	4964	949.1	911.8	37.3
NG Furnace, Multistage+, 98%+ AFUE	4965	931.7	886.0	45.7
NG Furnace, Single-stage, 95% AFUE	4970	780.3	766.5	13.9
NG Furnace, Single-stage, 96% AFUE	4971	800.2	776.2	24.0

Contrary to the CY 2017 SMP analysis, the evaluation team determined a market baseline AFUE of 93.34, in excess of the TRM-deemed baseline AFUEs of 92.80 (for single-family customers) and 80.00 (for multifamily customers) that the team used to calculated verified gross savings. As such, verified gross savings exceeded market savings for all furnaces, resulting in positive market-based freeridership and NTG ratios less than 1. The market baseline also increased notably compared to the CY 2017 SMP baseline AFUE of 92.72, which previously had been lower than the TRM baseline of 92.80 AFUE and resulted in negative market-based freeridership percentages and NTG ratios greater than 1 at the time.

Electric Savings

For current natural gas furnace MMIDs in the 2020 TRM, the evaluation team did not apply the SMP approach, thus assuming no market savings in addition to verified gross savings and resulting in no market-based freeridership. For legacy MMIDs from the 2019 TRM, the team applied the 18.5% freeridership rate that was developed during the CY 2017 SMP analysis.

Tier 1 Air Conditioners

Similar to Tier 1 natural gas furnaces, the evaluation team calculated a weighted average SEER from baseline source data to determine average energy consumption of a market baseline air conditioner. Again, to offset strengths and weaknesses from the data sources, the team averaged market baseline efficiencies, resulting in an average SEER of 13.57 (Table K-39).

Table K-39. CY 2020 Tier 1 Air Conditioner Market Baseline SEER by Data Source

Data Source	Market Baseline SEER
D+R International Sales Data (2019)	13.63
Heating and Cooling Offering Home Audit Data (CY 2017 – CY 2020)	13.51
Average	**13.57**

The team used the average SEER (13.57) as the baseline efficiency to calculate market average baseline consumption. The team used the weighted-average efficiency of all units in the Heating and Cooling offering tracking database to calculate the actual average energy consumption of installed units.

The team used the following equation to calculate market baseline and actual installed energy consumption for each Tier 1 natural gas furnace.

$$Annual\ kWh = \frac{MBTU/h * EFLH}{SEER}$$

Table K-40 documents the sources the team used to derive the inputs for the equation above.

Table K-40. CY 2020 Tier 1 Air Conditioner SMP Input Sources

Variable Name	Description	Source(s)
MBTU/h	Heating capacity	SPECTRUM CY 2020 data
EFLH	Estimated full load cooling hours	2020 Wisconsin TRM
SEER	Market baseline average efficiency rating	D+R International sales data (2019) Heating and Cooling offering home audit data (2017-20)
	Actual installed average efficiency rating	SPECTRUM CY 2020 data

For each input in Table K-40, Table K-41 shows the values used to calculate market baseline and actual installed energy consumptions for air conditioners.

Table K-41. CY 2020 Tier 1 Air Conditioner SMP Input Values

Measure Name	MMID	MBTU/h	EFLH	SEER	
				Market Baseline	Actual Installed
A/C 16+ SEER	4974	30.5	410	13.6	16.8

Table K-42 lists the average electric energy consumptions of market baseline and actual installed units for each MMID in the Heating and Cooling offering. The difference between the market baseline and actual installed consumptions yields the market savings for each measure.

Table K-42. CY 2020 Tier 1 Air Conditioner SMP Market Savings (kWh)

Measure Name	MMID	Energy Consumption (kWh)		Market Savings
		Market Baseline	Actual Installed	
A/C 16+ SEER	4974	921.4	743.9	177.5

The market baseline SEER of 13.57 exceeded the TRM-deemed baseline SEER of 13.00 that the team used to calculated verified gross savings. As such, verified gross savings exceeded market savings for air conditioners, resulting in positive market-based freeridership and a NTG ratio less than 1.

For legacy MMIDs from the 2019 TRM, the team did not apply SMP methodologies, thus assuming no market savings in addition to verified gross savings and resulting in no market-based freeridership.

Self-Report Net-to-Gross Methodology

Two components—freeridership and participant spillover—constitute NTG. True freeriders are customers who would have purchased a measure without an offering's influence. Participant spillover is the savings obtained by customers investing in additional energy-efficient measures or activities because of their participation.

This section presents the self-report approaches the evaluation team used to determine NTG for residential and nonresidential offerings. In summary, the team conducted participant surveys and used self-reported findings to calculate NTG ratios. It then applied these results to measure categories and offerings for which adequate baseline data were unavailable. In some cases, the team combined the measure-level results from the standard market practice and the self-report methods to determine weighted average offering NTG ratios.

Survey Design

When assessing NTG for offerings for which participating customer surveys were conducted in the CY 2020 evaluation, the evaluation team asked a series of freeridership and spillover questions. These offerings are listed above in Table K-34.

For the majority of rebated measures offered beginning in CY 2019 and continuing in CY2020, the evaluation team implemented a modification of the freeridership measurements that had been used in evaluations in the CY 2015-CY 2018 quadrennium. This previous freeridership research relied on customers' self-reported intention to purchase a measure in the absence of the offering. Survey items that addressed the offering's effect on the efficiency, quantity, and timing of purchases have not changed in CY 2020, and this is referred to as *intention* freeridership in this report.

Starting with the CY 2020 evaluation, the evaluation team integrated an *influence* freeridership component to align with industry best practices. An *intention* freeridership score and *influence* freeridership score ranging from 0% to 100% are estimated for each surveyed participant for each offering. These offering-level *intention* and *influence* freeridership scores are then calculated by weighting the individual freeridership component scores by respondents' verified lifecycle gross savings.

By savings-weighting the previously used *intention* methodology with an *influence* methodology, the evaluation team produced a freeridership score for the offering. The team calculated the arithmetic mean of *intention* and *influence* freeridership components to estimate final freeridership for the offering, as shown in the following equation:

$$\text{Final Freeridership} = \frac{Intention\ \text{FR Score} + Influence\ \text{FR Score}}{2}$$

The evaluation team designed the *intention* freeridership questions to elicit as accurately as possible the impact of particular offerings on the respondent's decision to purchase high-efficiency equipment.

Offerings can influence customer decisions in a variety of ways: participants may decide to purchase an energy-efficient measure sooner than planned, to purchase a higher efficiency measure than planned, or to purchase more units than planned without the offering. To understand the influence of the offering, the survey asked questions about what decision-makers might have done in its absence.

Direct questions such as, "Would you have installed measure X without the offering incentive?" tend to result in exaggerated *yes* responses. Participants often provide answers they believe surveyors seek, so such a question becomes the equivalent of asking: "Would you have done the right thing on your own?" Effectively avoiding such bias involves asking a question in several different ways and checking for consistent responses.

Basing *intention* freeridership estimates on a series of questions, rather than a single question, helped the evaluation team recognize and minimize response biases. Not all questions were weighted equally. For example, respondents who would not have installed the measure(s) to the same level of efficiency without the offering were automatically 0% *intention* freeriders. If nonresidential participants would not have installed the measure(s) within two years without the offering, they were automatically 0% *intention* freeriders. The team assigned other questions included in the *intention* freeridership analysis partial weights for responses that were indicative of a non-freerider.

The survey questions addressed five core dimensions of *intention* freeridership for residential offerings and six core intention freeridership dimensions for nonresidential offerings, as listed below:

- Would participants have installed measures without the offering?
- Were participants planning on ordering or installing the measures before learning about the offering?
- Would participants have installed the measures at the same efficiency levels without the offering incentive?
- Would participants have installed the same quantity of measures without the offering?
- In the absence of the offering, would participants have installed the measures at a different time?
- Was the purchase of the measures in the organization's most recent capital budget (nonresidential only)?

Specific intention freeridership questions used for the offerings are presented in their individual analysis sections in this appendix.

Persistent conjecture in the industry, however, indicates intention self-reports may be subject to biases, yielding an inflated freeridership value. To address this possibility and to provide a triangulation of approaches to the estimate, in CY 2020 the evaluation team integrated a second set of survey questions designed to measure the offering's perceived influence on the respondents' purchasing decisions.

To estimate offering influence, the survey asked respondents to rate the influence of five offering elements on their purchasing decisions. Responses were captured using a 1 to 5 scale, with 1 meaning

not at all important and 5 meaning *very important*. A surveyed participant's overall influence rating equaled the maximum influence of any single offering element. This drew upon an underlying principle: if a single element had a substantial influence on a respondent's purchasing decision, the offering successfully influenced the respondent.

Intention Freeridership Methodology

The evaluation team used a probability matrix to assign a single *intention* freeridership score to each participant, using his or her responses to targeted survey questions.[86] The evaluation team applied *intention* freeridership scores to question response patterns in the probability matrix.

This matrix approach provides these key benefits:

- Derivation of a partial *intentio*n freeridership score, based on the likelihood of a respondent taking similar actions in the offering's absence
- Use of a rules-based approach for consistency among multiple respondents
- Ability to change weightings in a what if exercise, testing the response set's stability

The evaluation team's method offered the advantage of partial *intention* freeridership. Experience has shown that participants do not fall neatly into freerider and non-freerider categories. For example, the team assigned partial *intention* freeridership scores to participants who had plans to install a measure; that is, although the offering exerted some influence over their decisions, these respondents were also influenced by other market characteristics outside of the offering. Further, the team could assign partial credit to "don't know" and "refused" responses, rather than removing respondents entirely from the analysis.

The evaluation team converted each participant survey response into *intention* freeridership matrix terminology, combined each participant's converted responses to assign an *intention* freeridership score from the matrix, and aggregated all participants into an average *intention* freeridership score for the entire offering category, ultimately assessing *intention* freeridership at three different levels.

Response Conversion to Matrix Terminology

The evaluation team independently evaluated each response, assessed it for *intention* freeridership, and converted it into one of these values:

- Yes (indicative of freeridership)
- No (indicative of non-freeridership)
- Partial (partially indicative of freeridership)

[86] Khawaja, M. S. 2007 edition. *The N/APEE Handbook on DSM Evaluation.* p. 5-1.

Participant Intention Freeridership Scoring

Following conversion of survey responses into matrix terminology, the team created an *intention* freeridership matrix for each offering. The team's process for determining an *intention* freeridership score is as follows:

- Customers were categorized as 0% intention freeriders in these instances:
  - They had no plans to install the measure in the absence of the offering's incentives and would not have installed the measure within a year for residential offerings and within two years for nonresidential offerings.
  - They had specific plans to install the measure before learning about the offering but would not have done so without offering incentives.
  - In the absence of offering incentives, the customer would not have purchased or installed equipment to the same level of efficiency.
- Customers were categorized as 100% intention freeriders if they would have installed the measure without the offering or if they had installed the measure before learning about the offering.
- Customers received a partial *intention* freeridership score (ranging from 12% to 75%) if they had plans to install the measure and their decision was influenced by the offering. (This influence may have been installation timing, the number of measures installed, or the efficiency levels of measures installed.) For customers who were highly likely to install a measure and for whom the offering had less influence over their decision, the team applied a higher *intention* freeridership percentage.

Measure Category *Intention* Freeridership Scoring

After assigning an *intention* freeridership score to every survey respondent, the evaluation team calculated a savings-weighted average *intention* freerider score for the measure category. For each offering, the respondents' *intention* freerider scores were individually weighted by estimated savings of equipment installed using the following calculation:

$$\text{Savings Weighted } \textit{Intention} \text{ Freeridership} = \frac{\sum[\text{Respondent } \textit{Intention} \text{ Freerider Score}] * [\text{Verified Measure Lifecycle Gross Energy Savings}]}{\sum[\text{All Respondents Verified Measure Lifecycle Gross Energy Savings}]}$$

Influence Freeridership Methodology and Scoring

To estimate an *influence* freeridership score for the CY 2020 evaluation, the evaluation team asked respondents to rate the importance of offering elements on their purchasing decisions. The surveys captured responses using a five-point scale, with 1 meaning *not at all important* and 5 meaning *very important*. A surveyed participant's overall influence rating equaled the maximum importance of any single offering element. This methodology was based on an underlying principle: if a single element had a substantial influence on a respondent's purchasing decision, the offering successfully influenced the respondent.

For example, the team included the survey question shown in Table K-43 to capture respondents' perspectives on elements driving them to take energy-efficient actions.[87] A rating of 5 represents the offering's maximum influence, which determined the influence freeridership component score.

Table K-43. Example of Influence Freeridership Component Question

I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 4 meaning the factor was "very important" in your decision to purchase the energy-efficient [MEASURE][s].							
Rate Influence of Offering Elements							
	1 - Not at all important	***2***	***3***	***4***	***5 - Very important***	**Don't Know**	**Not Applicable**
The Focus on Energy incentive or discount	1	2	3	4	(5)	DK	N/A
Recommendation from Focus on Energy Staff	1	2	3	(4)	5	DK	N/A
Information provided by Focus on Energy on energy-savings opportunities	1	2	3	4	5	(DK)	N/A
Recommendation from contractor or vendor	1	(2)	3	4	5	DK	N/A
Previous participation in a Focus on Energy energy efficiency offering	1	2	(3)	4	5	DK	N/A

High offering-influence levels and influence freeridership maintain an inverse relationship: the greater the offering's influence, the lower the participant's final influence freeridership score. Table K-44 presents the freeridership level implied by each influence rating.

Table K-44. *Influence* Freeridership Implied by Response to Influence Items

Influence Rating	*Influence* Freeridership Score
1 - *Not at all important*	100%
2	75%
3	50%
4	25%
5 - *Very important*	0%
Don't know	50%
Not applicable	50%

[87] The question wording and program factors in surveys may vary slightly depending on the specific program component. The *Influence Freeridership Analysis* sections in the specific program chapters list factors included for each specific program component.

Measure Category *Influence* Freeridership Scoring

After assigning an *influence* freeridership score to every survey respondent, the evaluation team calculated a savings-weighted average *influence* freerider score for the measure category. For each offering, the respondents' *influence* freerider scores were individually weighted by estimated savings of equipment installed using the following calculation:

$$\text{Savings Weighted Influence Freeridership} = \frac{\sum[\text{Respondent } Influence \text{ Freerider Score}] * [\text{Verified Measure Lifecycle Gross Energy Savings}]}{\sum[\text{All Respondents Verified Measure Lifecycle Gross Energy Savings}]}$$

Spillover Methodology

Spillover refers to additional savings generated by offering participants following their participation but not captured by offering records. Spillover occurs when participants choose to purchase energy-efficient measures or adopt energy-efficient practices because of an offering's influence but do not receive offering incentives from a utility or another organization.

The evaluation team measured spillover by asking a sample of participants who purchased and received an incentive for a particular measure if they installed another efficient measure or undertook another energy efficiency activity because of the offering. Respondents were asked to rate the offering's (and incentive's) relative influence (either *very important*, *somewhat important*, *not too important*, or *not at all important*) on their decisions to pursue additional savings.

Participant Spillover Analysis

The evaluation team used a top-down approach to calculate spillover savings. Analysis began with a subset comprising only the survey respondents who indicated they had installed additional energy-saving measures after participating in the offering. The evaluation team screened out any respondents who received an incentive for these additional measures. It also removed respondents if they indicated the offering had little influence on their decisions to purchase additional measures, thus retaining only those respondents who rated the offering as *very important*.

The evaluation team applied evaluated and deemed savings to the spillover measures respondents said they had installed as a result of their participation. The team calculated spillover percentage per offering category by dividing the sum of additional spillover savings reported by respondents for a given offering category by total gross savings achieved by all respondents in the offering category:

$$Spillover\ \% = \frac{\sum \text{Spillover Measure Lifecycle Gross Energy Savings for All Survey Respondents}}{\sum \text{Offering Measure Verified Lifecycle Gross Energy Savings}}$$

Net-to-Gross Analysis

The evaluation team combined this spillover information with the offering-level freeridership results to achieve the NTG ratio, using the following calculation:

NTG = 1 – Freeridership + Spillover

Table K-45 lists self-report CY 2020 participant freeridership, spillover, and NTG results by offering.

Table K-45. CY 2020 Self-Report Participant Freeridership, Spillover and NTG by Offering

Offering	Measure	n	Freeridership [a]	Spillover	NTG
Residential Offering					
Online Marketplace	Advanced Power Strips	57	17%	5%	88%
	Faucet Aerators	48	20%	5%	85%
	LEDs, Omnidirectional	96	20%	5%	85%
	LEDs, Reflectors	53	24%	5%	81%
	Showerheads	46	19%	5%	86%
	Smart Thermostats	78	17%	5%	88%
Packs	Advanced Power Strips	148	21%	11%	90%
	Faucet Aerators	223	13%	11%	98%
	LED, 5W, G25	253	17%	11%	94%
	LED, 5W, B11	110	16%	11%	95%
	Pipe Insulation	200	17%	11%	94%
	Showerhead, Upgraded	103	14%	11%	97%
	Showerhead, Handheld	103	16%	11%	95%
	LED, 8W, BR30	105	18%	11%	93%
	LED, 9W	307	37%	11%	74%
	LED, 11W				
Retail	Faucet Aerators	70	6%	9%	103%
	LEDs, Omnidirectional	245	33%	9%	76%
	LEDs, Reflector	86	18%	9%	91%
	LEDs, 3-way	89	18%	9%	91%
	LEDs, Candelabras	99	15%	9%	94%
	LEDs, Globes	99	15%	9%	94%
	LEDs, Desk Lamps	123	6%	9%	103%
	Pipe Insulation	32	25%	9%	84%
	Showerheads	72	15%	9%	94%
	Smart Thermostats	110	38%	0%	62%
Heating and Cooling (Tier 1)	Air-Source Heat Pump Boiler Ductless Minisplit Heat Pump Ground Source Heat Pump Packaged Terminal Heat Pump Tune-Ups Water Heater, Indirect	71	46%	1%	55%
	Smart Thermostats	115	31%	1%	70%
Nonresidential Offering					
Agriculture		67	15%	1%	86%
Commercial and Industrial		143	24%	1%	77%
Large Industrial		49	28%	1%	73%
Government		75	24%	0%	73%
Schools					
New Construction Design		17	19%	0%	81%
New Construction Prescriptive		9	19%	0%	81%

[a] Weighted by CY 2020 verified lifecycle MMBtu gross energy savings.

Online Marketplace Offering, Smart Thermostats Self-Report NTG Methodology and Findings

Freeridership

Intention Freeridership Survey Questions

The participant survey's *intention* freeridership section included six questions, addressing the five core freeridership dimensions:

- G1. When did you first hear about the availability of a Focus on Energy discount for smart thermostats? Was it….?
- G2. [ASK IF G1= 2, 3, 4] So just to be clear, you purchased your smart thermostat before you heard anything about the Focus on Energy Focus on Energy discount. Is that correct?
- G3. Before you heard about the Focus on Energy discount, had you already considered purchasing a smart thermostat?
- G4. Without the discount from Focus on Energy, what kind of thermostat would you have purchased?
- G5. [ASK IF QUANTITY > 1] Would you have purchased the same quantity of smart thermostats without the discount from Focus on Energy?
- G6. Thinking about timing, without the Focus on Energy discount, would you have purchased the smart thermostat …?

Convert Responses to Matrix Terminology

Table K-46 shows how the initial survey responses were translated into the responses *yes, no*, or *partially*, indicative of *intention* freeridership (in parentheses).

Table K-46. Online Marketplace Offering – Smart Thermostats – Raw Survey Response Translation to *Intention* Freeridership Scoring Matrix Terminology

G1. When did you first hear about the availability of a Focus on Energy discount for smart thermostats? Was it…	G2. [ASK IF G1= 2, 3, 4] So just to be clear, you purchased your smart thermostat before you heard anything about the Focus on Energy Focus on Energy discount. Is that correct?	G3. Before you heard about the Focus on Energy discount, had you already considered purchasing a smart thermostat?	G4. Without the discount from Focus on Energy, what kind of thermostat would you have purchased?	G5. [ASK IF QUANTITY > 1] Would you have purchased the same quantity of smart thermostats without the discount from Focus on Energy?	G6. Thinking about timing, without the Focus on Energy discount, would you have purchased the smart thermostat …?
Before you started shopping (No)	Yes, that's correct (Yes)	Yes (Yes)	A smart or learning thermostat (Yes)	Yes, the same quantity (Yes)	At the same time (Yes)
When you received your order confirmation (Yes)	No, that's not correct (No)	No (No)	A Wi-Fi thermostat (non-learning) (Partial2)	No, would have purchased fewer (Partial2)	Later, but within 12 months (Partial2)
After you purchased the smart thermostat (Yes)	Don't Know (Partial)	Don't Know (Partial)	A programmable thermostat (No)	No, would have purchased more (Yes)	One to two years out (No)
You had not heard of Focus on Energy before this survey (Yes)			A manual thermostat (No)	No, would not have purchased anything at all (No)	More than two years out (No)
Don't Know (No)			Would not have purchased a new thermostat (No)	Don't Know (Partial)	Never (No)
			Don't Know (Partial)		Don't Know (Partial)

Participant Intention *Freeridership Scoring*

The *intention* freeridership score started with 100%, which the evaluation team decremented based on the participant's responses to the six questions, as shown in Table K-47.

Table K-47. Online Marketplace Offering – Smart Thermostats – *Intention* Freeridership Scoring Legend

Q#	Decrement
F1	0% decrement for "No," Partial level not needed
F2	100% FR if "Yes," "Partial" level not needed
F3	50% decrement for "No," 25% decrement for "Partial"
F4	100% decrement for "No," 25% decrement for "Partial," 50% decrement for 'Partial2'
F5	100% decrement for "No," 25% decrement for "Partial," 50% decrement for 'Partial2'
F6	100% decrement for "No," 25% decrement for "Partial," 50% decrement for 'Partial2'

Intention Freeridership Analysis

Table K-48 shows the unique response combinations from Online Marketplace offering smart thermostat participants the *intention* freeridership questions (actual responses mapped to yes, no, or partial, as indicative of freeridership), the *intention* freeridership score assigned to each combination, and the number of responses. The evaluation team calculated an *intention* freeridership score for the smart thermostat measure based on the savings weighted average of distribution of scores within the matrix.

Table K-48. Online Marketplace Offering – Smart Thermostats – Frequency of *Intention* Freeridership Scoring Combinations

G1. When did you first hear about the availability of a Focus on Energy discount for smart thermostats? Was it…	G2. [ASK IF G1= 2, 3, 4] So just to be clear, you purchased your smart thermostat before you heard anything about the Focus on Energy Focus on Energy discount. Is that correct?	G3. Before you heard about the Focus on Energy discount, had you already considered purchasing a smart thermostat?	G4. Without the discount from Focus on Energy, what kind of thermostat would you have purchased?	G5. [ASK IF QUANTITY > 1] Would you have purchased the same quantity of smart thermostats without the discount from Focus on Energy?	G6. Thinking about timing, without the Focus on Energy discount, would you have purchased the smart thermostat …?	*Intention* Freerider Score	Count
Yes	Yes	-	-	-	-	100%	2
Yes	No	Yes	Partial	No	-	0%	1
Yes	No	No	No	-	-	0%	1
No	-	Yes	Yes	Partial2	Partial2	12.5%	1
No	-	Yes	Yes	-	Yes	100%	14
No	-	Yes	Yes	-	Partial2	50%	11
No	-	Yes	Yes	-	No	0%	5
No	-	Yes	Partial	-	Partial2	25%	2
No	-	Yes	Partial	-	No	0%	1
No	-	Yes	Partial2	-	Yes	50%	2
No	-	Yes	Partial2	-	Partial	25%	3
No	-	Yes	Partial2	-	Partial2	12.5%	4
No	-	Yes	No	-	-	0%	19
No	-	Partial	Partial	-	Partial	25%	1
No	-	No	Partial	-	Partial	12.5%	2
No	-	No	Partial2	-	Partial	0%	1
No	-	No	No	-	-	0%	8

Table K-49 shows the Online Marketplace offering smart thermostat *intention* freeridership score.

Table K-49. Online Marketplace Offering – Smart Thermostats – *Intention* Freeridership Results

Measure Category	n	*Intention* FR Score
Smart Thermostat	110	56% [a]

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Influence *Freeridership Analysis*

The evaluation team assessed *influence* freeridership by asking participants how important various offering elements were in their purchasing decisions. Table K-50 shows how participants rated importance, along with a count and average rating for each factor.

Table K-50. Online Marketplace Offering – Smart Thermostats – *Influence* Freeridership Responses

Influence Rating	Influence FR Score	Focus on Energy cash-back incentive or discount	Recommend-ation from Focus on Energy Staff	Information provided by Focus on Energy on energy savings opportunities	Recommendation from store representative, dealer, or contractor	Previous participation in a Focus on Energy efficiency offering
1 - Not at all important	100%	0	15	3	3	23
2	75%	0	14	0	0	11
3	50%	3	17	10	10	23
4	25%	12	13	22	22	12
5 - Very important	0%	63	19	43	43	9
Don't know	50%	0	0	0	0	0
Average Rating		**4.8**	**3.1**	**4.3**	**4.3**	**2.7**

The evaluation team determined each respondent's *influence* freeridership score for each measure category, using the maximum rating provided for any factor included in Table K-50. As shown in Table K-51, the respondents' maximum influence ratings ranged from 1 (*not at all important*) to 5 (*very important*). A maximum score of 1 meant the customer ranked all factors from the table as *not at all important*, while a maximum score of 5 means the customer ranked at least one factor *very important*. Counts refer to the number of "maximum influence" responses for each factor, or *influence* freeridership score, response option.

Table K-51. Online Marketplace Offering – Smart Thermostats – *Influence* Freeridership Score

Maximum Influence Rating	*Influence* FR Score	Count
1 - Not at all important	100%	0
2	75%	0
3	50%	3
4	25%	8
5 - Very important	0%	67
Don't know	50%	0
Average Maximum Influence Rating - Simple Average		**4.8**
Average Influence Score - Weighted by Verified Lifecycle MMBtu Gross Savings		**4%**

Final Freeridership

The evaluation team calculated the mean of the overall *intention* and the overall *influence* of freeridership components to estimate final freeridership for the measure categories. A higher freeridership score means more savings are deducted from the gross savings estimates. Table K-52 lists *intention*, *influence*, and final freeridership scores by measure category for the Online Marketplace offering.

Table K-52. Online Marketplace Offering – Smart Thermostats – Freeridership Score

Measure Category	n	*Intention* FR Score	*Influence* FR Score	Final FR Score
Smart Thermostats	78	30%[a]	4%[a]	17%

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Participant Spillover Analysis

The evaluation team estimated participant spillover based on answers from respondents who purchased additional high-efficiency equipment or appliances following their participation in the Online Marketplace offering. The team applied evaluated and deemed savings to the spillover measures that customers said they had installed as a result of their offering participation, presented in Table K-53.

Table K-53. Online Marketplace Offering – Total Offering – Spillover Measures and Savings

Measure Category	Spillover Measure	Quantity	Total MMBtu Lifecycle Gross Savings Estimate
Total Offering	Heat Pump Water Heater	7	6.6
	Central Air Conditioner	5	70.5
	ENERGY STAR Air Purifier	1	6.6
	ENERGY STAR Freezer	6	7.7
	ENERGY STAR Room Air Conditioner	4	4.9
	Gas Furnace	5	274.4
	Smart Thermostat	10	419.8

Next, the team divided the sample spillover savings by the offering measure category gross savings from the entire survey sample, as shown in this equation:

$$Spillover\ \% = \frac{\sum \text{Spillover Measure EnergySavings for All Survey Respondents}}{\sum \text{Offering Measure Energy Savings for All Survey Respondents}}$$

This yielded a 5% spillover estimate for the Online Marketplace offering, when rounded to the nearest whole percentage (Table K-54). The evaluation team estimated one spillover ratio for the Online Marketplace offering then applied this estimate to each measure because participants could purchase multiple measures.

Table K-54. Online Marketplace Offering – Total Offering – Spillover Percentage Estimate

Variable	Total Lifecycle MMBtu Savings Estimate
Spillover Savings	790
Offering Savings	17,498
Spillover Estimate	**5%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-55:

NTG = 1 – Freeridership + Spillover

Table K-55. Online Marketplace Offering – Smart Thermostats – NTG Estimate

Measure Category	n	Freeridership	Spillover	NTG
Smart Thermostats	78	17%[a]	5%	88%

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Retail Offering, Smart Thermostats Self-Report NTG Methodology and Findings

Freeridership

Intention Freeridership Survey Questions

The participant survey's *intention* freeridership section included six questions, addressing the five core freeridership dimensions:

- K1. When did you first hear about the availability of a Focus on Energy rebate for smart thermostats? Was it….?
- K2. [ASK IF K1= 2, 3] So just to be clear, you purchased your smart thermostat before you heard anything about the Focus on Energy Focus on Energy rebate. Is that correct?
- K3. Before you heard about the rebate and information from Focus on Energy, had you already considered purchasing a smart thermostat?
- K4. Without the rebate and information from Focus on Energy, what kind of thermostat would you have purchased?
- K5. [ASK IF QUANTITY > 1] Would you have purchased the same quantity of smart thermostats without the rebate and information from Focus on Energy?
- K6. Thinking about timing, without the rebate and information from Focus on Energy, would you have purchased the smart thermostat …?

Convert Responses to Matrix Terminology

Table K-56 shows how the initial survey responses were translated into the responses *yes, no*, or *partially*, indicative of *intention* freeridership (in parentheses).

Table K-56. Retail Offering – Smart Thermostats – Raw Survey Response Translation to *Intention* Freeridership Scoring Matrix Terminology

G1. When did you first hear about the availability of a Focus on Energy discount for smart thermostats? Was it…	G2. [ASK IF G1= 2, 3, 4] So just to be clear, you purchased your smart thermostat before you heard anything about the Focus on Energy Focus on Energy discount. Is that correct?	G3. Before you heard about the Focus on Energy discount, had you already considered purchasing a smart thermostat?	G4. Without the discount from Focus on Energy, what kind of thermostat would you have purchased?	G5. [ASK IF QUANTITY > 1] Would you have purchased the same quantity of smart thermostats without the discount from Focus on Energy?	G6. Thinking about timing, without the Focus on Energy discount, would you have purchased the smart thermostat …?
Before you started shopping (No)	Yes, that's correct (Yes)	Yes (Yes)	A smart or learning thermostat (Yes)	Yes, the same quantity (Yes)	At the same time (Yes)
When you received your order confirmation (Yes)	No, that's not correct (No)	No (No)	A WiFi thermostat (non-learning) (Partial2)	No, would have purchased fewer (Partial2)	Later, but within 12 months (Partial2)
After you purchased the smart thermostat (Yes)	Don't Know (Partial)	Don't Know (Partial)	A programmable thermostat (No)	No, would have purchased more (Yes)	One to two years out (No)
You had not heard of Focus on Energy before this survey (Yes)			A manual thermostat (No)	No, would not have purchased anything at all (No)	More than two years out (No)
Don't Know (No)			Would not have purchased a new thermostat (No)	Don't Know (Partial)	Never (No)
			Don't Know (Partial)		Don't Know (Partial)

Participant Intention *Freeridership Scoring*

The *intention* freeridership score started with 100%, which the evaluation team decremented based on the participant's responses to the six questions, as shown in Table K-57.

Table K-57. Retail Offering – Smart Thermostats – *Intention* Freeridership Scoring Legend

Q#	Decrement
F1	0% decrement for "No," Partial level not needed
F2	100% FR if "Yes," "Partial" level not needed
F3	50% decrement for "No," 25% decrement for "Partial"
F4	100% decrement for "No," 25% decrement for "Partial," 50% decrement for 'Partial2'
F5	100% decrement for "No," 25% decrement for "Partial," 50% decrement for 'Partial2'
F6	100% decrement for "No," 25% decrement for "Partial," 50% decrement for 'Partial2'

Intention Freeridership Analysis

Table K-58 shows the unique response combinations from Retail offering smart thermostat participants the *intention* freeridership questions (actual responses mapped to yes, no, or partial, as indicative of freeridership), the *intention* freeridership score assigned to each combination, and the number of responses. The evaluation team calculated an *intention* freeridership score for the offering based on savings weighted average of the distribution of scores within the matrix.

Table K-58. Retail Offering – Smart Thermostats – Frequency of *Intention* Freeridership Scoring Combinations

K1. When did you first hear about the availability of a Focus on Energy rebate for smart thermostats? Was it….	K2. [ASK IF K1= 2, 3] So just to be clear, you purchased your smart thermostat before you heard anything about the Focus on Energy rebate. Is that correct?	K3. Before you heard about the rebate and information from Focus on Energy, had you already considered purchasing smart thermostat?	K4. Without the rebate and information from Focus on Energy, what kind of thermostat would you have purchased?	K5. Would you have purchased the same quantity of smart thermostats without the rebate and information from Focus on Energy?	K6. Thinking about timing, without the rebate and information from Focus on Energy, would you have purchased the smart thermostat …?	*Intention* Freerider Score	Count
Yes	Yes	-	-	-	-	100%	12
Yes	No	Yes	Yes	Yes	Yes	100%	1
No	-	Yes	Yes	Yes	Yes	100%	37
No	-	Yes	Yes	Yes	Partial2	50%	5
No	-	Yes	Yes	Yes	No	0%	2
No	-	Yes	Yes	Partial	Yes	75%	1
No	-	Yes	Yes	Partial2	Partial2	12.5%	1
No	-	Yes	Yes	Partial2	No	0%	1
No	-	Yes	Partial	Yes	No	0%	2
No	-	Yes	Partial2	Yes	Yes	50%	13
No	-	Yes	Partial2	Yes	Partial	25%	1
No	-	Yes	Partial2	Yes	Partial2	12.5%	2
No	-	Yes	Partial2	Partial	Yes	25%	1
No	-	Yes	No	-	-	0%	15
No	-	Partial	Partial	Partial	No	0%	1
No	-	No	Yes	Yes	Partial2	12.5%	1
No	-	No	Partial2	Yes	Partial2	0%	1
No	-	No	No	-	-	0%	13

Table K-59 shows the Retail offering smart thermostat *intention* freeridership score.

Table K-59. Retail Offering – Smart Thermostats – *Intention* Freeridership Results

Measure Category	n	*Intention* FR Score
Smart Thermostat	110	56% [a]

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Influence *Freeridership Analysis*

The evaluation team assessed *influence* freeridership by asking participants how important various offering elements were in their purchasing decisions. Table K-60 shows how participants rated importance, along with a count and average rating for each factor.

Table K-60. Retail Offering – Smart Thermostats – *Influence* Freeridership Responses

Influence Rating	Influence FR Score	Focus on Energy rebate	Recommenda-tion from Focus on Energy Staff	Information provided by Focus on Energy on energy savings opportunities	Information from your utility	Recommendation from a store representative, dealer or contractor	Previous participation in Focus on Energy energy-efficiency offering
1 - Not at all important	100%	4	38	21	26	45	32
2	75%	13	9	13	12	17	12
3	50%	14	33	30	27	25	25
4	25%	35	22	32	31	13	26
5 - Very important	0%	43	6	12	11	9	13
Average Rating		**3.9**	**2.5**	**3.0**	**2.9**	**2.3**	**2.8**

The evaluation team determined each respondent's *influence* freeridership score for each measure category, using the maximum rating provided for any factor included in Table K-60. As shown in Table K-61, the respondents' maximum influence ratings ranged from 1 (*not at all important*) to 5 (*very important*). A maximum score of 1 meant the customer ranked all factors from the table as *not at all important*, while a maximum score of 5 means the customer ranked at least one factor *very important*. Counts refer to the number of "maximum influence" responses for each factor, or *influence* freeridership score, response option.

Table K-61. Retail Offering – Smart Thermostats – *Influence* Freeridership Score

Maximum Influence Rating	*Influence* FR Score	Count
1 - Not at all important	100%	1
2	75%	6
3	50%	12
4	25%	35
5 - Very important	0%	56
Average Maximum Influence Rating - Simple Average		**4.3**
Average Influence Score - Weighted by Verified Lifecycle MMBtu Gross Savings		**19%**

Final Freeridership

The evaluation team calculated the mean of the overall *intention* and the overall *influence* of freeridership components to estimate final freeridership for the measure categories. A higher freeridership score translates to more savings that are deducted from the gross savings estimates. Table K-62 lists the *intention*, *influence*, and final freeridership scores by measure category for the Retail offering.

Table K-62. Retail Offering – Smart Thermostats – Freeridership Score

Measure Category	n	*Intention* FR Score	*Influence* FR Score	Final FR Score
Smart Thermostats	110	56%[a]	19%[a]	62%

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Participant Spillover Analysis

The evaluation team estimated participant spillover based on answers from smart thermostat respondents who purchased additional high-efficiency equipment or appliances following their participation in the Retail offering. The team applied evaluated and deemed savings to the spillover measures that customers said they had installed as a result of their offering participation, presented in Table K-63.

Table K-63. Retail Offering – Smart Thermostats – Spillover Measures and Savings

Measure Category	Spillover Measure	Quantity	Total MMBtu Lifecycle Gross Savings Estimate
Smart Thermostats	Advanced Power Strip	1	0.9
	Central air conditioner	1	14.1

Next, the team divided the sample spillover savings by the offering measure category gross savings from the entire survey sample, as shown in this equation:

$$Spillover\ \% = \frac{\sum \text{Spillover Measure EnergySavings for All Survey Respondents}}{\sum \text{Offering Measure Energy Savings for All Survey Respondents}}$$

This yielded a 0% spillover estimate, for the Retail offering smart thermostat measure, when rounded to the nearest whole percentage (Table K-64).

Table K-64. Retail Offering – Smart Thermostats – Spillover Percentage Estimate

Variable	Total Lifecycle MMBtu Savings Estimate
Spillover Savings	15
Offering Savings	4,797
Spillover Estimate	**0%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-65:

NTG = 1 – Freeridership + Spillover

Table K-65. Retail Offering – Smart Thermostats – NTG Estimate

Measure Category	n	Freeridership	Spillover	NTG
Smart Thermostats	110	38%[a]	0%	62%

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Retail Packs Offering, Self-Report NTG Methodology and Findings

Freeridership

Freeridership Survey Questions

The participant online survey's freeridership section included two questions that collected measure specific responses:

- L3_1/L3_2/L3_3/ L3_4/L3_5/L3_6. If you had not purchased the [PACK TYPE] from Focus on Energy, would you have bought any of the following items for your home or business within 12 months?
- L1_1/L1_2/L1_3/L1_4/ L1_5/L1_6. Before purchasing the [PACK TYPE], had you already installed any of the following types of items in your home or business?

Convert Responses to Matrix Terminology

Table K-66 shows how the initial survey responses were translated into the responses *yes, no*, or *partially*, indicative of freeridership (in parentheses).

Table K-66. Retail Packs Offering– Raw Survey Response Translation to *Intention* Freeridership Scoring Matrix Terminology

L3_1/L3_2/L3_3/L3_4/ L3_5/L3_6. If you had not purchased the [PACK TYPE] from Focus on Energy, would you have bought any of the following items for your home or business within 12 months?	L1_1/L1_2/L1_3/L1_4/ L1_5/L1_6. Before purchasing the [PACK TYPE], had you already installed any of the following types of items in your home or business?
Yes, at the same time (Yes)	Yes (Yes)
Yes, later but within 12 months (Partial)	No (No)
No, not within 12 months (No)	Don't Know (Partial)
Don't Know (Partial)	

Participant Freeridership Scoring

Each freeridership score started at 100%, which the evaluation team decremented based on the participant's responses to the two questions shown in Table K-67.

Table K-67. Retail Packs Offering – *Intention* Freeridership Scoring Legend

Q#	Decrement
F1	100% decrement for "No," 50% decrement for "Partial"
F2	50% decrement for "No," 25% decrement for "Partial"

Freeridership Analysis Results

Table K-68 shows the unique response combinations from Retail Packs offering participants freeridership questions (actual responses mapped to yes, no, or partial, as indicative of freeridership), the freeridership score assigned to each combination, and the number of responses for each measure. The evaluation team calculated a freeridership score for each measure based on the savings weighted average of the distribution of scores within the matrix.

Table K-68. Retail Packs Offering – Frequency of Freeridership Scoring Combinations

L3_1/L3_2/L3_3/L3_4/ L3_5/L3_6. If you had not purchased the [PACK TYPE] from Focus on Energy, would you have bought any of the following items for your home or business within 12 months?	L1_1/L1_2/L1_3/L1_4/ L1_5/L1_6. Before purchasing the [PACK TYPE], had you already installed any of the following types of items in your home or business?	Freerider Score	LEDs, Omnidirectional	LEDs, Reflector	LEDs, 3-way	LEDs, Candelabras	LEDs, Globes	LEDs, Desk Lamps	Faucet Aerators	Pipe Wrap	Showerheads
Yes	Yes	100%	35	3	5	5	4	2	3	5	7
Yes	Partial	75%	3	0	0	1	0	0	0	0	0
Yes	No	50%	4	4	6	3	2	2	3	2	4
Partial	Yes	50%	118	22	16	20	22	9	2	4	6
Partial	Partial	25%	10	13	3	3	2	3	4	0	4
Partial	No	0%	36	24	27	37	40	57	18	3	21
No	x	0%	39	20	32	30	29	50	40	18	30

Participant Spillover Analysis

The evaluation team estimated participant spillover based on answers from respondents who purchased additional high-efficiency equipment or appliances following their participation in the Retail Packs offering. The team applied evaluated and deemed savings to the spillover measures that customers said they had installed as a result of their offering participation, presented in Table K-69.

Table K-69. Retail Packs Offering – Spillover Measures and Savings

Measure Category	Spillover Measure	Quantity	Total MMBtu Lifecycle Gross Savings Estimate
Retail Packs Offering	Advanced power strip	9	8.5
	Central air conditioner	3	16.0
	ENERGY STAR air purifier	2	13.1
	ENERGY STAR freezer	3	3.8
	ENERGY STAR room air conditioner	4	4.9
	Gas boiler	1	404.0
	Gas furnace	5	1,303.5
	Smart thermostat	5	135.0

Next, the team divided the sample spillover savings by the offering gross savings from the entire survey sample, as shown in this equation:

$$Spillover\ \% = \frac{\sum \text{Spillover Measure EnergySavings for All Survey Respondents}}{\sum \text{Offering Measure Energy Savings for All Survey Respondents}}$$

This yielded a 9% spillover estimate, for the Retail Packs offering, when rounded to the nearest whole percentage (Table K-70).

Table K-70. Retail Packs Offering – Spillover Percentage Estimate

Variable	Total Lifecycle MMBtu Savings Estimate
Spillover Savings	1,889
Offering Savings	21,283
Spillover Estimate	**9%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-71:

NTG = 1 – Freeridership + Spillover

Table K-71. Retail Packs Offering – NTG Estimates by Measure Category

Measure Category	n	Freeridership	Spillover	NTG
Faucet Aerators	70	6%	9%	103%
LEDs, Omnidirectional	245	33%	9%	76%
LEDs, Reflector	86	18%	9%	91%
LEDs, 3-way	89	18%	9%	91%
LEDs, Candelabras	99	15%	9%	94%
LEDs, Globes	99	15%	9%	94%
LEDs, Desk Lamps	123	6%	9%	103%
Pipe Insulation	32	25%	9%	84%
Showerheads	72	15%	9%	94%

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Packs Offering, Self-Report NTG Methodology and Findings

Freeridership

Freeridership Survey Questions

The participant online survey's freeridership section included two questions that collected measure specific responses:

- N3_1/N3_2/N3_3/ N3_4/N3_5/N3_6. If you had not received the [PACK TYPE] from Focus on Energy, would you have bought any of the following items for your home within 12 months?
- N1_1/N1_2/N1_3/N1_4/N1_5/N1_6. Before receiving the [PACK TYPE], had you already installed any of the following?

Convert Responses to Matrix Terminology

Table K-72 shows how the initial survey responses were translated into the responses *yes, no*, or *partially*, indicative of freeridership (in parentheses).

Table K-72. Packs Offering– Raw Survey Response Translation to *Intention* Freeridership Scoring Matrix Terminology

N3_1/N3_2/N3_3/N3_4/ N3_5/N3_6/N3_7. If you had not received the [PACK TYPE] from Focus on Energy, would you have bought any of the following items for your home within 12 months?	N1_1/N1_2/N1_3/N1_4/ N1_5/N1_6. Before receiving the pack, had you already installed any of the following?
Yes, at the same time (Yes)	Yes (Yes)
Yes, later but within 12 months (Partial)	No (No)
No, not within 12 months (No)	Don't Know (Partial)
Don't Know (Partial)	

Participant Freeridership Scoring

Each freeridership score started at 100%, which the evaluation team decremented based on the participant's responses to the two questions shown in Table K-73.

Table K-73. Packs Offering – *Intention* Freeridership Scoring Legend

Q#	Decrement
F1	100% decrement for "No," 50% decrement for "Partial"
F2	50% decrement for "No," 25% decrement for "Partial"

Freeridership Analysis Results

Table K-74 shows the unique response combinations from the Packs offering participants freeridership questions (actual responses mapped to yes, no, or partial, as indicative of freeridership), the freeridership score assigned to each combination, and the number of responses for each measure. The evaluation team calculated a freeridership score for each measure based on the savings weighted average of the distribution of scores within the matrix

Table K-74. Packs Offering – Frequency of Freeridership Scoring Combinations

N3_1/N3_2/N3_3/N3_4/ N3_5/N3_6/N3_7. If you had not received the [PACK TYPE] from Focus on Energy, would you have bought any of the following items for your home within 12 months?	N1_1/N1_2/N1_3/N1_4/ N1_5/N1_6. Before receiving the pack, had you already installed any of the following?	Freerider Score	Advanced Power Strips	Faucet Aerators	LED, 5W, G25	LED, 5W, B11	Pipe Insulation	Showerhead, Upgraded	Showerhead, Handheld	LED, 8W, BR30	LED, 9W & 11W
Yes	Yes	100%	11	11	9	6	9	4	4	5	46
Yes	Partial	75%	0	0	0	0	0	1	0	0	0
Yes	No	50%	6	6	17	9	5	7	11	3	7
Partial	Yes	50%	36	35	39	23	42	17	13	21	151
Partial	Partial	25%	0	4	5	1	2	0	2	8	9
Partial	No	0%	41	48	72	44	39	24	35	38	47
No	x	0%	54	119	111	27	103	50	38	30	47

Participant Spillover Analysis

The evaluation team estimated participant spillover based on answers from respondents who purchased additional high-efficiency equipment or appliances following their participation in the Packs offering. The team applied evaluated and deemed savings to the spillover measures that customers said they had installed as a result of their offering participation, presented in Table K-75.

Table K-75. Packs Offering – Spillover Measures and Savings

Measure Category	Spillover Measure	Quantity	Total MMBtu Lifecycle Gross Savings Estimate
Packs Offering	Advanced power strip	9	8.5
	Central air conditioner	3	16.0
	ENERGY STAR air purifier	2	13.1
	ENERGY STAR freezer	3	3.8
	ENERGY STAR room air conditioner	4	4.9
	Gas boiler	1	404.0
	Gas furnace	5	1,303.5
	Smart thermostat	5	135.0

Next, the team divided the sample spillover savings by the offering gross savings from the entire survey sample, as shown in this equation:

$$Spillover\ \% = \frac{\sum \text{Spillover Measure EnergySavings for All Survey Respondents}}{\sum \text{Offering Measure Energy Savings for All Survey Respondents}}$$

This yielded a 11% spillover estimate, for the Packs offering, when rounded to the nearest whole percentage (Table K-76).

Table K-76. Packs Offering – Spillover Percentage Estimate

Variable	Total Lifecycle MMBtu Savings Estimate
Spillover Savings	1,889
Offering Savings	21,283
Spillover Estimate	**11%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-77:

NTG = 1 – Freeridership + Spillover

Table K-77. Packs Offering – NTG Estimates by Measure Category

Measure Category	n	Freeridership [a]	Spillover	NTG
Advanced Power Strips	148	21%	11%	90%
Faucet Aerators	223	13%	11%	98%
LED, 5W, G25	253	17%	11%	94%
LED, 5W, B11	110	16%	11%	95%
Pipe Insulation	200	17%	11%	94%
Showerhead, Upgraded	103	14%	11%	97%
Showerhead, Handheld	103	16%	11%	95%
LED, 8W, BR30	105	18%	11%	93%
LED, 9W	307	37%	11%	74%
LED, 11W				

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Heating and Cooling (Tier 1) Offering, Non-SMP Measures Self-Report NTG Methodology and Findings

Freeridership

Intention Freeridership Survey Questions

The participant survey's *intention* freeridership section included the following questions:

- F1. When did you first hear about the availability of a Focus on Energy Heating and Cooling offering incentive for [MEASURE]?
- F2. [ASK IF F1=3, 4, 5 OR 6] So just to be clear, you purchased your [MEASURE] before you heard anything about the Focus on Energy Heating and Cooling offering incentive. Is that correct?
- F3. Before you heard about the offering, had you already considered installing [MEASURE]?
- F4. [ASK IF MEASURE ≠ "smart thermostat(s)" OR "ground source heat pump(s)"] Without the rebate from Focus on Energy, would you have purchased and installed [MEASURE] that was just as efficient, less efficient or more efficient than what you purchased?
- F5. [ASK IF MEASURE="smart thermostat(s)"] Without the rebate from Focus on Energy, what kind of thermostat would you have installed?
- F6. [ASK IF MEASURE="ground source heat pump(s)"] Without the rebate from Focus on Energy, what would you have installed instead of the ground source heat pump?
- F8. [ASK IF QUANTITY > 1] Would you have installed the same quantity of [MEASURE] without the rebate from Focus on Energy?
- F9. Thinking about timing, without the Focus on Energy rebate, when would you have installed the [MEASURE]?

Convert Responses to Matrix Terminology

Table K-78 shows how the initial participant received incentive-focused survey responses were translated into the responses *yes, no*, or *partially*, indicative of *intention* freeridership (in parentheses). The table shows how initial contractor-focused survey responses were translated into the responses yes, no, or partially, indicative of *intention* freeridership (in parentheses).

Table K-78. Heating and Cooling (Tier 1) Offering – Non-SMP Measures –
Raw Survey Response Translation to *Intention* Freeridership Scoring Matrix Terminology

F1. When did you first hear about the availability of the Focus on Energy Heating and Cooling Offering incentive for [MEASURE]?	F2. [ASK IF F1=3, 4, 5 OR 6] So just to be clear, you purchased your [MEASURE] before you heard anything about the Focus on Energy Heating and Cooling Offering incentive. Is that correct?	F3. Before you heard about the offering, had you already considered installing [MEASURE]?	F4. [ASK IF MEASURE ≠ "smart thermostat(s)" OR "ground source heat pump(s)"] Without the rebate from Focus on Energy, would you have purchased and installed [MEASURE] that was just as efficient, less efficient or more efficient than what you purchased?	F5. [ASK IF MEASURE="smart thermostat(s)"] Without the rebate from Focus on Energy, what kind of thermostat would you have installed?	F6. [ASK IF MEASURE="ground source heat pump(s)"] Without the rebate from Focus on Energy, what would you have installed instead of the ground source heat pump?	F8. [ASK IF QUANTITY > 1] Would you have installed the same quantity of [MEASURE] without the rebate from Focus on Energy?	F9. Thinking about timing, without the Focus on Energy rebate, when would you have installed the [MEASURE] ?
Before you contacted your contractor to purchase [MEASURE] (No)	Yes, that's correct (Yes)	Yes (Yes)	Just as efficient (Yes)	A smart or learning thermostat (Yes)	Installed a smaller, less expensive geothermal or ground source heat pump (Partia2l)	Yes, the same quantity (Yes)	At the same time (Yes)
When the contractor provided the quote for purchase and installation (No)	No, that's not correct (No)	No (No)	Less Efficient (No)	A WiFi thermostat (non-learning) (Partial2)	Installed the same size, same-cost geothermal or ground source heat pump (Yes)	No, would have installed fewer (Partial2)	Later, but within 12 months (Partial2)
After your contractor installed your [MEASURE] (Yes)	Don't Know (Partial)	Don't Know (Partial)	More Efficient (Yes)	A programmable thermostat (No)	Installed a larger, more expensive geothermal or ground source heat pump (Yes)	No, would have installed more (Yes)	One to two years out (No)
When you received your incentive check from Focus on Energy (Yes)			Don't Know (Partial)	A manual thermostat (No)	Not installed a ground source heat pump at all (No)	No, would not have installed anything at all (No)	More than two years out (No)
After you purchased your [MEASURE] (Yes)				Would not have installed a new thermostat (No)	Don't Know (Partial)	Don't Know (Partial)	Never (No)
You had not heard of Focus on Energy before this survey (Yes)				Don't Know (Partial)			Don't Know (Partial)
Don't Know (No)							

Participant Intention *Freeridership Scoring*

For each incentive focused path, the *intention* freeridership score started with 100%, which the evaluation team decremented based on participant's responses to the questions (Table K-79).

Table K-79. *Intention* Freeridership Scoring Legend

Q#	Decrement
F1	0% decrement for "No," Partial level not needed
F2	100% FR if "Yes," "Partial" level not needed
F3	50% decrement for "No," 25% decrement for "Partial"
F4	100% decrement for "No," 25% decrement for "Partial," 50% decrement for "Partial2"
F5	100% decrement for "No," 25% decrement for "Partial," 50% decrement for "Partial2"
F6	100% decrement for "No," 25% decrement for "Partial," 50% decrement for "Partial2"
F8	50% decrement for "No," 25% decrement for "Partial"
F9	100% decrement for "No," 25% decrement for "Partial," 50% decrement for "Partial2"

Intention Freeridership Analysis

Table K-80 shows the unique response combinations from participants answering the Heating and Cooling offering (Tier 1) *intention* freeridership questions (actual responses mapped to yes, no, or partial, as indicative of freeridership), the *intention* freeridership score assigned to each combination, and the number of responses for each analysis category. The evaluation team calculated a savings weighted *intention* freeridership score for each analysis category based on the distribution of scores within the matrix.

Table K-80. Heating and Cooling (Tier 1) Offering – Non-SMP Measures – Frequency of *Intention* Freeridership Scoring Combinations

F1. When did you first hear about the availability of the Focus on Energy Heating and Cooling Offering incentive for [MEASURE]?	F2. [ASK IF F1=3, 4, 5 OR 6] So just to be clear, you purchased your [MEASURE] before you heard anything about the Focus on Energy Heating and Cooling Offering incentive. Is that correct?	F3. Before you heard about the offering, had you already considered installing [MEASURE]?	F4. [ASK IF MEASURE ≠ "smart thermostat(s)" OR "ground source heat pump(s)"] Without the rebate from Focus on Energy, would you have purchased and installed [MEASURE] that was just as efficient, less efficient or more efficient than what you purchased?	F5. [ASK IF MEASURE="smart thermostat(s)"] Without the rebate from Focus on Energy, what kind of thermostat would you have installed?	F6. [ASK IF MEASURE="ground source heat pump(s)"] Without the rebate from Focus on Energy, what would you have installed instead of the ground source heat pump?	F8. [ASK IF QUANTITY > 1] Would you have installed the same quantity of [MEASURE] without the rebate from Focus on Energy?	F9. Thinking about timing, without the Focus on Energy rebate, when would you have installed the [MEASURE]?	*Intention* FR Score	Count - Other	Count – Smart Thermostats
Yes	Yes	-	-	-	-	-	-	100%	10	14
Yes	No	Yes	-	Yes	-	-	Yes	100%	0	1
Yes	No	No	-	No	-	-	-	0%	0	1
No	-	Yes	-	Yes	-	-	Yes	100%	0	28
No	-	Yes	-	Yes	-	-	Partial	75%	0	1
No	-	Yes	-	Yes	-	-	Partial2	50%	0	2
No	-	Yes	-	Partial	-	-	Yes	75%	0	2
No	-	Yes	-	Partial	-	-	Partial	50%	0	1
No	-	Yes	-	Partial	-	-	Partial2	25%	0	1
No	-	Yes	-	Partial2	-	-	Yes	50%	0	12
No	-	Yes	-	Partial2	-	-	Partial2	12.5%	0	1
No	-	Yes	-	No	-	-	-	0%	0	23
No	-	Partial	-	Partial	-	-	Partial	25%	0	1
No	-	Partial	-	Partial2	-	-	Yes	25%	0	1
No	-	Partial	-	No	-	-	-	0%	0	2
No	-	No	-	Yes	-	-	Yes	50%	0	3
No	-	No	-	Yes	-	-	Partial	25%	0	1
No	-	No	-	No	-	-	-	0%	0	20
No	-	Yes	Yes	-	-	-	Yes	100%	19	0

F1. When did you first hear about the availability of the Focus on Energy Heating and Cooling Offering incentive for [MEASURE]?	F2. [ASK IF F1=3, 4, 5 OR 6] So just to be clear, you purchased your [MEASURE] before you heard anything about the Focus on Energy Heating and Cooling Offering incentive. Is that correct?	F3. Before you heard about the offering, had you already considered installing [MEASURE]?	F4. [ASK IF MEASURE ≠ "smart thermostat(s)" OR "ground source heat pump(s)"] Without the rebate from Focus on Energy, would you have purchased and installed [MEASURE] that was just as efficient, less efficient or more efficient than what you purchased?	F5. [ASK IF MEASURE="smart thermostat(s)"] Without the rebate from Focus on Energy, what kind of thermostat would you have installed?	F6. [ASK IF MEASURE="ground source heat pump(s)"] Without the rebate from Focus on Energy, what would you have installed instead of the ground source heat pump?	F8. [ASK IF QUANTITY > 1] Would you have installed the same quantity of [MEASURE] without the rebate from Focus on Energy?	F9. Thinking about timing, without the Focus on Energy rebate, when would you have installed the [MEASURE]?	*Intention* FR Score	Count - Other	Count – Smart Thermostats
No	-	Yes	Yes	-	-	-	Partial2	50%	3	0
No	-	Yes	Yes	-	-	-	No	0%	1	0
No	-	Yes	Partial	-	-	-	Yes	75%	8	0
No	-	Yes	Partial	-	-	-	Partial	50%	1	0
No	-	Yes	No	-	-	-	-	0%	6	0
No	-	No	Yes	-	-	-	Yes	50%	2	0
No	-	No	Yes	-	-	-	No	0%	1	0
No	-	No	Partial	-	-	-	No	0%	2	0
No	-	No	No	-	-	-	-	0%	1	0
No	-	Yes	-	-	Yes	-	Yes	100%	10	0
No	-	Yes	-	-	Partial	-	Partial	50%	2	0
No	-	Yes	-	-	Partial	-	Partial2	25%	1	0
No	-	Yes	-	-	No	-	-	0%	2	0
No	-	No	-	-	Yes	-	Yes	50%	1	0
No	-	No	-	-	No	-	-	0%	1	0

Table K-81 shows the Heating and Cooling offering (Tier 1) non-SMP measures *intention* freeridership scores by analysis category.

Table K-81. Heating and Cooling (Tier 1) Offering – Non-SMP Measures – *Intention* Freeridership Results

Analysis Category	n	*Intention* FR Score
Other	71	74% [a]
Smart Thermostat	115	48% [a]

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Influence *Freeridership Analysis*

The evaluation team assessed *influence* freeridership by asking participants how important various offering elements were in their purchasing decisions. Table K-82 shows the offering elements participants rated for importance, along with a count and average rating for each factor.

Table K-82. Heating and Cooling (Tier 1) Offering – Non-SMP Measures – *Influence* Freeridership Responses

Influence Rating	Influence FR Score	The Focus on Energy Heating and Cooling incentive or discount		Recommendation from Focus on Energy Staff		Information provided by Focus on Energy on energy savings opportunities		Recommendation from a contractor or vendor		Previous participation in a Focus on Energy energy-efficiency offering	
		Other	Smart Thermostats	Other	Smart Thermostats	Other	Smart Thermostats	Other	Smart Thermostats	Other	Smart Thermostats
1 - Not at all important	100%	5	5	26	39	13	15	5	5	19	34
2	75%	7	7	11	21	9	19	6	3	12	17
3	50%	17	30	20	31	14	36	12	23	14	29
4	25%	21	38	8	11	24	29	24	37	18	23
5 - Very important	0%	21	35	6	13	11	16	24	47	8	12
Average Rating		**3.6**	**3.8**	**2.4**	**2.5**	**3.2**	**3.1**	**3.8**	**4.0**	**2.8**	**2.7**

The team determined each respondent's *influence* freeridership score for each analysis category, using the maximum rating provided for any factor included in Table K-82. As shown in Table K-83, the respondents' maximum influence ratings ranged from 1 (*not at all important*) to 5 (*very important*). A maximum score of 1 meant the customer ranked all factors from the table as *not at all important*, while a maximum score of 5 means the customer ranked at least one factor *very important*. Counts refer to the number of "maximum influence" responses for each factor, or *influence* freeridership score, response option.

Table K-83. Heating and Cooling (Tier 1) Offering – Non-SMP Measures – *Influence* Freeridership Score

Maximum Influence Rating	*Influence* FR Score	Incentive - Count	Contractor - Count
1 - Not at all important	100%	1	1
2	75%	0	1
3	50%	4	12
4	25%	27	36
5 - Very important	0%	39	65
Average Maximum Influence Rating - Simple Average		**4.5**	**4.4**
Average Influence Score - Weighted by Verified Lifecycle MMBtu Gross Energy Savings		**17%**	**14%**

Final Freeridership

The evaluation team calculated the mean of the overall *intention* and the overall *influence* of freeridership components to estimate final freeridership for the analysis categories. A higher freeridership score translates to more savings that are deducted from the gross savings estimates. Table K-84 lists the *intention*, *influence*, and final freeridership scores for Heating and Cooling offering (Tier 1) non-SMP measures.

Table K-84. Heating and Cooling (Tier 1) Offering – Non-SMP Measures – Freeridership Score

Analysis Category	n	*Intention* FR Score	*Influence* FR Score	Final Freeridership Score
Other	71	74%[a]	17%	46%
Smart Thermostats	115	48%[a]	14%	31%

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Participant Spillover Analysis

The evaluation team estimated participant spillover based on answers from respondents who purchased additional high-efficiency equipment or appliances following their participation in the Heating and Cooling offering (Tier 1) non-SMP measures. The evaluation team applied evaluated and deemed savings to the spillover measures that customers said they had installed as a result of their offering participation, presented in Table K-85.

Table K-85. Heating and Cooling (Tier 1) Offering – Non-SMP Measures – Participant Spillover Measures and Savings

Analysis Category	Spillover Measure	Quantity	Total MMBtu Lifecycle Gross Savings Estimate
Other	Advanced power strip	2	1.9
	ENERGY STAR air purifier	1	6.6
	ENERGY STAR room air conditioner	1	1.2
	Smart thermostat	2	45.0
Smart Thermostats	Advanced power strip	2	1.9
	Central air conditioner	2	14.1
	ENERGY STAR air purifier	1	6.6

Next, the evaluation team divided the sample spillover savings by the gross savings from the entire survey sample, as shown in this equation:

$$Spillover\ \% = \frac{\sum \text{Spillover Measure EnergySavings for All Survey Respondents}}{\sum \text{Program Measure Energy Savings for All Survey Respondents}}$$

This yielded a 1% spillover estimate, when rounded to the nearest whole percentage, for the Heating and Cooling offering (Tier 1) non-SMP measures (Table K-86).

Table K-86. Heating and Cooling (Tier 1) Offering – Non-SMP Measures – Participant Spillover Percentage Estimate

Variable	Total Verified Lifecycle MMBtu Gross Savings Estimate	
	Other	Smart Thermostats
Spillover Savings	55	23
Offering Savings	6,681	2,016
Spillover Estimate	**1%**	**1%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-87:

NTG = 1 – Freeridership + Spillover

Table K-87. Heating and Cooling (Tier 1) Offering – Non-SMP Measures – NTG Estimates

Analysis Category	n	Freeridership	Spillover	NTG
Other	71	46%	1%	55%
Smart Thermostats	115	31%	1%	70%

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Agriculture; Commercial and Industrial; and Large Industrial; Government and Schools Offerings' Self-Report NTG Methodology and Findings

Freeridership

Intention Freeridership Survey Questions

The *intention* freeridership sections of the participant survey for the following offerings included two separate sets of questions, which addressed the six core *intention* freeridership dimensions:

- Agriculture
- Commercial and Industrial
- Large Industrial

For these offerings, one set of *intention* freeridership questions was asked of participants who said they were the decision makers. A second set was asked of participants whose contractor helped them make decisions. Participants were asked only one of the two sets of questions.

The two sets of *intention* freeridership questions were directly comparable—the difference was that one was oriented toward counterfactual behavior without the offering incentive and one toward counterfactual behavior if there was no involvement from the contractors.

The Schools and Government offerings participants were asked one set of *intention* freeridership questions oriented toward counterfactual behavior without the offering incentive.

The *intention* freeridership questions oriented toward the offering incentive and information or education participants received (asked in the survey format) were these:

- E1. First, did your organization have specific plans to install the [MEASURE][s] over a less efficient option before learning about the Focus on Energy incentive?
- E2. Prior to learning about the incentive, was the purchase of the [MEASURE[s]] included in your organization's capital budget?
- E3. Had your organization ALREADY ordered or purchased the [MEASURE[s]] BEFORE your organization heard about the Focus on Energy incentive?
- E4. Would you have purchased and installed the same [MEASURE[s]] over a less efficient option without the incentive and information and education from Focus on Energy?
- E5. Would you have installed something without the incentive and information or education from Focus on Energy?
- E6. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE[s]] you installed?
- E7. [Ask if QTY>1] And without the incentive and information or education from Focus on Energy, would you have installed the same number of [MEASURE1[s]]?
- E8. Without the incentive and information or education from Focus on Energy, when would you have installed the energy efficient [MEASURE[s]]?

- E9. When you say you would not have installed the same [MEASURE1 OR C_MEASURE1][s] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all?
- E10. Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy-efficient as the [MEASURE[s]] you installed?
- E11. [Ask if QTY>1] Without the incentive and information or education from Focus on Energy, would you have installed the same number of [MEASURE[s]]?
- E12. And, when would you have installed the same energy efficient [MEASURE1[s]?

The *intention* freeridership questions oriented toward the involvement of the contractor (as asked in the survey format) were these:

- F1. At the time that you first started working with your contractor on this project, had you already purchased or installed the energy-efficient [MEASURE][s]?
- F2. Did your organization have specific plans to install the energy-efficient [MEASURE][s] before you began working with your contractor?
- F3. Before you began working with your contractor, was the purchase of the energy-efficient [MEASURE][s] included in your organization's capital budget?
- F4. Did your contractor help your organization make the decision to include the purchase of the energy efficient [MEASURE][s] in your property's capital budget?
- F5. Would you have purchased and installed the same energy-efficient [MEASURE][s] without the assistance from your contractor and Focus on Energy?
- F6. Would you have installed something without the involvement of your contractor and Focus on Energy?
- F7. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE1 OR C_MEASURE1][s] you installed?
- F8. [Ask if QTY>1] And without the assistance from your contractor and Focus on Energy, would you have installed the same number of [MEASURE]?
- F9. Without the assistance from your contractor and Focus on Energy, would you have installed the energy-efficient [MEASURE][s]?
- F10. When you say you would not have installed the same energy-efficient [MEASURE][s] over a less efficient option without the assistance from your contractor and Focus on Energy, would you have installed anything at all?
- F11. Without the assistance from your contractor and Focus on Energy, would you have installed something that was just as energy efficient as the [MEASURE][s] you installed?
- F12. [Ask if QTY>1] Without the assistance from your contractor and Focus on Energy, would you have installed the same number of energy-efficient [MEASURE][s]?
- F13. And, when would you have installed the same energy-efficient [MEASURE][s]?

Convert Responses to Matrix Terminology

Table K-88 shows how the initial participant received incentive-focused survey responses were translated into the responses *yes, no*, or *partially*, indicative of *intention* freeridership (in parentheses). Table K-89 shows how initial contractor-focused survey responses were translated into the responses yes, no, or partially, indicative of *intention* freeridership (in parentheses).

Table K-88. Incentive—Raw Survey Response Translation to *Intention* Freeridership Scoring Matrix Terminology

E1. First, did your organization have specific plans to install the energy efficient [MEASURE] over a less efficient option before learning about the incentive?	E2. Prior to learning about the incentive, was the purchase of the energy-efficient [MEASURE] included in your organization's capital budget?	E3. Had your property ALREADY ordered or purchased the energy-efficient [MEASURE] BEFORE your organization heard about the Focus on Energy?	E4. Would you have purchased and installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy?	E5. Would you have installed something without the incentive and information or education from Focus on Energy?	E6. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE] you installed?	E7. And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	E8. Without the incentive and information or education from Focus on Energy, would you have installed the energy-efficient [MEASURE]?	E9. When you say you would not have installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all?	E10. Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy-efficient as the [MEASURE][s] you installed?	E11. Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	E12. And, would you have installed the same energy-efficient [MEASURE]?
Yes (Yes)	Yes (Yes)	Yes (Yes)	Yes (Yes)	Yes, would have installed something (Yes)	Yes (Yes)	Yes (Yes)	Within the same year? (Yes)	Yes, would have installed something (Yes)	Yes (Yes)	Yes, the same number (Yes)	Within the same year? (Yes)
No (No)	No (No)	No (No)	No (No)	No, would not have installed anything (No)	No (No)	No (No)	Within one to two years? (Partial)	No, would not have installed anything at all (No)	No (No)	No, would have installed less (No)	Within one to two years? (Partial)
Don't Know (Partial)	Don't Know (Partial)	Don't Know (No)	Don't Know (Partial)	Don't Know (Partial)	Don't Know (Partial)	Don't Know (Partial)	Within three to five years? (No)	Don't Know (Partial)	Don't Know (Partial)	No, would have installed more (Yes)	Within three to five years? (No)
Refused (Partial)	Refused (Partial)	Refused (No)	Refused (Partial)	Refused (Partial)	Refused (Partial)	Refused (Partial)	In more than five years? (No)	Refused (Partial)	Refused (Partial)	Don't Know (Partial)	In more than five years? (No)
							Don't Know (Partial)			Refused (Partial)	Don't Know (Partial)
							Refused (Partial)				Refused (Partial)

Table K-89. Contractor—Raw Survey Response Translation to *Intention* Freeridership Scoring Matrix Terminology

F1. At the time that you first started working with your contractor on this project, had you already purchased or installed the energy-efficient [MEASURE][s]?	F2. Did your organization have specific plans to install the energy-efficient [MEASURE][s] before you began working with your contractor?	F3. Before you began working with your contractor, was the purchase of the energy-efficient [MEASURE][s] included in your organization's capital budget?	F4. Did your contractor help your organization make the decision to include the purchase of the energy efficient [MEASURE][s] in your property's capital budget?	F5. Would you have purchased and installed the same energy-efficient [MEASURE][s] over a less efficient option without the assistance from your contractor and Focus on Energy?	F6. Would you have installed something without the involvement of your contractor and Focus on Energy?	F7. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE][s] you installed?	F8. [Ask if QTY>1] And without the assistance from your contractor and Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	F9. Without the assistance from your contractor and Focus on Energy, would you have installed the energy-efficient [MEASURE][s]?	F10. When you say you would not have installed the same [MEASURE][s] over a less efficient option without the assistance from your contractor and Focus on Energy, would you have installed anything at all?	F11. Without the assistance from your contractor and Focus on Energy, would you have installed something that was just as energy efficient as the [MEASURE][s] you installed?	F12. [Ask if QTY>1] Without the assistance from your contractor and Focus on Energy would you have installed the same number of energy-efficient [MEASURE][s]?	F13. And, when would you have installed the same energy-efficient [MEASURE][s]?
Yes (Yes)	Yes (Yes)	Yes (Yes)	Yes (Yes)	Yes (Yes)	Yes, would have installed something (Yes)	Yes (Yes)	Yes, the same number (Yes)	Within the same year? (Yes)	Yes, would have installed something (Yes)	Yes (Yes)	Yes, the same number (Yes)	ithin the same year? (Yes)
No (No)	No (No)	No (No)	No (No)	No (No)	No, would not have installed anything (No)	No (No)	No, would have installed less (No)	Within one to two years? (Partial)	No, would not have installed anything at all (No)	No (No)	No, would have installed less (No)	Within one to two years? (Partial)
Don't Know (Partial)	Don't Know (Partial)	Don't Know (No)	Don't Know (No)	Don't Know (Partial)	Don't Know (Partial)	Don't Know (Partial)	No, would have installed more (Yes)	Within three to five years? (No)	Don't Know (Partial)	Don't Know (Partial)	No, would have installed more (Yes)	Within three to five years? (No)
Refused (Partial)	Refused (Partial)	Refused (No)	Refused (No)	Refused (Partial)	Refused (Partial)	Refused (Partial)	Don't Know (Partial)	In more than five years? (No)	Refused (Partial)	Refused (Partial)	Don't Know (Partial)	In more than five years? (No)
							Refused (Partial)	Don't Know (Partial)			Refused (Partial)	Don't Know (Partial)
								Refused (Partial)				Refused (Partial)

Participant Intention *Freeridership Scoring*

For each incentive focused path, the *intention* freeridership score started with 100%, which the evaluation team decremented based on participant's responses to 12 incentive questions (Table K-90).

Table K-90. Incentive—*Intention* Freeridership Scoring Legend

Q#	Decrement
E1	50% decrement for "No," 25% decrement for "Partial"
E2	50% decrement for "No, 25% decrement for Partial
E3	100% FR if "Yes," 0% decrement for "No" level, "Partial" level not needed
E4	25% decrement for "No," 0% decrement for "Partial"
E5	25% decrement for "No," 100% decrement for "Partial"
E6	100% decrement for "No," 25% decrement for "Partial"
E7	50% decrement for "No," 25% decrement for "Partial"
E8	100% decrement for "No," 25% decrement for "Partial"
E9	100% decrement for "No," 25% decrement for "Partial"
E10	100% decrement for "No," 25% decrement for "Partial"
E11	50% decrement for "No," 25% decrement for "Partial"
E12	100% decrement for "No," 25% decrement for "Partial"

For each contractor focused path, the *intention* freeridership score started with 100%, which the evaluation team decremented based on participant's responses to 12 questions for the contractor path (Table K-91).

Table K-91. Contractor—*Intention* Freeridership Scoring Legend

Q#	Decrement
F1	100% FR if "Yes," 0% decrement for "No" level, "Partial" level not needed
F2	50% decrement for "No," 25% decrement for "Partial"
F3	50% decrement for "No," 25% decrement for "Partial"
F4	50% decrement for "No," 25% decrement for "Partial"
F5	25% decrement for "No," 0% decrement for "Partial"
F6	25% decrement for "No," 100% decrement for "Partial"
F7	100% decrement for "No," 25% decrement for "Partial"
F8	50% decrement for "No," 25% decrement for "Partial"
F9	100% decrement for "No," 25% decrement for "Partial"
F10	100% decrement for "No," 25% decrement for "Partial"
F11	100% decrement for "No," 25% decrement for "Partial"
F12	50% decrement for "No," 25% decrement for "Partial"
F13	100% decrement for "No," 25% decrement for "Partial"

Agriculture Offering Findings

Intention Freeridership Analysis

Table K-92 and Table K-93 show the unique response combinations from participants answering the Agriculture offering *intention* freeridership incentive and contractor freeridership questions (actual responses mapped to yes, no, or partial, as indicative of freeridership), the *intention* freeridership score assigned to each combination, and the number of responses. The evaluation team calculated an *intention* freeridership score for the offering based on the savings weighted average of the distribution of scores within the matrix.

Table K-92. Incentive – Agriculture Offering Frequency of *Intention* Freeridership Scoring Combinations

E1. First, did your organization have specific plans to install the energy efficient [MEASURE] over a less efficient option before learning about the incentive?	E2. Prior to learning about the incentive, was the purchase of the energy-efficient [MEASURE] included in your organization's capital budget?	E3. Had your property ALREADY ordered or purchased the energy-efficient [MEASURE] BEFORE your organization heard about the Focus on Energy incentive?	E4. Would you have purchased and installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy?	E5. Would you have installed something without the incentive and information or education from Focus on Energy?	E6. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE] you installed?	E7. And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	E8. Without the incentive and information or education from Focus on Energy, would you have installed the energy-efficient [MEASURE]?	E9. When you say you would not have installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all?	E10. Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy-efficient as the [MEASURE][s] you installed?	E11. Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	E12. And, would you have installed the same energy-efficient [MEASURE]?	*Intention* FR Score	Count
Yes	Yes	Yes	-	-	-	-	-	-	-	-	-	100%	3
Yes	Yes	Partial	Yes	-	-	Yes	Yes	-	-	-	-	100%	1
Yes	Yes	No	Yes	-	-	Yes	Yes	-	-	-	-	100%	5
Yes	Yes	No	Yes	-	-	-	Yes	-	-	-	-	100%	1
Yes	Yes	No	Yes	-	-	Partial	Yes	-	-	-	-	75%	1
Yes	Yes	No	Yes	-	-	No	Partial	-	-	-	-	25%	1
Yes	Yes	No	Partial	Yes	No	-	-	-	-	-	-	0%	2
Yes	Yes	No	Partial	Partial	-	-	-	-	-	-	-	75%	1
Yes	Yes	No	No	-	-	-	-	Yes	Yes	No	Yes	25%	1
Yes	Yes	No	No	-	-	-	-	Yes	Yes	No	No	0%	1

E1. First, did your organization have specific plans to install the energy efficient [MEASURE] over a less efficient option before learning about the incentive?	E2. Prior to learning about the incentive, was the purchase of the energy-efficient [MEASURE] included in your organization's capital budget?	E3. Had your property ALREADY ordered or purchased the energy-efficient [MEASURE] BEFORE your organization heard about the Focus on Energy incentive?	E4. Would you have purchased and installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy?	E5. Would you have installed something without the incentive and information or education from Focus on Energy?	E6. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE] you installed?	E7. And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	E8. Without the incentive and information or education from Focus on Energy, would you have installed the energy-efficient [MEASURE]?	E9. When you say you would not have installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all?	E10. Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy-efficient as the [MEASURE][s] you installed?	E11. Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	E12. And, would you have installed the same energy-efficient [MEASURE]?	*Intention* FR Score	Count
Yes	Yes	No	No	-	-	-	-	Yes	No	-	-	0%	1
Yes	No	-	Yes	-	-	Yes	Yes	-	-	-	-	50%	3
Yes	No	-	Yes	-	-	Yes	Partial	-	-	-	-	25%	1
Yes	No	-	Yes	-	-	No	Partial	-	-	-	-	0%	1
Yes	No	-	No	-	-	-	-	Yes	Partial	No	Partial	0%	1
Yes	No	-	No	-	-	-	-	Partial	Yes	No	Yes	0%	1
Yes	No	-	No	-	-	-	-	No	-	-	-	0%	3
Partial	-	-	Yes	-	-	-	No	-	-	-	-	0%	1
Partial	-	-	Partial	No	-	-	-	-	-	-	-	0%	1
Partial	-	-	No	-	-	-	-	Yes	No	-	-	0%	1
No	-	-	Yes	-	-	Yes	Yes	-	-	-	-	50%	7
No	-	-	Yes	-	-	-	Yes	-	-	-	-	50%	4
No	-	-	Yes	-	-	Yes	Partial	-	-	-	-	25%	1
No	-	-	Yes	-	-	No	Partial	-	-	-	-	0%	2
No	-	-	Yes	-	-	No	No	-	-	-	-	0%	1
No	-	-	Partial	Yes	Partial	Yes	Partial	-	-	-	-	12.5%	1
No	-	-	No	-	-	-	-	Yes	Yes	Yes	Yes	25%	1
No	-	-	No	-	-	-	-	Yes	No	-	-	0%	1
No	-	-	No	-	-	-	-	Partial	Yes	No	Partial	0%	1
No	-	-	No	-	-	-	-	No	-	-	-	0%	9

Table K-93. Contractor – Agriculture Offering Frequency of *Intention* Freeridership Scoring Combinations

F1. At the time that you first started working with your contractor on this project, had you already purchased or installed the energy-efficient [MEASURE][s]?	F2. Did your organization have specific plans to install the energy-efficient [MEASURE][s] before you began working with your contractor?	F3. Before you began working with your contractor, was the purchase of the energy-efficient [MEASURE][s] included in your organization's capital budget?	F4. Did your contractor help your organization make the decision to include the purchase of the energy efficient [MEASURE][s] in your property's capital budget?	F5. Would you have purchased and installed the same energy-efficient [MEASURE][s] over a less efficient option without the assistance from your contractor and Focus on Energy?	F6. Would you have installed something without the involvement of your contractor and Focus on Energy?	F7. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE][s] you installed?	F8. [Ask if QTY>1] And without the assistance from your contractor and Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	F9. Without the assistance from your contractor and Focus on Energy, would you have installed the energy-efficient [MEASURE][s]?	F10. When you say you would not have installed the same [MEASURE][s] over a less efficient option without the assistance from your contractor and Focus on Energy, would you have installed anything at all?	F11. Without the assistance from your contractor and Focus on Energy, would you have installed something that was just as energy efficient as the [MEASURE][s] you installed?	F12. [Ask if QTY>1] Without the assistance from your contractor and Focus on Energy would you have installed the same number of energy-efficient [MEASURE][s]?	F13. And, when would you have installed the same energy-efficient [MEASURE][s]?	*Intention* FR Score	Count
No	Yes	Yes	Yes	Yes	-	-	Yes	Yes	-	-	-	-	100%	1
No	Yes	No	-	No	-	-	-	-	No	-	-	-	0%	2
No	No	-	Yes	Yes	-	-	-	Yes	-	-	-	-	50%	1
No	Yes	Yes	No	No	-	-	-	-	Yes	-	No	Partial	0%	1
No	No	-	No	Yes	-	-	-	Yes	-	-	-	-	12.5%	1
No	No	-	No	No	-	-	-	-	No	-	-	-	0%	2

The evaluation team estimated *intention* freeridership scores for all participants based on the responses of 67 participants to the *intention*-focused freeridership questions. As shown in Table K-94, the Agriculture offering had an *intention* freeridership score of 23%.

Table K-94. Agriculture Offering *Intention* Freeridership Results

Analysis Category	n	*Intention* FR Score	Percentage of Total Analysis Sample Gross Savings
Incentive	59	26% [a]	87%
Contractor	8	1% [a]	13%
Overall	**67**	**23%[b]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

[b] Weighted by percentage of total analysis sample gross savings.

Influence *Freeridership Analysis*

The evaluation team assessed *influence* freeridership by asking participants how important various offering elements were in their purchasing decisions. Table K-95 shows the offering elements participants rated for importance, along with a count and average rating for each factor.

Table K-95. Agriculture Offering *Influence* Freeridership Responses

Influence Rating	Influence FR Score	The Focus on Energy incentive or discount		Recommendation from contractor or vendor		Information provided by Focus on Energy on energy savings opportunities		Recommendation from a contractor or vendor		Previous participation in a Focus on Energy energy-efficiency offering	
		Incentive	Contractor	Incentive	Contractor	Incentive	Contractor	Incentive	Contractor	Incentive	Contractor
1 - Not at all important	100%	3	1	20	3	9	0	4	0	7	2
2	75%	3	0	5	2	6	2	2	2	7	2
3	50%	11	1	13	1	17	2	8	0	13	0
4	25%	10	0	11	1	12	1	12	1	13	3
5 - Very important	0%	32	6	7	1	13	3	33	5	18	1
Don't know	50%	0	0	3	0	2	0	0	0	1	0
Average Rating		**4.1**	**4.3**	**2.6**	**2.4**	**3.2**	**3.6**	**4.2**	**4.1**	**3.5**	**2.9**

The team determined each respondent's *influence* freeridership score for each analysis category, using the maximum rating provided for any factor included in Table K-95. As shown in Table K-96, the respondents' maximum influence ratings ranged from 1 (*not at all important*) to 5 (*very important*). A maximum score of 1 meant the customer ranked all factors from the table as *not at all important*, while a maximum score of 5 means the customer ranked at least one factor *very important*. Counts refer to the number of "maximum influence" responses for each factor, or *influence* freeridership score, response option.

Table K-96. Agriculture Offering *Influence* Freeridership Score

Maximum Influence Rating	*Influence* FR Score	Incentive - Count	Contractor - Count
1 - Not at all important	100%	1	0
2	75%	1	0
3	50%	2	1
4	25%	6	0
5 - Very important	0%	49	7
Average Maximum Influence Rating - Simple Average		**4.7**	**4.8**
Average Influence Score - Weighted by Verified Lifecycle MMBtu Gross Savings		**7%**	**1%**
Percentage of Total Analysis Sample Gross Savings		**87%**	**13%**
Average Offering Influence FR Score - Weighted by Percentage of Total Analysis Sample Gross Savings		**6%**	

The average overall *influence* freeridership score of 6% for the Agriculture offering is weighted by the percentage of total analysis sample gross savings that the incentive focused and contractor focused analysis category respondents represented out of the overall analysis sample.

Final Freeridership

The evaluation team calculated the mean of the overall *intention* and the overall *influence* of freeridership components to estimate final freeridership for the analysis categories. A higher freeridership score translates to more savings that are deducted from the gross savings estimates. Table K-97 lists the *intention*, *influence*, and final freeridership scores for Agriculture offering.

Table K-97. Agriculture Offering Freeridership Score

Analysis Category	n	*Intention* FR Score	*Influence* FR Score	Final Freeridership Score	Percentage of Total Analysis Sample Gross Savings
Incentive	59	26%[a]	7%	17%	87%
Contractor	8	1%[a]	1%	1%	13%
Overall	**67**	**23%[b]**	**6%**	**15%[b]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

[b] Weighted by percentage of total analysis sample gross savings.

Participant Spillover Analysis

The evaluation team estimated participant spillover based on answers from respondents who purchased additional high-efficiency equipment or appliances following their participation in the Agriculture offering. The evaluation team applied evaluated and deemed savings to the spillover measures that customers said they had installed as a result of their offering participation, presented in Table K-98.

Table K-98. Agriculture Offering Participant Spillover Measures and Savings

Spillover Measure	Quantity	Total MMBtu Lifecycle Gross Savings Estimate
LED Lighting	103	616
Fre-Heater	1	474
Ventilation Fans	3	348

Next, the evaluation team divided the sample spillover savings by the offering gross savings from the entire survey sample, as shown in this equation:

$$Spillover\ \% = \frac{\sum \text{Spillover Measure EnergySavings for All Survey Respondents}}{\sum \text{Offering Measure Energy Savings for All Survey Respondents}}$$

This yielded a 1% spillover estimate, when rounded to the nearest whole percentage, for the Agriculture offering respondents (Table K-99).

Table K-99. Agriculture Offering Participant Spillover Percentage Estimate

Variable	Total Verified Lifecycle MMBtu Gross Savings Estimate
Spillover Savings	1,438
Offering Savings	123,882
Spillover Estimate	**1%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-100:

NTG = 1 – Freeridership + Spillover

Table K-100. Agriculture Offering NTG Estimates

Analysis Category	n	Freeridership	Spillover	NTG	Percentage of Total Survey Sample Savings
Incentive	59	17%	1%	84%	87%
Contractor	8	1%	1%	100%	13%
Overall	**67**	**15%[a]**	**1%**	**86%[a]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Commercial and Industrial Offering Findings

Intention Freeridership Analysis

Table K-101 and Table K-102 show the unique response combinations from participants answering the Commercial and Industrial offering *intention* freeridership incentive and contractor freeridership questions (actual responses mapped to yes, no, or partial, as indicative of freeridership), the *intention* freeridership score assigned to each combination, and the number of responses. The evaluation team calculated an *intention* freeridership score for the offering based on the savings weighted average of the distribution of scores within the matrix.

Table K-101. Incentive – Commercial and Industrial Offering Frequency of *Intention* Freeridership Scoring Combinations

F1. First, did your organization have specific plans to install the energy efficient [MEASURE] over a less efficient option before learning about the incentive?	F2. Prior to learning about the incentive, was the purchase of the energy-efficient [MEASURE] included in your organization's capital budget?	F3. Had your property ALREADY ordered or purchased the energy-efficient [MEASURE] BEFORE your organization heard about the Focus on Energy incentive?	F4. Would you have purchased and installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy?	F5. Would you have installed something without the incentive and information or education from Focus on Energy?	F6. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE] you installed?	F7. And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	F8. Without the incentive and information or education from Focus on Energy, would you have installed the energy-efficient [MEASURE]?	F9. When you say you would not have installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all?	F10. Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy-efficient as the [MEASURE][s] you installed?	F11. Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	F12. And, would you have installed the same energy-efficient [MEASURE]?	*Intention* FR Score	Count
Yes	Yes	Yes	-	-	-	-	-	-	-	-	-	100%	5
Yes	Yes	No	Yes	-	-	Yes	Yes	-	-	-	-	100%	6
Yes	Yes	No	Yes	-	-	Yes	Partial	-	-	-	-	75%	1
Yes	Yes	No	Partial	Yes	Yes	No	Yes	-	-	-	-	50%	1
Yes	Yes	No	Partial	Yes	Yes	No	Partial	-	-	-	-	25%	1
Yes	Yes	No	Partial	No	-	-	-	-	-	-	-	0%	1
Yes	Yes	No	No	-	-	-	-	Yes	Yes	Yes	Yes	75%	1
Yes	Yes	No	No	-	-	-	-	Yes	Partial	Yes	Yes	50%	1
Yes	Yes	No	No	-	-	-	-	Yes	Partial	Yes	Partial	25%	1
Yes	Yes	No	No	-	-	-	-	Yes	No	-	-	0%	1
Yes	Partial	-	Yes	-	-	Yes	Partial	-	-	-	-	50%	1
Yes	No	-	Yes	-	-	Yes	Yes	-	-	-	-	50%	7
Yes	No	-	Yes	-	-	Yes	Partial	-	-	-	-	25%	1
Yes	No	-	Yes	-	-	No	Yes	-	-	-	-	12.5%	1
Yes	No	-	Partial	Yes	No	-	-	-	-	-	-	0%	1
Yes	No	-	Partial	Partial	-	-	-	-	-	-	-	25%	1
Yes	No	-	No	-	-	-	-	Yes	Yes	No	Partial	0%	1
Yes	No	-	No	-	-	-	-	Yes	No	-	-	0%	2
Yes	No	-	No	-	-	-	-	No	-	-	-	0%	1
Partial	-	-	Yes	-	-	Yes	No	-	-	-	-	0%	1

F1. First, did your organization have specific plans to install the energy efficient [MEASURE] over a less efficient option before learning about the incentive?	F2. Prior to learning about the incentive, was the purchase of the energy-efficient [MEASURE] included in your organization's capital budget?	F3. Had your property ALREADY ordered or purchased the energy-efficient [MEASURE] BEFORE your organization heard about the Focus on Energy incentive?	F4. Would you have purchased and installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy?	F5. Would you have installed something without the incentive and information or education from Focus on Energy?	F6. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE] you installed?	F7. And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	F8. Without the incentive and information or education from Focus on Energy, would you have installed the energy-efficient [MEASURE]?	F9. When you say you would not have installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all?	F10. Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy-efficient as the [MEASURE][s] you installed?	F11. Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	F12. And, would you have installed the same energy-efficient [MEASURE]?	*Intention* FR Score	Count
Partial	-	-	Yes	-	-	No	Partial	-	-	-	-	12.5%	1
Partial	-	-	No	-	-	-	-	Yes	Yes	Yes	No	0%	1
Partial	-	-	No	-	-	-	-	Yes	Partial	Yes	Partial	12.5%	1
Partial	-	-	No	-	-	-	-	No	-	-	-	0%	1
No	-	-	Yes	-	-	Yes	Yes	-	-	-	-	50%	20
No	-	-	Yes	-	-	Yes	Partial	-	-	-	-	25%	11
No	-	-	Yes	-	-	Yes	No	-	-	-	-	0%	3
No	-	-	Yes	-	-	No	Yes	-	-	-	-	12.5%	1
No	-	-	Yes	-	-	No	Partial	-	-	-	-	0%	4
No	-	-	Yes	-	-	No	No	-	-	-	-	0%	7
No	-	-	Partial	Yes	Yes	Yes	Yes	-	-	-	-	50%	2
No	-	-	Partial	Yes	Yes	No	No	-	-	-	-	0%	1
No	-	-	Partial	Yes	No	-	-	-	-	-	-	0%	2
No	-	-	Partial	Yes	Partial	Yes	Yes	-	-	-	-	25%	2
No	-	-	No	-	-	-	-	Yes	Yes	Yes	Yes	25%	1
No	-	-	No	-	-	-	-	Yes	Yes	Yes	Partial	12.5%	2
No	-	-	No	-	-	-	-	Yes	Yes	No	Partial	0%	1
No	-	-	No	-	-	-	-	Yes	Partial	Yes	Yes	12.5%	1
No	-	-	No	-	-	-	-	Yes	No	-	-	0%	6
No	-	-	No	-	-	-	-	Partial	No	-	-	0%	1
No	-	-	No	-	-	-	-	No	-	-	-	0%	13

Table K-102. Contractor - Commercial and Industrial Offering Frequency of *Intention* Freeridership Scoring Combinations

G1. At the time that you first started working with your contractor on this project, had you already purchased or installed the energy-efficient [MEASURE][s]?	G2. Did your organization have specific plans to install the energy-efficient [MEASURE][s] before you began working with your contractor?	G3. Before you began working with your contractor, was the purchase of the energy-efficient [MEASURE][s] included in your organization's capital budget?	G4. Did your contractor help your organization make the decision to include the purchase of the energy efficient [MEASURE][s] in your property's capital budget?	G5. Would you have purchased and installed the same energy-efficient [MEASURE][s] over a less efficient option without the assistance from your contractor and Focus on Energy?	G6. Would you have installed something without the involvement of your contractor and Focus on Energy?	G7. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE][s] you installed?	G8. [Ask if QTY>1] And without the assistance from your contractor and Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	G9. Without the assistance from your contractor and Focus on Energy, would you have installed the energy-efficient [MEASURE][s]?	G10. When you say you would not have installed the same [MEASURE][s] over a less efficient option without the assistance from your contractor and Focus on Energy, would you have installed anything at all?	G11. Without the assistance from your contractor and Focus on Energy, would you have installed something that was just as energy efficient as the [MEASURE][s] you installed?	G12. [Ask if QTY>1] Without the assistance from your contractor and Focus on Energy would you have installed the same number of energy-efficient [MEASURE][s]?	G13. And, when would you have installed the same energy-efficient [MEASURE][s]?	*Intention* FR Score	Count
Yes	-	-	-	-	-	-	-	-	-	-	-	-	100%	4
No	Yes	Yes	Yes	Yes	-	-	Yes	Yes	-	-	-	-	100%	1
No	Yes	No	-	Yes	-	-	-	No	-	-	-	-	0%	1
No	Yes	No	-	Yes	-	-	Yes	Yes	-	-	-	-	50%	1
No	Yes	No	-	Yes	-	-	Yes	Partial	-	-	-	-	25%	1
No	Yes	No	-	No	-	-	-	-	Yes	No	-	-	0%	1
No	Yes	No	-	No	-	-	-	-	No	-	-	-	0%	2
No	No	-	Yes	Yes	-	-	No	Partial	-	-	-	-	0%	1
No	No	-	Yes	Partial	No	-	-	-	-	-	-	-	0%	1
No	No	-	Yes	No	-	-	-	-	No	-	-	-	0%	1
No	Yes	Yes	No	No	-	-	-	-	Yes	Yes	Yes	Yes	25%	1
No	Yes	Yes	No	No	-	-	-	-	Yes	No	-	-	0%	1
No	Partial	-	No	Yes	-	-	Yes	Yes	-	-	-	-	25%	1
No	No	-	No	Yes	-	-	Yes	Partial	-	-	-	-	0%	1
No	No	-	No	Yes	-	-	Partial	Yes	-	-	-	-	0%	1
No	No	-	No	No	-	-	-	-	Yes	Yes	Yes	Yes	0%	1
No	No	-	No	No	-	-	-	-	No	-	-	-	0%	5

The evaluation team estimated *intention* freeridership scores for all participants based on the responses of 143 participants to the *intention*-focused freeridership questions. As shown in Table K-103, the Commercial and Industrial offering had an *intention* freeridership score of 32%.

Table K-103. Commercial and Industrial Offering *Intention* Freeridership Results

Analysis Category	n	*Intention* FR Score	Percentage of Total Analysis Sample Gross Savings
Incentive	118	33% [a]	88%
Contractor	25	23% [a]	12%
Overall	**143**	**32%[b]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

[b] Weighted by percentage of total analysis sample gross savings.

Influence *Freeridership Analysis*

The evaluation team assessed *influence* freeridership by asking participants how important various offering elements were in their purchasing decisions. Table K-104 shows the offering elements participants rated for importance, along with a count and average rating for each factor.

Table K-104. Commercial and Industrial Offering *Influence* Freeridership Responses

Influence Rating	Influence FR Score	The Focus on Energy incentive or discount		Recommendation from contractor or vendor		Information provided by Focus on Energy on energy savings opportunities		Recommendation from a contractor or vendor		Previous participation in a Focus on Energy energy-efficiency offering	
		Incentive	Contractor	Incentive	Contractor	Incentive	Contractor	Incentive	Contractor	Incentive	Contractor
1 - Not at all important	100%	7	2	42	14	21	8	19	1	37	11
2	75%	3	0	14	1	13	3	7	1	14	4
3	50%	26	4	28	4	30	7	18	4	19	5
4	25%	35	3	12	3	22	3	21	11	24	3
5 - Very important	0%	47	16	20	3	31	4	53	8	23	2
Don't know	50%	0	0	2	0	1	0	0	0	1	0
Average Rating		**3.9**	**4.2**	**2.6**	**2.2**	**3.2**	**2.7**	**3.7**	**4.0**	**2.8**	**2.2**

The team determined each respondent's *influence* freeridership score for each analysis category, using the maximum rating provided for any factor included in Table K-105. As the table shows, the respondents' maximum influence ratings ranged from 1 (*not at all important*) to 5 (*very important*). A maximum score of 1 meant the customer ranked all factors from the table as *not at all important*, while a maximum score of 5 means the customer ranked at least one factor *very important*. Counts refer to the number of "maximum influence" responses for each factor, or *influence* freeridership score, response option.

Table K-105. Commercial and Industrial Offering *Influence* Freeridership Score

Maximum Influence Rating	*Influence* FR Score	Incentive - Count	Contractor - Count
1 - Not at all important	100%	1	1
2	75%	0	0
3	50%	9	2
4	25%	26	4
5 - Very important	0%	82	18
Average Maximum Influence Rating - Simple Average		**4.6**	**4.5**
Average Influence Score - Weighted by Verified Lifecycle MMBtu Gross Savings		**16%**	**3%**
Percentage of Total Analysis Sample Gross Savings		**88%**	**12%**
Average Offering Influence FR Score - Weighted by Percentage of Total Analysis Sample Gross Savings		**15%**	

The average overall *influence* freeridership score of 15% for the Commercial and Industrial offering is weighted by the percentage of total analysis sample gross savings that the incentive focused and contractor focused analysis category respondents represented out of the overall analysis sample.

Final Freeridership

The evaluation team calculated the mean of the overall *intention* and the overall *influence* of freeridership components to estimate final freeridership for the analysis categories. A higher freeridership score translates to more savings that are deducted from the gross savings estimates. Table K-106 lists the *intention*, *influence*, and final freeridership scores for Commercial and Industrial offering.

Table K-106. Commercial and Industrial Offering Freeridership Score

Analysis Category	n	*Intention* Freeridership Score	*Influence* Freeridership Score	Final Freeridership Score	Percentage of Total Analysis Sample Gross Savings
Incentive	118	33%[a]	16%	25%	88%
Contractor	25	23%[a]	3%	13%	12%
Overall	**143**	**32%[b]**	**15%**	**24%[b]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

[b] Weighted by percentage of total analysis sample gross savings.

Participant Spillover Analysis

The evaluation team estimated participant spillover based on answers from respondents who purchased additional high-efficiency equipment or appliances following their participation in the Commercial and Industrial offering. The evaluation team applied evaluated and deemed savings to the spillover measures that customers said they had installed as a result of their offering participation, presented in Table K-107.

Table K-107. Commercial and Industrial Offering Participant Spillover Measures and Savings

Spillover Measure	Quantity	Total MMBtu Lifecycle Gross Savings Estimate
LED Lighting	178	1,032
Boiler	4	2,576
Infrared Heating	3	3,650

Next, the evaluation team divided the sample spillover savings by the offering gross savings from the entire survey sample, as shown in this equation:

$$Spillover\ \% = \frac{\sum \text{Spillover Measure EnergySavings for All Survey Respondents}}{\sum \text{Offering Measure Energy Savings for All Survey Respondents}}$$

This yielded a 1% spillover estimate, when rounded to the nearest whole percentage, for the Commercial and Industrial offering respondents (Table K-108).

Table K-108. Commercial and Industrial Offering Participant Spillover Percentage Estimate

Variable	Total Verified Lifecycle MMBtu Gross Savings Estimate
Spillover Savings	7,258
Offering Savings	484,127
Spillover Estimate	**1%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-109:

NTG = 1 – Freeridership + Spillover

Table K-109. Commercial and Industrial Offering NTG Estimates

Analysis Category	n	Freeridership	Spillover	NTG	Percentage of Total Survey Sample Savings
Incentive	118	25%	1%	76%	88%
Contractor	25	13%	1%	88%	12%
Overall	**143**	**24%[a]**	**1%**	**77%[a]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Large Industrial Offering Findings

Intention Freeridership Analysis

Table K-110 and Table K-111 show the unique response combinations from participants answering the Large Industrial offering *intention* freeridership incentive and contractor freeridership questions (actual responses mapped to yes, no, or partial, as indicative of freeridership), the *intention* freeridership score assigned to each combination, and the number of responses. The evaluation team calculated an *intention* freeridership score for the offering based on the savings weighted average of the distribution of scores within the matrix.

Table K-110. Incentive – Large Industrial Offering Frequency of *Intention* Freeridership Scoring Combinations

E1. First, did your organization have specific plans to install the energy efficient [MEASURE] over a less efficient option before learning about the incentive?	E2. Prior to learning about the incentive, was the purchase of the energy-efficient [MEASURE] included in your organization's capital budget?	E3. Had your property ALREADY ordered or purchased the energy-efficient [MEASURE] BEFORE your organization heard about the Focus on Energy incentive?	E4. Would you have purchased and installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy?	E5. Would you have installed something without the incentive and information or education from Focus on Energy?	E6. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE] you installed?	E7. And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	E8. Without the incentive and information or education from Focus on Energy, would you have installed the energy-efficient [MEASURE]?	E9. When you say you would not have installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all?	E10. Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy-efficient as the [MEASURE][s] you installed?	E11. Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	E12. And, would you have installed the same energy-efficient [MEASURE]?	*Intention* FR Score	Count
Yes	Yes	Yes	-	-	-	-	-	-	-	-	-	100%	3
Yes	Yes	No	Yes	-	-	Yes	Yes	-	-	-	-	100%	7
Yes	Yes	No	Partial	Yes	No	-	-	-	-	-	-	0%	2
Yes	Yes	No	No	-	-	-	-	Yes	No	-	-	0%	1
Yes	No	-	Yes	-	-	Yes	Yes	-	-	-	-	50%	1
Yes	No	-	No	-	-	-	-	Yes	Partial	Yes	Yes	12.5%	1
Yes	No	-	No	-	-	-	-	Yes	No	-	-	0%	1
Partial	-	-	Yes	-	-	Yes	Yes	-	-	-	-	75%	1
Partial	-	-	No	-	-	-	-	Yes	Yes	Yes	No	0%	1
Partial	-	-	No	-	-	-	-	Partial	Partial	Partial	Partial	0%	1
No	-	-	Yes	-	-	Yes	Yes	-	-	-	-	50%	6
No	-	-	Yes	-	-	Yes	Partial	-	-	-	-	25%	4
No	-	-	Yes	-	-	Yes	No	-	-	-	-	0%	3
No	-	-	Yes	-	-	No	Partial	-	-	-	-	0%	2
No	-	-	Partial	Yes	No	-	-	-	-	-	-	0%	1
No	-	-	Partial	Partial	-	-	-	-	-	-	-	25%	2
No	-	-	Partial	No	-	-	-	-	-	-	-	0%	1
No	-	-	No	-	-	-	-	Yes	Yes	Yes	Yes	25%	1
No	-	-	No	-	-	-	-	No	-	-	-	0%	5

Table K-111. Contractor - Large Industrial Offering Frequency of *Intention* Freeridership Scoring Combinations

F1. At the time that you first started working with your contractor on this project, had you already purchased or installed the energy-efficient [MEASURE][s]?	F2. Did your organization have specific plans to install the energy-efficient [MEASURE][s] before you began working with your contractor?	F3. Before you began working with your contractor, was the purchase of the energy-efficient [MEASURE][s] included in your organization's capital budget?	F4. Did your contractor help your organization make the decision to include the purchase of the energy efficient [MEASURE][s] in your property's capital budget?	F5. Would you have purchased and installed the same energy-efficient [MEASURE][s] over a less efficient option without the assistance from your contractor and Focus on Energy?	F6. Would you have installed something without the involvement of your contractor and Focus on Energy?	F7. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE][s] you installed?	F8. [Ask if QTY>1] And without the assistance from your contractor and Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	F9. Without the assistance from your contractor and Focus on Energy, would you have installed the energy-efficient [MEASURE][s]?	F10. When you say you would not have installed the same [MEASURE][s] over a less efficient option without the assistance from your contractor and Focus on Energy, would you have installed anything at all?	F11. Without the assistance from your contractor and Focus on Energy, would you have installed something that was just as energy efficient as the [MEASURE][s] you installed?	F12. [Ask if QTY>1] Without the assistance from your contractor and Focus on Energy would you have installed the same number of energy-efficient [MEASURE][s]?	F13. And, when would you have installed the same energy-efficient [MEASURE][s]?	*Intention* FR Score
Yes	-	-	-	-	-	-	-	-	-	-	-	-	100%
No	Yes	Yes	Yes	Yes	-	-	Yes	Yes	-	-	-	-	100%
No	Yes	No	-	No	-	-	-	-	Yes	No	-	-	0%
No	No	-	No	No	-	-	-	-	No	-	-	-	0%

The evaluation team estimated *intention* freeridership scores for all participants based on the responses of 49 participants to the *intention*-focused freeridership questions. As shown in Table K-112, the Large Industrial offering had an *intention* freeridership score of 43%.

Table K-112. Large Industrial Offering *Intention* Freeridership Results

Analysis Category	n	*Intention* FR Score	Percentage of Total Analysis Sample Gross Savings
Incentive	44	43% [a]	98%
Contractor	5	36% [a]	2%
Overall	**49**	**43%[b]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

[b] Weighted by percentage of total analysis sample gross savings.

Influence *Freeridership Analysis*

The evaluation team assessed *influence* freeridership by asking participants how important various offering elements were in their purchasing decisions. Table K-113 shows the offering elements participants rated for importance, along with a count and average rating for each factor.

Table K-113. Large Industrial Offering *Influence* Freeridership Responses

Influence Rating	Influence FR Score	The Focus on Energy incentive or discount		Recommendation from contractor or vendor		Information provided by Focus on Energy on energy savings opportunities		Recommendation from a contractor or vendor		Previous participation in a Focus on Energy energy-efficiency offering	
		Incentive	Contractor	Incentive	Contractor	Incentive	Contractor	Incentive	Contractor	Incentive	Contractor
1 - Not at all important	100%	0	0	6	1	5	0	4	0	6	0
2	75%	6	0	9	0	4	0	8	0	4	0
3	50%	11	1	7	2	13	4	7	0	13	1
4	25%	17	1	13	1	11	0	12	2	14	3
5 - Very important	0%	9	3	8	1	11	1	13	3	5	1
Don't know	50%	1	0	1	0	0	0	0	0	2	0
Average Rating		**3.7**	**4.4**	**3.2**	**3.2**	**3.4**	**3.4**	**3.5**	**4.6**	**3.2**	**4.0**

The team determined each respondent's *influence* freeridership score for each analysis category, using the maximum rating provided for any factor included in Table K-114. As the table shows, the respondents' maximum influence ratings ranged from 1 (*not at all important*) to 5 (*very important*). A maximum score of 1 meant the customer ranked all factors from the table as *not at all important*, while a maximum score of 5 means the customer ranked at least one factor *very important*. Counts refer to the number of "maximum influence" responses for each factor, or *influence* freeridership score, response option.

Table K-114. Large Industrial Offering *Influence* Freeridership Score

Maximum Influence Rating	*Influence* FR Score	Incentive - Count	Contractor - Count
1 - Not at all important	100%	1	0
2	75%	0	0
3	50%	3	0
4	25%	16	0
5 - Very important	0%	24	5
Average Maximum Influence Rating - Simple Average		**4.4**	**5.0**
Average Influence Score - Weighted by Verified Lifecycle MMBtu Gross Savings		**13%**	**0%**
Percentage of Total Analysis Sample Gross Savings		**98%**	**2%**
Average Offering Influence FR Score - Weighted by Percentage of Total Analysis Sample Gross Savings		**13%**	

The average overall *influence* freeridership score of 13% for the Large Industrial offering is weighted by the percentage of total analysis sample gross savings that the incentive focused and contractor focused analysis category respondents represented out of the overall analysis sample.

Final Freeridership

The evaluation team calculated the mean of the overall *intention* and the overall *influence* of freeridership components to estimate final freeridership for the analysis categories. A higher freeridership score translates to more savings that are deducted from the gross savings estimates. Table K-115 lists the *intention*, *influence*, and final freeridership scores for Large Industrial offering.

Table K-115. Large Industrial Offering Freeridership Score

Analysis Category	n	*Intention* FR Score	*Influence* FR Score	Final Freeridership Score	Percentage of Total Analysis Sample Gross Savings
Incentive	44	43%[a]	13%	28%	98%
Contractor	5	36%[a]	0%	18%	2%
Overall	**49**	**43%[b]**	**13%**	**28%[b]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

[b] Weighted by percentage of total analysis sample gross savings.

Participant Spillover Analysis

The evaluation team estimated participant spillover based on answers from respondents who purchased additional high-efficiency equipment or appliances following their participation in the Large Industrial offering. The evaluation team applied evaluated and deemed savings to the spillover measures that customers said they had installed as a result of their offering participation, presented in Table K-116.

Table K-116. Large Industrial Offering Participant Spillover Measures and Savings

Spillover Measure	Quantity	Total MMBtu Lifecycle Gross Savings Estimate
Boilers	2	1,060
Energy Efficient Agitator	1	16,100
Insulation project	1	165

Next, the evaluation team divided the sample spillover savings by the offering gross savings from the entire survey sample, as shown in this equation:

$$Spillover\ \% = \frac{\sum \text{Spillover Measure Energy Savings for All Survey Respondents}}{\sum \text{Offering Measure Energy Savings for All Survey Respondents}}$$

This yielded a 2% spillover estimate, when rounded to the nearest whole percentage, for the Large Industrial offering respondents (Table K-117).

Table K-117. Large Industrial Offering Participant Spillover Percentage Estimate

Variable	Total Verified Lifecycle MMBtu Gross Savings Estimate
Spillover Savings	17,325
Offering Savings	1,097,290
Spillover Estimate	**2%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-118:

NTG = 1 – Freeridership + Spillover

Table K-118. Large Industrial Offering NTG Estimates

Analysis Category	n	Freeridership	Spillover	NTG	Percentage of Total Survey Sample Savings
Incentive	44	28%	2%	74%	98%
Contractor	5	18%	2%	84%	2%
Overall	**49**	**28%[a]**	**2%**	**74%[a]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Schools and Government Offering Findings

Intention Freeridership Analysis

Table K-119 show the unique response combinations from participants answering the Schools and Government offerings *intention* freeridership incentive focused freeridership questions (actual responses mapped to yes, no, or partial, as indicative of freeridership), the *intention* freeridership score assigned to each combination, and the number of responses. The evaluation team calculated an *intention* freeridership score for the offering based on the savings weighted average of the distribution of scores within the matrix.

Table K-119. Incentive – Schools and Government Offering Frequency of *Intention* Freeridership Scoring Combinations

E1. First, did your organization have specific plans to install the energy efficient [MEASURE] over a less efficient option before learning about the incentive?	E2. Prior to learning about the incentive, was the purchase of the energy-efficient [MEASURE] included in your organization's capital budget?	E3. Had your property ALREADY ordered or purchased the energy-efficient [MEASURE] BEFORE your organization heard about the Focus on Energy incentive?	E4. Would you have purchased and installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy?	E5. Would you have installed something without the incentive and information or education from Focus on Energy?	E6. When you say you would have installed something, would you have installed something that was just as energy efficient as the [MEASURE] you installed?	E7. And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	E8. Without the incentive and information or education from Focus on Energy, would you have installed the energy-efficient [MEASURE]?	E9. When you say you would not have installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all?	E10. Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy-efficient as the [MEASURE][s] you installed?	E11. Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	E12. And, would you have installed the same energy-efficient [MEASURE]?	*Intention* FR Score	Count
Yes	Yes	Yes	-	-	-	-	-	-	-	-	-	100%	3
Yes	Yes	No	Yes	-	-	Yes	Yes	-	-	-	-	100%	7
Yes	Yes	No	Partial	Yes	No	-	-	-	-	-	-	0%	2
Yes	Yes	No	No	-	-	-	-	Yes	No	-	-	0%	1
Yes	No	-	Yes	-	-	Yes	Yes	-	-	-	-	50%	1
Yes	No	-	No	-	-	-	-	Yes	Partial	Yes	Yes	12.5%	1
Yes	No	-	No	-	-	-	-	Yes	No	-	-	0%	1
Partial	-	-	Yes	-	-	Yes	Yes	-	-	-	-	75%	1
Partial	-	-	No	-	-	-	-	Yes	Yes	Yes	No	0%	1
Partial	-	-	No	-	-	-	-	Partial	Partial	Partial	Partial	0%	1
No	-	-	Yes	-	-	Yes	Yes	-	-	-	-	50%	6
No	-	-	Yes	-	-	Yes	Partial	-	-	-	-	25%	4
No	-	-	Yes	-	-	Yes	No	-	-	-	-	0%	3
No	-	-	Yes	-	-	No	Partial	-	-	-	-	0%	2
No	-	-	Partial	Yes	No	-	-	-	-	-	-	0%	1
No	-	-	Partial	Partial	-	-	-	-	-	-	-	25%	2
No	-	-	Partial	No	-	-	-	-	-	-	-	0%	1
No	-	-	No	-	-	-	-	Yes	Yes	Yes	Yes	25%	1
No	-	-	No	-	-	-	-	No	-	-	-	0%	5

The evaluation team estimated *intention* freeridership scores for all participants based on the responses of 49 participants to the *intention*-focused freeridership questions. As shown in Table K-120, the Schools and Government offerings had an *intention* freeridership score of 36%.

Table K-120. Schools and Government Offerings *Intention* Freeridership Results

Offering	n	*Intention* FR Score	Percentage of Total Analysis Sample Gross Savings
Schools	36	40% [a]	73%
Government	39	26% [a]	27%
Overall	**75**	**36%[b]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

[b] Weighted by percentage of total analysis sample gross savings.

Influence *Freeridership Analysis*

The evaluation team assessed *influence* freeridership by asking participants how important various offering elements were in their purchasing decisions. Table K-121 shows the offering elements participants rated for importance, along with a count and average rating for each factor.

Table K-121. Schools and Government Offerings *Influence* Freeridership Responses

Influence Rating	Influence FR Score	The Focus on Energy incentive or discount		Recommendation from contractor or vendor		Information provided by Focus on Energy on energy savings opportunities		Recommendation from a contractor or vendor		Previous participation in a Focus on Energy energy-efficiency offering	
		Schools	Government	Schools	Government	Schools	Government	Schools	Government	Schools	Government
1 - Not at all important	100%	7	2	12	6	5	8	6	6	9	7
2	75%	4	2	5	4	5	3	2	2	6	4
3	50%	10	8	8	11	6	11	6	6	9	5
4	25%	4	13	6	8	10	5	7	10	7	10
5 - Very important	0%	11	14	4	7	12	8	17	12	6	10
Don't know / Not Applicable	50%	0	0	1	3	1	1	1	0	2	0
Average Rating		**3.2**	**3.9**	**2.6**	**3.2**	**3.5**	**3.1**	**3.7**	**3.6**	**2.9**	**3.3**

The team determined each respondent's *influence* freeridership score for each offering, using the maximum rating provided for any factor included in Table K-122. As the table shows, the respondents' maximum influence ratings ranged from 1 (*not at all important*) to 5 (*very important*). A maximum score of 1 meant the customer ranked all factors from the table as *not at all important*, while a maximum score of 5 means the customer ranked at least one factor *very important*. Counts refer to the number of "maximum influence" responses for each factor, or *influence* freeridership score, response option.

Table K-122. Schools and Government Offerings *Influence* Freeridership Score

Maximum Influence Rating	*Influence* FR Score	Schools - Count	Government - Count
1 - Not at all important	100%	1	1
2	75%	0	0
3	50%	3	3
4	25%	12	8
5 - Very important	0%	20	27
Average Maximum Influence Rating - Simple Average		**4.4**	**4.5**
Average Influence Score - Weighted by Verified Lifecycle MMBtu Gross Savings		**20%**	**13%**
Percentage of Total Analysis Sample Gross Savings		**73%**	**27%**
Average Offering Influence FR Score - Weighted by Percentage of Total Analysis Sample Gross Savings		**18%**	

The average overall *influence* freeridership score of 18% for the Schools and Government offerings is weighted by the percentage of total analysis sample gross savings that the offering respondents represented.

Final Freeridership

The evaluation team calculated the mean of the overall *intention* and the overall *influence* of freeridership components to estimate final freeridership for the offerings. A higher freeridership score translates to more savings that are deducted from the gross savings estimates. Table K-123 lists the *intention*, *influence*, and final freeridership scores for Schools and Government offerings.

Table K-123. Schools and Government Offerings Freeridership Score

Analysis Category	n	*Intention* FR Score	*Influence* FR Score	Final Freeridership Score	Percentage of Total Analysis Sample Gross Savings
Schools	36	40%[a]	20%	30%	73%
Government	39	26%[a]	13%	20%	27%
Overall	**75**	**36%[b]**	**18%**	**27%[b]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

[b] Weighted by percentage of total analysis sample gross savings.

Participant Spillover Analysis

The evaluation team estimated participant spillover based on answers from respondents who purchased additional high-efficiency equipment or appliances following their participation in the Schools and Government offerings. The team applied evaluated and deemed savings to the spillover measures that customers said they had installed as a result of their participation, as presented in Table K-124.

Table K-124. Schools and Government Offerings Participant Spillover Measures and Savings

Spillover Measure	Quantity	Total MMBtu Lifecycle Gross Savings Estimate
Variable Speed Drive	3	1,500

Next, the evaluation team divided the sample spillover savings by the offering gross savings from the entire survey sample, as shown in this equation:

$$Spillover\ \% = \frac{\sum \text{Spillover Measure Energy Savings for All Survey Respondents}}{\sum \text{Offering Measure Energy Savings for All Survey Respondents}}$$

This yielded a 0% spillover estimate, when rounded to the nearest whole percentage, for the Schools and Government offerings respondents (Table K-125).

Table K-125. Schools and Government Offerings Participant Spillover Percentage Estimate

Variable	Total Verified Lifecycle MMBtu Gross Savings Estimate
Spillover Savings	1,500
Offering Savings	371,984
Spillover Estimate	**0%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-126:

NTG = 1 – Freeridership + Spillover

Table K-126. Schools and Government Offerings NTG Estimates

Analysis Category	n	Freeridership	Spillover	NTG	Percentage of Total Survey Sample Savings
Incentive	36	30%	0%	70%	73%
Contractor	39	20%	0%	80%	27%
Overall	**75**	**27%[a]**	**0%**	**73%[a]**	**100%**

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Energy Design Assistance/Energy Design Review Offering Self-Report NTG Methodology and Findings

The evaluation team calculated freeridership and participant spillover at the offering-level for the Nonresidential New Construction Solution using findings from surveys conducted with CY 2020 solution participants.

For the Energy Design Assistance/Energy Design Review offering, the evaluation team estimated two different intention-based freeridership scores: one for modeling assistance and another for the incentives. In addition, the team included an influence-based freeridership score and combined it with the average of the modeling assistance and incentive intention-based freeridership scores. The intention-based freeridership scoring was based on 10 questions: five questions that assessed the importance of the modeling assistance and five questions that assessed the participant's likelihood to install energy-efficient equipment or features without the incentives and assistance from the offering.

The evaluation team estimated net savings for the Nonresidential New Construction Prescriptive offering from surveys with CY 2020 participants and the methods followed the standard nonresidential downstream rebate protocol used for other nonresidential offerings.

Energy Design Assistance/Energy Design Review Offering Freeridership

Intention Freeridership Survey Questions

For the Energy Design Assistance/Energy Design Review offering, the participant's survey's intention freeridership sections included five questions focused on modeling assistance, and five questions focused on the incentives, all asked in the survey format and shown below:

- E1. Without this assistance, would your team have conducted energy modeling to the same extent during the early stages of the design process?
- E2. And would you have conducted the same energy modeling in the early stages without the modeling tools, consultation and input provided by Focus on Energy staff?
- E3. [IF NO TO E1, OR E2] Would you have done modeling in the early stages at all?
- E4. [IF E3= YES] How would the modeling you would have done been different from the modeling performed by offering staff? Would it have been…
- E5. How important was the energy modeling analysis in the early stages on your decision to add higher efficiency measures to the project? Were the recommendations…

The incentive focused intention freeridership questions included (asked in the survey format):

- E6. Without the incentive, would you have considered and implemented strategies that were just as efficient
- E7. Without the report, would you have considered and implemented strategies that were just as efficient?
- E8. Had the incentive or energy modeling not been available, when would you have considered and implemented the same energy efficiency strategies…
- E9. [ASK IF E8=1 OR 2] Before you became aware of the Focus on Energy's New Construction offerings, was the purchase and installation of the specific energy efficient strategies implemented included in your construction budget?
- E10. Did you expect an incentive for improved efficiency design when planning and budgeting for this project?

The influence-focused freeridership question asked participants to rate the level of influence—on a scale of 1 to 5, with 1 being *not at all influential* and 5 being *very influential*—of the following six factors in their decision to participate in the Energy Design Assistance/Energy Design Review offering:

- Total offering incentives
- Assistance provided by Focus on Energy staff in bundle selection
- Energy modeling results and report identifying energy saving options

- Information provided by Focus on Energy on energy savings opportunities
- Information provided by Focus on Energy on energy savings opportunities
- Previous participation in a Focus on Energy energy efficiency offering

Participant Freeridership Scoring

Modeling Assistance Focused (Intention) Freeridership Scoring

Each participant freeridership score started with 100%, which the evaluation team decremented based on the participant's responses to the five questions shown in Table K-127. Decrements are shown in parentheses following a response option.

Table K-127. Modeling Assistance Focused (Intention) Freeridership Scoring Legend

E1. Without this assistance, would your team have conducted energy modeling to the same extent during the early stages of the design process?	E2. And would you have conducted the same energy modeling in the early stages without the modeling tools, consultation and input provided by Focus on Energy staff?	E3. [IF NO TO E1, OR E2] Would you have done modeling in the early stages at all?	E4. [IF E3= YES] How would the modeling you would have done been different from the modeling performed by offering staff? Would it have been…	E5. How important was the energy modeling analysis in the early stages on your decision to add higher efficiency measures to the project? Were the recommendations…
Yes (-0%)	Yes (-0%)	Yes, would have done modeling (-0%)	Just as comprehensive as Focus on Energy modeling (-0%)	Very important (-25%)
No (-25%)	No (-25%)	No, would not have done modeling (-25%)	More comprehensive than Focus on Energy modeling (-0%)	Somewhat important (-12.5%)
Don't Know (-25%)	Don't Know (-25%)	Don't Know (-25%)	Less comprehensive than Focus on Energy modeling (-50%)	Not too important (-0%)
				Not at all important - (0%)
				Don't Know (-12.5%)

Incentive Focused (Intention) Freeridership Scoring

Each freeridership score started with 100%, which the evaluation team decremented based on the participant's responses to the five questions as shown in Table K-128. Decrements are shown in parentheses following a response option.

Table K-128. Incentive Focused (Intention) Freeridership Scoring Legend

E6. Without the incentive, would you have considered and implemented strategies that were just as efficient?	E7. Without the report, would you have considered and implemented strategies that were just as efficient?	E8. Had the incentive or energy modeling not been available, would you have installed the same energy efficient equipment…	E9. [ASK IF E6= 1 OR 2 AND E8=1 OR 2] Before you became aware of Focus on Energy's New Construction offerings, was the purchase and installation of the specific energy efficient strategies implemented included in your construction budget?	E10. Did you expect an incentive for improved energy efficiency design when planning budgeting for this project?
Yes - all (-0)	Yes - all (-0)	This year (-0%)	Yes (-0%)	Yes (-25%)
Yes - some (-25%)	Yes - some (-25%)	Within 1-2 years (- 50%)	No (-50%)	No (-0%)
No (-50%)	No (-50%)	More than 2 years (-100%)	Don't Know (-25%)	Don't Know (-0%)
		Never (-100%)		

Influence Focused Freeridership Scoring

The evaluation team used the maximum rating given by each participant for any offering factor addressed through the influence question to determine their influence freeridership score. Respondents were asked to rate each factor on a scale of 1 to 5, with 1 being *not at all influential* and 5 being *very influential*. Table K-129 presents the freeridership level implied by each influence rating.

Table K-129. Influence Focused - Freeridership Scoring Legend

Maximum Influence Rating	Influence Freeridership Score
1 - *Not at all influential*	100%
2	75%
3	50%
4	25%
5 - *Very influential*	0%

Freeridership Findings

The modeling assistance, incentive, and influence-focused freeridership scores had maximum values of 100%. The evaluation team took the average of the modeling assistance and incentive focus freeridership score and added it to the influence freeridership score to determine the final freeridership score for a participant. The team then calculated the overall offering-level freeridership estimate of 19% (rounded to the nearest whole percentage) by weighting participant's final freeridership scores by evaluated offering savings, as shown in Table K-130.

Table K-130. Energy Design Assistance/Energy Design Review Offering Freeridership Findings Summary

Respondents/Sites (n=17)	Modeling Assistance - Freeridership Score	Incentive – Freeridership Score	Average of Modeling Assistance & Incentive Freeridership Scores	Influence - Freeridership Score	Final Freeridership Score	Verified Gross Lifecycle MMBtu Savings
1	0.0%	N/A	0.0%	N/A	0.0%	-
2	0.0%	N/A	0.0%	N/A	0.0%	-
3	12.5%	0.0%	6.3%	0.0%	3.1%	1,922
4	0.0%	N/A	0.0%	N/A	0.0%	3,286
5	0.0%	N/A	0.0%	N/A	0.0%	132,647
6	0.0%	N/A	0.0%	N/A	0.0%	-
7	N/A	12.5%	12.5%	25.0%	18.8%	21,156
8	N/A	50.0%	50.0%	25.0%	37.5%	3,252
9	N/A	75.0%	75.0%	0.0%	37.5%	49
10	N/A	75.0%	75.0%	75.0%	75.0%	84,530
11	N/A	0.0%	0.0%	0.0%	0.0%	-
12	N/A	0.0%	0.0%	0.0%	0.0%	19,554
13	N/A	12.5%	12.5%	0.0%	6.3%	-
14	N/A	0.0%	0.0%	0.0%	0.0%	136,340
15	N/A	50.0%	50.0%	25.0%	37.5%	10,542
16	N/A	0.0%	0.0%	0.0%	0.0%	-
17	N/A	25.0%	25.0%	25.0%	25.0%	62,281
Overall Weighted Average	**0.2%**	**26%**	**19%**	**18%**	**19%**	**475,560**

Participant Spillover Analysis

The evaluation team determined that there was no spillover for the Energy Design Assistance/Energy Design Review offering based on self-report survey data. None of the surveyed participants attributed additional energy-efficient equipment purchases or energy modeling (for which they did not receive an incentive) to their participation in the Energy Design Assistance/Energy Design Review offering. This yielded 0% spillover (Table K-131).

Table K-131. Energy Design Assistance/Energy Design Review Offering Participant Spillover Percentage Estimate

Variable	Total Verified Gross Lifecycle MMBtu Savings Estimate
Spillover Savings	0
Offering Savings	475,560
Spillover Estimate	**0%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-132.

NTG = 1 – Freeridership + Spillover

Table K-132. Energy Design Assistance/Energy Design Review Offering NTG Estimates

n	Freeridership[a]	Spillover	NTG[a]
17	19%	0%	81%

[a] Weighted by verified lifecycle gross MMBtu savings.

Nonresidential New Construction Prescriptive Offering Self-Report NTG Methodology and Findings

Freeridership

Intention Freeridership Survey Questions

The participant survey's *intention* freeridership section included five questions. The *intention* freeridership questions included these (asked in the survey format):

- G3. First, did your organization have specific plans to install the energy-efficient [MEASURE][s] over a less efficient option before learning about the Focus on Energy incentive?
- G4. Prior to learning about the incentive, was the purchase of the energy-efficient [MEASURE][s] included in your project's budget?
- G5. Had the energy-efficient [MEASURE][s] ALREADY been ordered or purchased BEFORE you heard about the Focus on Energy incentive?
- G6. Would you have purchased and installed the same energy efficient [MEASURE][s] over a less efficient option without the incentive and information or education from Focus on Energy?
- G7. [ASK IF QUANTITY>1] And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE CATEGORY1][s]?

Convert Responses to Matrix Terminology

Table K-133 shows how the initial responses in the incentive-focused survey were translated into the responses *yes, no*, or *partially*, indicative of *intention* freeridership (in parentheses).

Table K-133. Nonresidential New Construction Prescriptive Offering Raw Survey Response Translation to *Intention* Freeridership Scoring Matrix Terminology

G3. First, did your organization have specific plans to install the energy efficient [MEASURE] over a less efficient option before learning about the Focus on Energy incentive?	G4. Prior to learning about the incentive, was the purchase of the energy-efficient [MEASURE] included in your project's capital budget?	G5. Had the energy-efficient [MEASURE] already been ordered or purchased before you heard about the Focus on Energy Incentive?	G6. Would you have purchased and installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy?	G7. And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?
Yes (Yes)	Yes (Yes)	Yes (Yes)	Yes (Yes)	Yes (Yes)
No (No)	No (No)	No (No)	No (No)	No (No)
Don't Know (Partial)	Don't Know (Partial)	Don't Know (No)	Don't Know (Partial)	Don't Know (Partial)
Refused (Partial)	Refused (Partial)	Refused (No)	Refused (Partial)	Refused (Partial)

Participant Intention *Freeridership Scoring*

The *intention* freeridership score started with 100%, which the evaluation team decremented based on the participant's responses to the 5 questions, as shown in Table K-134.

Table K-134. Nonresidential New Construction Prescriptive Offering *Intention* Freeridership Scoring Legend

Q#	Decrement
G3	50% decrement for "No," 25% decrement for "Partial"
G4	50% decrement for "No, 25% decrement for Partial
G5	100% FR if "Yes," 0% decrement for "No" level, "Partial" level not needed
G6	100% decrement for "No," 25% decrement for "Partial"
G7	50% decrement for "No," 50% decrement for "Partial"

Intention Freeridership Analysis

Table K-135 shows the unique response combinations from participants answering the Nonresidential New Construction Prescriptive offering *intention* freeridership questions (actual responses mapped to yes, no, or partial, as indicative of freeridership), the *intention* freeridership score assigned to each combination, and the number of responses. The evaluation team calculated an *intention* freeridership score for the offering based on the distribution of scores within the matrix.

Weighting individual respondent *intention* freeridership scores by verified lifecycle MMBtu gross savings resulted in a 20% *intention* freeridership score for Nonresidential New Construction Prescriptive offering.

Table K-135. Nonresidential New Construction Prescriptive Offering Frequency of *Intention* Freeridership Scoring Combinations

G3. First, did your organization have specific plans to install the energy efficient [MEASURE] over a less efficient option before learning about the Focus on Energy incentive?	G4. Prior to learning about the incentive, was the purchase of the energy-efficient [MEASURE] included in your project's capital budget?	G5. Had the energy-efficient [MEASURE] already been ordered or purchased before you heard about the Focus on Energy Incentive?	G6. Would you have purchased and installed the same energy-efficient [MEASURE] over a less efficient option without the incentive and information or education from Focus on Energy?	G7. And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient [MEASURE]?	*Intention* FR Score	Count
Yes	Yes	No	Yes	Partial	50%	1
No	-	-	Yes	Yes	50%	1
No	-	-	No	-	0%	7

Influence Freeridership Analysis

The evaluation team assessed *influence* freeridership by asking participants how important various offering elements were in their purchasing decisions. Table K-136 shows the offering elements participants rated for importance, along with a count and average rating for each factor.

Table K-136. Nonresidential New Construction Prescriptive Offering *Influence* Freeridership Responses

Influence Rating	*Influence* FR Score	Focus on Energy incentive or discount	Recommendation from Focus on Energy staff	Information provided by Focus on Energy on energy savings opportunities	Recommendation from a contractor or vendor	Previous participation in a Focus on Energy renewable energy or energy efficiency offering
1 - Not at all important	100%	0	1	0	2	0
2	75%	1	1	2	2	1
3	50%	1	2	0	0	0
4	25%	5	3	2	3	3
5 - Very important	0%	2	2	5	2	4
Don't know	50%	0	0	0	0	1
Average Rating		**3.9**	**3.4**	**4.1**	**3.1**	**4.3**

The team determined each respondent's *influence* freeridership rate for each measure category, using the maximum rating provided for any factor included in Table K-136. As shown in Table K-137, the respondents' maximum influence ratings ranged from 1 (*not at all important*) to 5 (*very important*). A maximum score of 1 meant the customer ranked all factors from the table as *not at all important*, while a maximum score of 4 means the customer ranked at least one factor *very important*. Counts refer to the number of "maximum influence" responses for each factor, or *influence* freeridership score, response option.

The average *influence* freeridership score of 17% for the Nonresidential New Construction Prescriptive offering is weighted by verified lifecycle MMBtu gross savings.

Table K-137. Nonresidential New Construction Prescriptive Offering *Influence* Freeridership Score

Maximum *Influence* Rating	*Influence* FR Score	Count
1 - Not at all important	100%	0
2	75%	1
3	50%	0
4	25%	2
5 - Very important	0%	6
Average Maximum Influence Rating - Simple Average		**4.4**
Average Influence Score - Weighted by Verified Lifecycle MMBtu Gross Savings		**17%**

Final Freeridership

The evaluation team calculated the mean of the overall *intention* and the overall *influence* of freeridership components to estimate final freeridership for the Nonresidential New Construction Prescriptive offering. A higher freeridership score means more savings are deducted from the gross savings estimates. Table K-138 lists *intention*, *influence*, and final freeridership scores for the offering.

Table K-138. Nonresidential New Construction Prescriptive Offering Freeridership Score

Offering	n	*Intention* FR Score	*Influence* FR Score	Final FR Score
Nonresidential New Construction Prescriptive	9	20%[a]	17%[a]	19%

[a] Weighted by verified lifecycle MMBtu gross energy savings.

Participant Spillover Analysis

None of the Nonresidential New Construction Prescriptive offering survey respondents reported purchasing or installing high-efficiency equipment after participating in the offering that was influenced by their participation in the offering. This yielded a 0% spillover estimate for the offering respondents (Table K-139).

Table K-139. Nonresidential New Construction Prescriptive Offering Participant Spillover Percentage Estimate

Variable	Total Verified Gross Lifecycle MMBtu Savings Estimate
Spillover Savings	0
Offering Savings	75,469
Spillover Estimate	**0%**

Final Net-to-Gross Analysis

The evaluation team combined the spillover information with the freeridership results to achieve the NTG ratios, using the following calculation, as shown in Table K-140.

NTG = 1 – Freeridership + Spillover

Table K-140. Nonresidential New Construction Prescriptive Offering NTG Estimates

n	Freeridership[a]	Spillover	NTG[a]
9	19%	0%	81%

[a] Weighted by verified lifecycle gross MMBtu savings.

Appendix L. Survey and Interview Instruments by Offering

This appendix includes the CY 2020 survey instruments and ongoing participant satisfaction survey questions for several offerings in Focus on Energy's residential and nonresidential sectors.

Customer Satisfaction Survey Questions

The administrator fielded online customer satisfaction surveys throughout CY 2020. The evaluation team fielded supplementary mail surveys for Trade Ally Solutions and all nonresidential offerings (Business and Industry Solutions, Schools and Government Solutions, and the Nonresidential New Construction Prescriptive Offering).

Table L-1 lists the ratings questions asked in the online and mail satisfaction surveys. All questions were based on a 0 to 10 scale, where 10 indicated the highest satisfaction or likelihood and 0 indicated the lowest satisfaction or likelihood. Five core ratings questions were asked across the surveys.

- **Overall satisfaction**: "Overall, how satisfied are you with your most recent experience with Focus on Energy?"
- **Staff satisfaction**: "How satisfied are you with the [energy advisor or] Focus on Energy staff member who assisted you with your project?"
- **Trade Ally satisfaction (all surveys except Direct To Customer Solutions)**: "How satisfied are you with the contractor that provided your [home/business/facility/school or government building] upgrades?"
- **Likelihood of recommending Focus on Energy**: "How likely are you to recommend Focus on Energy to others?"
- **Likelihood of implementing future improvement (all surveys except New Construction Solution)**: "How likely are you to initiate another energy efficiency improvement in the next 12 months?"

One additional rating question was limited to the Trade Ally Solutions survey:

- **Assessment contractor satisfaction**: "How satisfied are you with the contractor that completed your home assessment?"

Table L-1. CY 2020 Customer Satisfaction Survey Question Matrix: Ratings

Offering Survey	Offering Overall	Staff	Trade Allies	More Improvements	Recommend Focus on Energy	Other Ratings
Direct to Customer: Appliance Recycling Offering	✓	✓	-	✓	✓	-
Direct to Customer: Online Marketplace Offering	✓	✓	-	✓	✓	-
Direct to Customer: Packs Offering	✓	✓	-	✓	✓	-
Direct to Customer: Retail Lighting and Appliance – Retail Smart Thermostats Offering	✓	✓	-	✓	✓	-
Direct to Customer: Retail Lighting and Appliance –Retail Events Offering	✓	✓	-	✓	✓	-
Trade Ally Solutions	✓	✓	✓	✓	✓	✓
Business and Industry Solutions	✓	✓	✓	✓	✓	-
Schools and Government Solutions	✓	✓	✓	✓	✓	-
New Construction Solutions: Nonresidential Prescriptive Offering	✓	✓	✓	-	✓	-

Table L-2 lists the CY 2020 satisfaction survey questions that were not based on a rating. Three core questions were asked across surveys:

- **Comments and suggestions**: "Please tell us more about your experience and any suggestions for improvement."
- **Awareness of utility role:** "The Focus on Energy program you participated in is offered in partnership with your local energy utility. Before taking this survey, was this something you were aware of?"
- **Opinion of utility**: "How have these offerings affected your opinion of your utility, if at all?"

Four additional questions were specific to residential and nonresidential offerings:

- **Awareness sources (nonresidential only)**: "How did you learn about this particular opportunity from Focus on Energy?"
- **Focus on Energy assistance (nonresidential only)**: "Aside from providing project incentive dollars, how can Focus on Energy best support your organization going forward?"
- **Age (residential only)**: "Which of the following categories best represents your age?"
- **Income (residential only)**: "Which category best describes your total household income before taxes?"

Table L-2. CY 2020 Customer Satisfaction Survey Question Matrix: Non-Ratings

Offering Survey	Core Questions						
	Comments and Suggestions	Awareness of Utility Role	Opinion of Utility	Nonresidential		Residential	
				Awareness Source	Focus Assistance	Age	Income
Direct to Customer: Appliance Recycling Offering	✓	✓	✓	-	-	✓	✓
Direct to Customer: Online Marketplace Offering	✓	✓	✓	-	-	✓	✓
Direct to Customer: Packs Offering	✓	✓	✓	-	-	✓	✓
Direct to Customer: Retail Lighting and Appliance – Retail Smart Thermostats Offering	✓	✓	✓	-	-	✓	✓
Direct to Customer: Retail Lighting and Appliance – Pop-Up Retail Offering	✓	✓	✓	-	-	✓	✓
Trade Ally Solutions	✓	✓	✓	-	-	✓	✓
Business and Industry Solutions	✓	✓	✓	✓	✓	-	-
Schools and Government Solutions	✓	✓	✓	✓	✓	-	-
New Construction Solutions: Nonresidential Prescriptive Offering	✓	✓	✓	✓	✓	-	-

Survey Instruments

Survey instruments are included at the end of this appendix.

Residential Offerings

- **Direct to Customer Solution**
  - Residential Appliance Recycling Offering – 2020 Participant Telephone Survey
  - Online Marketplace Offering – 2020 Participant Survey
  - Packs Offering – 2020 Participant Survey
  - Retail and E-tail Events Offering – 2020 Participant Survey
- **Trade Ally Solutions**
  - Heating and Cooling Offering – 2020 Participant Survey
  - Insulation and Air Sealing Offering – 2020 Participant Survey

Nonresidential Offerings

- **Business and Industry Solution**
  - Agribusiness Offering – CY 2020 Participant Survey Questions
  - Commercial and Industrial Offering – CY 2020 Participant Survey Questions
  - Large Industrial – CY 2020 Participant Survey
- **Schools and Government Solution**
  - Schools and Government – CY 2020 Participant Survey

CADMUS

Wisconsin Focus on Energy
Residential Appliance Recycling Offering
2020 Participant Telephone Survey

Objective: The purpose of the survey is to assess offering awareness and motivations, inform the replacement rate calculations, the net-to-gross ratio, and to provide inputs for the gross savings algorithm.

Researchable Questions	Item
Screening criteria	A1 - A3
Are quantities in tracking database records accurate?	A4 - A7
How did participants become aware of this offering, and what is their awareness of other Focus On Energy offerings?	Section B
How were appliances used prior to being recycled and what portion of the year were they in use?	C1 - C3
Would recycled appliances have remained active on the grid in absence of the offering? / Freeridership	D1 - D16
What are participant demographics and household characteristics?	Section E

Target Quota = [170 completes, 100 refrigerator and 70 freezer participants. For participants who recycled both, the unit to be surveyed will be noted in the "APPLIANCE" field, see below.]

General Instructions

- Interviewer instructions are in green **[LIKE THIS]**.
- CATI programming instructions are in red ***[LIKE THIS]***
- Items that should not be read by the interviewer are in parentheses like this ( ).
- Questions with an asterisk (*) are core questions.

Variables to be Pulled into Survey

[CONTACT NAME] = [PAYEE FIRSTNAME AND LASTNAME]
[PickupDt] = [PICKUPDATE]
[APPLIANCE] = [TYPE]
[CONFIGURATION] = [TYPEDETAIL]
[REF_QTY] = [TYPE] AND [QUANTITY]
[FRZ_QTY] = [TYPE] AND [QUANTITY]
[AGE] = CREATE NEW VARIABLE [PICKUPDATE]-[YEAR]

A. Introduction

Hello, my name is _____ from _____. I'm calling on behalf of **Focus on Energy**. May I please speak to **[CONTACT NAME]**?

I am following up on your experience recycling a **[APPLIANCE]** through Focus on Energy.

A1. Are you the person in your household that is most familiar with this pick up?

1. (Yes)
2. (No)
98. (DON'T KNOW) **[ASK TO SPEAK WITH SOMEONE WHO KNOWS AND BEGIN AGAIN]**
99. (REFUSED) **[THANK AND TERMINATE]**

A2. **[ASK IF A1 = 2, 98]** May I please speak with that person? **[IF NOT AVAILABLE, ATTEMPT TO SCHEDULE A CALL BACK]**

1. (Yes)
2. (No) **[THANK AND TERMINATE]**
98. (DON'T KNOW)
99. (REFUSED) **[THANK AND TERMINATE]**

[TERMINATION SCRIPT: "Thank you very much for your time."]

A3. Great, Focus on Energy would like to make this service as effective as possible. Would you be willing to participate in a short survey to help Focus on Energy improve the Appliance Recycling offering? All your answers will be kept confidential.

1. (Yes)
2. (No) **[THANK AND TERMINATE]**
98. (DON'T KNOW)
99. (REFUSED) **[THANK AND TERMINATE]**

[If customer is wary of the survey, reassure them that you are not selling anything. If necessary, offer the following contact: MITCH HORRIE (608-267-3206) at the Wisconsin Public Service Commission as the person to contact with any questions about the validity of the research.]

[NOTE TO INTERVIEWER: If the respondent says that they have already been contacted by the program via an email/online survey or a postcard survey, the following response should be provided: *"Focus on Energy follows up with each participant to ensure that it has met its high customer service standards through a brief online or postcard questionnaire. The survey that I am calling about now explores additional questions to help improve the program's offerings."]*

A4. **[ASK IF REF_QTY > 0]** Our records indicate you recycled **[REF_QTY]** refrigerator(s) through Focus on Energy's offering on **[PickupDt]**. Is this correct? ***[If needed: specifically, a combination refrigerator and freezer, or a standalone refrigerator]***

1. (Yes, both quantity and date are correct)
2. (No, number of refrigerators is not correct)
3. (No, pickup date is not correct) **[RECORD CORRECT DATE]**
4. (No, did not recycle any refrigerators) **[THANK AND TERMINATE IF APPLIANCE = REFRIGERATOR]**

98. (DON'T KNOW)
99. (REFUSED) **[THANK AND TERMINATE IF APPLIANCE = REFRIGERATOR]**

A5. **[ASK IF A4=2 or 98]** How many refrigerators did you recycle through Focus on Energy?

1. **[RECORD QUANTITY]** **[CREATE VARIABLE V_REFQTY]**

98. (DON'T KNOW)
99. (REFUSED) **[THANK AND TERMINATE IF APPLIANCE = REFRIGERATOR]**

A6. **[ASK IF FRZ_QTY> 0]** Our records indicate you recycled **[FRZ_QTY]** freezer(s) through Focus on Energy's offering on **[PickupDt]**. Is this correct? ***[If needed: specifically a standalone freezer]***

1. (Yes, both quantity and date are correct)
2. (No, number of freezers is not correct)
3. (No, pickup date is not correct) **[RECORD CORRECT DATE]**
4. (No, we did not recycle any freezers) **[THANK AND TERMINATE IF APPLIANCE = FREEZER]**

98. (DON'T KNOW)
99. (REFUSED) **[THANK AND TERMINATE IF APPLIANCE = FREEZER]**

A7. **[ASK IF A6=2 or 98]** How many freezers did you recycle through Focus on Energy?

1. **[RECORD QUANTITY]** **[CREATE VARIABLE V_FRZQTY]**

98. (DON'T KNOW)
99. REFUSED **[THANK AND TERMINATE IF APPLIANCE = FREEZER]**

[TERMINATION SCRIPT: "Those are all the questions we have for you. Thank you very much for your time."]

B. Awareness

B1. *Where did you most recently hear about the Focus on Energy Appliance Recycling offering? **[DO NOT READ LIST, RECORD ONE ANSWER]**

1. (When I participated in another Focus on Energy offering)
2. (Utility bill insert / direct mail / brochure / postcard mail from utility))
3. (Focus on Energy Direct mail/brochure/postcard)
4. (Focus on Energy email)
5. (Utility email / electronic newsletter)
6. (Family / friends / word-of-mouth)
7. (Focus on Energy website)
8. (Utility website)
9. (Other website **[SPECIFY: _____])**
10. (Social Media such as Twitter, Facebook, Instagram, etc.)
11. (Internet advertising / online ad)
12. (Television)
13. (Radio)
14. (Print media - magazine, newspaper article or advertisement)
15. (Retailer / store – Sears, Best Buy, etc.)
16. (Focus on Energy representative)
17. (Utility representative)
18. (Community or utility event)
19. (Other, **[SPECIFY:_____]**)
98. (DON'T KNOW) [SKIP TO B3]
99. (REFUSED) [SKIP TO B3]

B2. *Are there any other ways you heard about the offering? **[DO NOT READ. RECORD ALL THAT APPLY. EXCLUDE RESPONSE FROM B1 UNLESS OTHER SPECIFY.]**

1. (No other way)
2. (When I participated in another Focus on Energy offering)
3. (Utility bill insert / direct mail / brochure / postcard mail from utility))
4. (Focus on Energy Direct mail/brochure/postcard)
5. (Focus on Energy email)
6. (Utility email / electronic newsletter)
7. (Family / friends / word-of-mouth)
8. (Focus on Energy website)
9. (Utility website)
10. (Other website **[SPECIFY: _____]**)
11. (Social Media such as Twitter, Facebook, Instagram, etc.)
12. (Internet advertising / online ad)
13. (Television)
14. (Radio)
15. (Print media - magazine, newspaper article or advertisement)
16. (Retailer / store – Sears, Best Buy, etc.)
17. (Focus on Energy representative)
18. (Utility representative)

19. (Community or utility event)
20. (Other, **[SPECIFY:_____]**)
98. (DON'T KNOW)
99. (REFUSED)

B3. *What do you think is the best way for Focus on Energy to inform the public about energy efficiency offerings? **[DO NOT READ. RECORD ALL THAT APPLY. EXCLUDE RESPONSE FROM B1 UNLESS OTHER SPECIFY.]**

1. (Promotion through other Focus on Energy offerings)
2. (Television)
3. (Radio)
4. (Print media, such as magazine, newspaper article or advertisement)
5. (Billboard/outdoor ad)
6. (Direct mail / brochure / postcard)
7. (Family / friends / word-of-mouth)
8. (Email from Focus on Energy)
9. (Focus on Energy or Utility website)
10. (Community or utility event)
11. (Other website: **SPECIFY:_____)**
12. (Social Media such as Twitter, Facebook, or Instagram)
13. (Other: **SPECIFY_____)**
14. (Do not want to receive information)
98. (DON'T KNOW)
99. (REFUSED)

B4. * What factor was the most important motivation for you to recycle your **[APPLIANCE]** through Focus on Energy?

1. (Save energy / don't waste energy / be more energy efficient)
2. (Reduce energy costs / lower bill)
3. (Convenience of free pick-up and removal)
4. (Good for the environment / environmentally safe disposal / recycled)
5. (Recommended by a friend / relative)
6. (Recommended by a retailer / dealer)
7. (Recommended by a contractor)
8. (Cash / rebate / incentive payment)
9. (Advertisement [newspaper, radio, online, etc.])
10. (Utility sponsorship of the offering)
11. (Other **[SPECIFY: _____])**
98. (DON'T KNOW)
99. (REFUSED)

B5. *Other than Focus on Energy's Appliance Recycling offering, are you aware of any other Focus on Energy offerings or rebates?

1. (Yes)
2. (No)
98. (DON'T KNOW)
99. (REFUSED)

B6. **[ASK IF B5=1]** *Which offerings or rebates are you aware of? **[DO NOT READ LIST; RECORD ALL THAT APPLY]**

1. (**Efficient Packs**) [Other key words: Simple Energy Efficiency, energy-saving packs or kits, light bulb packs or kits]
2. (**Building Shell**) [Other key words: Home Performance with ENERGY STAR, energy assessments, home audits, weatherization, insulation]
3. **(Heating and Cooling)** [Other key words: HVAC, furnace, air conditioning, heat pumps, ground-source heat pumps, geothermal]
4. (**New Construction**) [Other key words: new homes, building a new home, new build]
5. (**Retail**) [Other key words: lighting, lighting discounts, LED bulbs, rebates on light bulbs, smart strips, power strips, smart thermostats, pop-up retail, temporary sale at office/work]
6. (**Online Marketplace**) [Other key words: online store, website selling efficient items]
7. (**Multifamily**) [Other key words: multifamily direct install, multifamily energy savings, landlord installed efficient products, free products for renters]
8. (**Renewables**) [Other key words: solar, PV (photovoltaic)]
9. (**Appliance Recycling**) [Other key words: refrigerator/freezer/appliance pickup]
10. (**Business offerings**) [Other key words: audits for businesses, energy efficient lighting for businesses, rebates for businesses or farmers]
11. (**Schools and Government**) [Other key words: rebates for schools, rebates for government buildings]
12. (Other **[SPECIFY:_____]**)

98. (DON'T KNOW)
99. (REFUSED)

B7. *Have you participated in any other Focus on Energy offerings? **[DO NOT READ, BUT PROMPT IF NECESSARY; RECORD ALL THAT APPLY; IF NEEDED: SUCH AS REBATES ON LED BULBS, ENERGY STAR APPLIANCES, ENERGY-EFFICIENT UPGRADES OR HOME ENERGY AUDITS]**

1. (Yes)
2. (No)
98. (DON'T KNOW)
99. (REFUSED)

B8. **[ASK IF B7=1]*** Which program(s) or offering(s) have you participated in? **[DO NOT READ, BUT PROMPT IF NECESSARY; RECORD ALL THAT APPLY]**

1. (**Efficient Packs**) [Other key words: Simple Energy Efficiency, energy-saving packs or kits, light bulb packs or kits]
2. (**Building Shell**) [Other key words: Home Performance with ENERGY STAR, energy assessments, home audits, weatherization, insulation]
3. **(Heating and Cooling)** [Other key words: HVAC, furnace, air conditioning, heat pumps, ground-source heat pumps, geothermal]
4. (**New Construction**) [Other key words: new homes, building a new home, new build]
5. (**Retail**) [Other key words: lighting, lighting discounts, LED bulbs, rebates on light bulbs, smart strips, power strips, smart thermostats, pop-up retail, temporary sale at office/work]
6. (**Online Marketplace**) [Other key words: online store, website selling efficient items]
7. (**Multifamily**) [Other key words: multifamily direct install, multifamily energy savings, landlord installed efficient products, free products for renters]
8. (**Renewables**) [Other key words: solar, PV (photovoltaic)]
9. (**Appliance Recycling**) [Other key words: refrigerator/freezer/appliance pickup]
10. (**Business offerings**) [Other key words: audits for businesses, energy efficient lighting for businesses, rebates for businesses or farmers]
11. (**Schools and Government**) [Other key words: rebates for schools, rebates for government buildings]
12. (Other **[SPECIFY:_____]**)

98. (DON'T KNOW)
99. (REFUSED)

C. Appliance Usage

[IF (REF_QTY OR V_REFQTY=2) OR (FRZ_QTY OR V_FRZQTY=2) OR (REF_QTY OR V_REFQTY=1 and FRZ_QTY OR V_FRZQTY=1) READ] Although you recycled more than one appliance through the offering, please answer the rest of the questions only about **[If REF_QTY OR V_REFQTY=1 and FRZ_QTY OR V_FRZQTY=1 read:** the **[APPLIANCE], IF REF_QTY OR V_REFQTY =2 OR FRZ_QTY OR V_FRZQTY =2 read:** the **[CONFIGURATION] [TYPE]**

C1. Before you made the decision to remove the **[APPLIANCE]**, in what room was it used/located? **[RECORD ONE RESPONSE; READ LIST IF NEEDED]**

1. Kitchen
2. Garage
3. Porch/Patio
4. Basement
5. **[Do not read]** (Other) **[Specify]**

98. (DON'T KNOW)
99. (REFUSED)

C2. **[ASK ALL]** In the year before you removed the **[APPLIANCE]**, how much of the time was it plugged in and running? Was it…? **[READ LIST]**

1. All the time **[Skip to D1]**
2. Part of the time ***[If needed, clarify as "certain months of the year" or "special occasions"]***
3. Never **[Skip to D1]**
4. **[Do not read]** (Other) **[Specify]**

98. (DON'T KNOW) **[SKIP TO D1]**
99. (REFUSED) **[SKIP TO D1]**

C3. **[Ask if C2=2 OR 4]** During the year, how many total months do you think it was plugged in and running?

1. **[Record months; range: 1-12]**

98. (DON'T KNOW)
99. (REFUSED)

D. Freeridership

D1. Did you replace the **[APPLIANCE]** you recycled through Focus on Energy?

1. (Yes)
2. (No)

98. (DON'T KNOW)
99. (REFUSED)

D2. Had you considered getting rid of the **[APPLIANCE]** before you heard about Focus on Energy's Appliance Recycling Offering?

[IF NECESSARY, BY "GET RID OF," I MEAN REMOVING THE APPLIANCE FROM YOUR HOME BY ANY MEANS, INCLUDING: SELLING IT, GIVING IT AWAY, HAVING SOMEONE PICK IT UP, OR TAKING IT TO THE DUMP OR A RECYCLING CENTER YOURSELF.]

1. (Yes)
2. (No) **[SKIP TO D4]**

98. (DON'T KNOW)
99. (REFUSED)

D3. Would you have kept your **[APPLIANCE]** if the Appliance Recycling Offering had not been available?

1. (Yes)
2. (No)

98. (DON'T KNOW)
99. (REFUSED)

D4. **[ASK IF D2=2 OR D3=1 AND C1 = 1]** If you had kept the **[APPLIANCE]**, would you have kept it in the same location you mentioned earlier? That is, would it have remained in the kitchen?

1. (Yes) **[SKIP TO** Error! Reference source not found.**]**
2. (No) **[SKIP TO** Error! Reference source not found.**]**

98. (DON'T KNOW) **[SKIP TO** ERROR! REFERENCE SOURCE NOT FOUND.**]**
99. (REFUSED) **[SKIP TO** ERROR! REFERENCE SOURCE NOT FOUND.**]**

D5. **[ASK IF D2≠2 OR D3≠1]** How would you have disposed of the unit if the Appliance Recycling Offering had not been available? Would you have...**[ALLOW ONLY ONE ANSWER ; PROMPT IF NEEDED, READ LIST IN RANDOM ORDER]**

1. Sold it to a private party either by an ad or to someone you know
2. Sold it to a used appliance dealer
3. Given it away to a private party, such as a friend or neighbor
4. Given it away to a charity organization
5. Left it on the curb with free sign
6. **[DISPLAY THIS RESPONSE ONLY IF D1=1]** Had it removed by the dealer you got your new or replacement **[APPLIANCE]** from
7. Hauled it to the dump yourself [or friend or family member]
8. Hauled to a recycling center yourself [or friend or family member]
9. Hired someone to take it to a dump or recycling center
10. Have it picked up by local waste management company
11. Some other way **[SPECIFY: _____]**

98. (DON'T KNOW)
99. (REFUSED)

[If (D5 = 2 and AGE > 15) or D5 = 4 or D5 = 7 or D5 = 8] then read follow up question D6 along with the corresponding:

[Read only if D5 = 2 and AGE > 15]
Used appliance dealers typically only buy units that are less than 15 years old and are in very good condition.

[Read only if D5 = 4]
Market research suggests many local charities (Goodwill or Vietnam Veterans of America) only accept appliances that are in good working condition.

[Read only if D5 = 7 or 8]
Appliances are heavy and often require a truck, trailer, or large vehicle to relocate. Also, dumps and landfills often require payment to dispose of appliances.

D6. **[ASK IF (D5 = 2 and AGE > 15) or D5 = 4 or D5 = 7 or D5 = 8]** Given this information, would you have **[READ IN ANSWER FROM D5]**, or would you have done something else?

1. (Same thing as D5) **[SKIP TO** Error! Reference source not found.**]**
2. (Something else)

98. (DON'T KNOW)
99. (REFUSED) **[SKIP TO** ERROR! REFERENCE SOURCE NOT FOUND.**]**

D7. **[ASK IF D6=2]** How else would you have disposed of it?

[DO NOT READ; ALLOW ONLY ONE ANSWER BUT DO NOT ALLOW PREVIOUS ANSWER]

1. (Sold it to a private party either by an ad or to someone you know)
2. (Sold it to a used appliance dealer)
3. (Given it away to a private party, such as a friend or neighbor)
4. (Given it away to a charity organization)
5. (Left it on the curb with free sign)
6. **[DISPLAY ONLY IF D1=1]** (Had it removed by the dealer you got your new or replacement **[APPLIANCE]** from)
7. (Hauled it to the dump yourself [or friend or family member])
8. (Hauled to a recycling center yourself [or friend or family member])
9. (Hired someone to take it to a dump or recycling center)
10. (Have it picked up by local waste management company)
11. (Kept it)
12. (Some other way) **[SPECIFY: _____]**

98. (DON'T KNOW)
99. (REFUSED)

D8. When your appliance was picked up, did the contractors come into your home or did they pick up units that were already outdoors?

1. (Contractors went into home)
2. (Contractors picked up units that were outdoors)
3. (Some other way) **[SPECIFY: _____]**

98. (DON'T KNOW)
99. (REFUSED)

D9. **[ASK IF D8=2]** Did you interact with the contractors who picked up your appliance?

1. (Yes)
2. (No)

98. (DON'T KNOW)
99. (REFUSED)

D10. **[ASK IF D9 = YES]** How satisfied were you with the contractors' adherence to social distancing? Would you say…

1. Very satisfied
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. (DON'T KNOW)
99. (REFUSED)

D11. **[ASK IF D10=4 or 5]** Why were you **[INSERT RESPONSE FROM D10]** with the contractors' adherence to social distancing?

1. (**[SPECIFY: _____]**)

98. (DON'T KNOW)
99. (REFUSED)

D12. **[ASK IF D8=2]** How difficult was it to move your appliances outdoors for pick up? Would you say…

1. Very difficult
2. Somewhat difficult
3. Neither difficult nor easy
4. Somewhat easy
5. Very easy

98. (DON'T KNOW)
99. (REFUSED)

D13. **[ASK IF D12=1 or 2]** What was difficult about moving your appliances outdoors for pick up?

1. (**[SPECIFY: _____]**)

98. (DON'T KNOW)
99. (REFUSED)

D14. **[ASK EVERYONE]** Did the contactor who picked up your appliance leave you with any informational materials?

1. (Yes)
2. (No)

98. (DON'T KNOW)
99. (REFUSED)

D15. **[READ IF D14= 1]** What type of materials were left when your appliance was picked up? (Check all mentions)

1. (Receipt for the recycled units)
2. (Pamphlet/brochure about energy efficiency kits sent by mail / the Focus on Energy Efficient Packs offering)
3. (Other, specify) **[RECORD RESPONSE]**

98. (DON'T KNOW)
99. (REFUSED)

D16. What suggestions, if any, do you have for improving the Focus on Energy Appliance Recycling offering? (What do you suggest?)

1. (Suggestions given) **[RECORD RESPONSE]**
2. (No suggestions)

98. (DON'T KNOW)
99. (REFUSED)

E. Demographics

Now I have just a few final questions.

E3. * What type of fuel does your water heater use?

1. (Natural gas)
2. (Electricity)
3. (Propane/Bottled gas)
4. (Wood)
5. (Other) **[SPECIFY]**

98. (DON'T KNOW)
99. (REFUSED)

E4. * What is the main type of fuel you use to heat your home?

1. (Natural Gas)
2. (Oil)
3. (Propane)
4. (Electricity)
5. (Wood)
6. (Other) **[SPECIFY:_____]**

98. (DON'T KNOW)
99. (REFUSED)

E5. * What type of home do you live in?

1. (Mobile/manufactured home)
2. (Single-family home, detached house)
3. (Attached house townhouse, row house, or duplex)
4. (Multifamily apartment or condo building with 4 or more units)
5. (Co-op/retirement community)

6. (Other) **[SPECIFY]**
98. (DON'T KNOW)
99. (REFUSED)

E6. * Do you or members of your household own or rent this home?
1. (Own)
2. (Rent)
3. (Other) **SPECIFY:_____**
98. (DON'T KNOW)
99. (REFUSED)

E7. * What is the highest level of school that you have completed?
1. (Less than 9th grade)
2. (9th to 12th grade; no diploma)
3. (High school graduate / includes GED)
4. (Some college, no degree)
5. (Associate's degree)
6. (Bachelor's degree)
7. (Graduate or professional degree)
98. (DON'T KNOW)
99. (REFUSED)

F. Closing

F1. * Do you have any other comments about your experience with Focus on Energy that you would like to share?
[RECORD RESPONSE:_____]

F2. * On occasion, Focus on Energy may want to contact a customer to learn more about their participation experience. May we share your responses with a program manager, who may contact you regarding your experience?
1. (Yes)
2. (No)
98. (DON'T KNOW)
99. (Refused)

CLOSING SCRIPT: Those are all the questions we have. **Focus on Energy** appreciates your help with this survey. Thank you for your time.

CADMUS

Wisconsin Focus on Energy – Online Marketplace Offering 2020 Participant Survey

Estimated survey launch: December 2020

Survey format: Online

Target Quotas:

Measure	Unique Participant Emails thru 8/2020 (Does not account for participants purchasing multiple measure types)	Minimum Target
Smart Thermostats	4,769	General target: 70 per measure Est 10-20% response rate
Advanced Power Strip (Tier 1 &2)	462	
LED	4,031	
LED Reflectors	574	
Showerhead	2,684	
Showerstart	59*	
Faucet aerator (kitchen and bath)	2,643	

*Combine showerstarts with showerheads if there's not enough sample.

General Instructions:

- Survey programming instructions are in red **[LIKE THIS]**
- Core residential questions are indicated with an asterisk (*). These questions have been previously approved by the Wisconsin PSC and APTIM.
- All questions are single-response unless specified otherwise.
- All questions are forced response, unless specified otherwise.

Variables to be Included in Sample:

EMAIL
FIRSTNAME
LASTNAME
CADMUS_ACCOUNT_KEY
MEASURE=

- **"smart thermostat" [TSTAT],**
- **"smart power strip" [APS],**
- **"LED" [LED]**
- **"showerhead" [SHWR]**
- **"faucet aerator" [AER]**

QUANTITY
MONTH (of participation)

Email Invitation

To: [EMAIL]
From: Focus on Energy Feedback
Subject: Are you enjoying your new **[MEASURE]**? Let us know and you could **win $100!**

Dear [FIRSTNAME AND LASTNAME],

We hope you are enjoying the new **[MEASURE]** you purchased from the Focus on Energy Online Marketplace.

Our offerings are designed to help you and your family make smart choices to manage your energy use. That's why we invite you to share **your important feedback** on your recent experience with Focus on Energy, by taking our brief survey.

The survey will take about 10 minutes to complete. **As our thanks for completing the survey, we will enter you in a drawing to win a $100 VISA gift card.**

Just click the link below to get started.

[auto-generated link]

Your input is very important to us and will be kept confidential and only used for research purposes.

If you have problems with the survey link, please contact the survey coordinator, *[survey contact]*, via email at *[email address]*. If you would like to confirm the validity of the research effort, please call Mitch Horrie at the Public Service Commission of Wisconsin at (608) 267-3206.

We hope you will take this opportunity to have your voice heard. Thank you in advance for your time and for sharing your experiences.

Reminder Invitation

To: [EMAIL]
From: Focus on Energy Feedback
Subject: There's still time to give Focus on Energy feedback and win $100!

Dear [FIRSTNAME AND LASTNAME],

We recently invited you to tell us about your experience using the Focus on Energy Online Marketplace. We would still like to hear from you – **your input is very important to us**! We use the information from participants like you to continue to improve our programs.

Please take about 10 minutes to complete our survey. **As our thanks for completing the survey, we will enter you in a drawing to win a $100 VISA gift card.**

Just click the link below to get started.

[auto-generated link]

Your input is very important to us and will be kept confidential and only used for research purposes.

If you have problems with the survey link, please contact the survey coordinator, *[survey contact]*, via email at *[email address]*. If you would like to confirm the validity of the research effort, please call Mitch Horrie at the Public Service Commission of Wisconsin at (608) 267-3206.

We hope you will take this opportunity to have your voice heard. Thank you in advance for your time and for sharing your experiences.

A. Survey Introduction and Screener

[FOCUS ON ENERGY LOGO TO APPEAR ON START SCREEN]

Welcome! Thank you for sharing your experience with Focus on Energy.

Records from Focus on Energy show that you purchased **[MEASURE]**(s) from the Focus on Energy Online Marketplace in **[MONTH]** 2020.

The following survey will ask about your satisfaction with your **[MEASURE]**(s) and about why you made your purchase. At the end, you will be given the opportunity to enter to win a $100 Visa gift card as a token of our appreciation for your time.

[SCREEN OUT TERMINATION MESSAGE:] Those are all the questions we have. Thank you.

A1. Did you purchase new **[MEASURE]**(s) in 2020 from the Focus on Energy Online Marketplace?

1. Yes
2. No **[TERMINATE]**
98. I'm not sure **[TERMINATE]**

A2. Do you recall that you received a discount on the purchase price from Focus on Energy?

1. Yes
2. No **[TERMINATE]**
98. I'm not sure **[TERMINATE]**

B. Awareness

B1. *Where did you <u>most recently</u> hear about Focus on Energy discounts for **[MEASURE]s** available through the Online Marketplace? **[RANDOMIZE ITEMS 1-11, SINGLE RESPONSE]**

1. Mailing (direct mail, brochure, postcard, bill insert, etc.)
   - B1a. Who sent the mailing?
     1. My utility
     2. Focus on Energy
     3. Another Organization
     4. I'm not sure

2. An email
   B1b. Who sent the email?
      1. My utility
      2. Focus on Energy
      3. Another Organization
      4. I'm not sure
3. A social media app (Facebook, Twitter, LinkedIn, etc.)
4. Online ad
5. Internet search
   B1c. What were you searching for? _____
6. A website
   B1d. Which website?
      1. My utility
      2. Focus on Energy
      3. Another Organization
      4. I'm not sure
7. Family / friend / word-of-mouth
8. Focus on Energy representative
9. Utility representative
10. Community or utility event
11. Through participation in another Focus on Energy offering
12. A different source: [SPECIFY: _____]

98. I'm not sure **[EXCLUSIVE]**

B2. *Are there any other ways you heard about the discounts available through the Online Marketplace? **[RANDOMIZE ITEMS 2-12. MULTIPLE RESPONSE, EXCLUDE RESPONSE FROM B1]**

1. No other way **[EXCLUSIVE]**
2. Mailing (direct mail, brochure, postcard, bill insert, etc.)
   B2e. Who sent the mailing?
      1. My utility
      2. Focus on Energy
      3. Another Organization
      4. I'm not sure
3. An email
   B2f. Who sent the email?
      1. My utility
      2. Focus on Energy
      3. Another Organization
      4. I'm not sure
4. A social media app (Facebook, Twitter, LinkedIn, etc.)
5. Online ad

6. Internet search
   B2g. [What were you searching for? _____]
7. A website
   B2h. Which website?
   1. My utility
   2. Focus on Energy
   3. Another Organization
   4. I'm not sure
8. Family / friend / word-of-mouth
9. Focus on Energy representative
10. Utility representative
11. Community or utility event
12. Through participation in another Focus on Energy offering
13. A different source: [SPECIFY: _____]
98. I'm not sure **[EXCLUSIVE]**

B3. *What is the best way for Focus on Energy to inform people about energy efficiency offerings?
[RANDOMIZE ITEMS 1-13, MULTIPLE RESPONSE]

1. Promotion through other Focus on Energy offerings
2. Television
3. Radio
4. Print media, such as magazine, newspaper article or advertisement
5. Billboard / outdoor ad
6. Direct mail / brochure / postcard
7. Family / friend / word-of-mouth
8. Email from Focus on Energy
9. Focus on Energy or Utility website
10. Community or utility event
11. Other website: **SPECIFY:_____)**
12. Social Media such as Twitter, Facebook, or Instagram
13. A different source: **[SPECIFY: _____]**
14. I do not want to receive information **[EXCLUSIVE]**
98. I'm not sure **[EXCLUSIVE]**

B4. *Other than Focus on Energy's Online Marketplace, are you aware of any other Focus on Energy programs or incentives?

1. Yes
2. No
98. I'm not sure

B5. **[ASK IF B4=1]** *For the Focus on Energy programs listed below, please indicate which ones you are aware of, and which you have participated in**.** **[TABLE FORMAT; EACH OFFERING LISTED HAS A DROP DOWN MENU WITH THE THREE OPTIONS BELOW]**

1. Participated in this offering
2. Aware but have not participated
3. Not aware of this offering

Offering	Description
Energy Saving Packs	Free packs of energy saving items such as LEDs and low-flow showerheads and faucet aerators, delivered through the mail
Insulation and Air Sealing	Incentives for weatherizing, with extra incentives for completing an energy assessment
Heating and Cooling	Incentives for upgrading or replacing your heating and cooling equipment
New Construction	Incentives for builders to construct homes that meet ENERGY STAR certification standards
Multifamily	A program for renters and landlords, that offers free installation of energy saving items in multifamily properties
Renewable Energy	Incentives for solar PV installations
Appliance Recycling	incentives for recycling your old, working refrigerator, freezer, room air conditioner or dehumidifier
Business Offerings	Incentives for upgrades to lighting, heating and cooling and other equipment in commercial, industrial and agricultural property
Schools and Government	Incentives for upgrades to lighting, heating and cooling and other equipment in schools and government buildings
Pop-up Events	Mobile retail station that offers discounts on smart power strips and LEDs
Retail Discounts	Discounts on LEDs or smart thermostats purchased in-store at retail locations across the state, or online from the manufacturer's website

C. Motivation

C1. *What was the most important reason you purchased your **[MEASURE]**(s)? **[SINGLE RESPONSE, RANDOMIZE ITEMS 1-9.]**

1. Save energy and be more energy efficient
2. Reduce utility bill
3. Good for the environment
4. Recommended by a friend / relative
5. Recommended by retailer, dealer, or contractor
6. Discount / incentive from Focus on Energy
7. Recommended by Focus on Energy or my utility
8. Wanted the latest technology
9. Product had other features I wanted
10. Other **[SPECIFY: _____]**

98. I'm not sure

C2. Before you purchased your **[MEASURE]** from the Online Marketplace, where else did you consider purchasing this item? **[RANDOMIZE]**

1. Another online retailer
2. An in-person retailer
3. A different source **[SPECIFY]**
4. I looked but couldn't find it anywhere else
5. I only looked for this item on the Online Marketplace

C3. **[IF 0=1,2,3]** What's the primary reason you decided to purchase from the Online Marketplace? **[RANDOMIZE]**

1. Focus on Energy discount
2. Best price
3. Most convenient
4. To get a model/feature I couldn't find elsewhere
5. Products recommended by Focus on Energy
6. To support Focus on Energy
7. Other reason **[SPECIFY]**

C4. Please rate your agreement with the following statements about the Online Marketplace on a scale from 1 to 5 with 1 being "Strongly disagree" and 5 being "Strongly agree." **[A TO G - RANDOMIZE LIST] [DROP DOWN LIST SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT" AND "NOT SURE"]**

a. It was easy to find the product I was looking for
b. It was easy to compare prices and features across similar products
c. The website worked smoothly, without freezing, errors or glitches
d. The checkout process was reasonably fast and easy
e. I received my product on time
f. The product I received was as I expected, and in good condition
g. I was very satisfied with my overall experience with the Online Marketplace

C5. **[FOR EACH C4a -g RESPONSE < 4]** Can you tell us more about why you do not agree with the statement ***"[REPEAT STATEMENT FROM C4a – g]"***? **[OPEN-END RESPONSE]**

C6. Can you tell us more about any issues you had shopping through the Online Marketplace?

1. **[RECORD RESPONSE]**
98. I did not have any issues

C7. How could Focus on Energy improve the Online Marketplace?

1. **[RECORD RESPONSE]**
98. No suggestions

D. Advanced Power Strip

[ASK SECTION IF MEASURE= "smart power strip"**]**

The next questions are about the advanced power strip(s) you purchased from the Online Marketplace.

D1. Our records show you purchased **[QUANTITY]** advanced power strip(s). Is that right?

1. Yes, that's about right
2. No, that's not right
98. I'm not sure how many I purchased **[SKIP TO L1]**

D2. **[IF D1=2]** How many advanced power strips did you purchase?

1. _____ **[NUMERIC ONLY 0-99] [CREATE C_QUANTITY=D2 OR COPY QUANTITY TO C_QUANTITY IF NO NUMERIC RESPONSE TO D2; USE INSTEAD OF QUANTITY GOING FORWARD]**
98. I'm not sure **[SKIP TO L1]**

D3. How many of the advanced power strips you purchased are currently being used in a ***home*** *(including a home office)*?

1. 0
2. 1
3. 2
4. 3
5. 4
98. I'm not sure **[SKIP TO L1]**

D4. How many of the advanced power strips you purchased are currently being used in a ***business***?

1. 0
2. 1
3. 2
4. 3
5. 4
98. I'm not sure **[SKIP TO L1]**

D5. **[IF D3= 2,3,4,5]** For what purpose(s) are you using your advanced power strip(s)installed in a ***home***? Select all that apply.

1. Home entertainment center (TVs, cable boxes, streaming devices Apple TV or Roku, DVD players)
2. Home office (laptops, desktop computers, computer monitors, scanners, printers, fax machines)
3. Gaming system
4. Other equipment **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

D6. **[IF D4 = 2,3,4,5]** What best describes the type of business where you are using your advanced power strip(s)? Select all that apply. **[SELECT ALL THAT APPLY]**

1. Commercial
2. Industrial
3. Other **[SPECIFY]**

98. I'm not sure **[EXCLUSIVE]**

D7. **[IF D3+D4 < C_QUANTITY]** Did you install but later uninstall any advanced power strip(s) you purchased?

1. Yes
2. No

98. I'm not sure

D8. **[IF D3+D4 < C_QUANTITY]** What is your primary reason for not using, or installing but later removing, the advanced power strip(s)? **[RANDOMIZE ITEMS 1-7]**

1. Broken/didn't work
2. Difficult/unable to set up
3. Didn't like how it looked
4. Didn't like how the attached equipment worked when hooked up to it
5. Not enough regular outlets
6. Plan to install later
7. Never planned to install
8. Another reason **[SPECIFY]**

98. I'm not sure **[EXCLUSIVE]**

D9. **[IF D3+D4 < C_QUANTITY]** What did you do with the advanced power strip(s) *not currently* installed? **[RANDOMIZE ITEMS 1-3. MULTIPLE RESPONSE.]**

1. Stored for future use
2. Threw away/Disposed of
3. Gave away as a gift
4. Something else **[SPECIFY]**

98. I'm not sure **[EXCLUSIVE]**

D10. How satisfied are you with the advanced power strip(s) you purchased?

1. Very satisfied [**SKIP TO I1**]
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. I'm not sure **[SKIP TO I1]**

D11. Why are you **[INSERT RESPONSE FROM D10]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Broken/doesn't work
2. Difficult/unable to set up
3. Didn't like how it looks
4. Didn't like how the attached equipment works when hooked up to it
5. Not enough regular outlets
6. Another reason **[SPECIFY]**

98. I'm not sure **[EXCLUSIVE]**

E. Smart Thermostats

[ASK SECTION IF MEASURE = "smart thermostat"**]**

The next questions are about the smart thermostat(s) for which you received a Focus on Energy discount in 2020.

E1. Our records show you purchased **[QUANTITY]** smart thermostat(s) with a Focus on Energy discount. Is that correct?

1. Yes, that's right
2. No, that's not right

98. I'm not sure how many I purchased **[SKIP TO L1]**

E2. **[IF E1=2]** How many smart thermostats did you purchase?

1. _____ **[NUMERIC ONLY 0-99] [CREATE C_QUANTITY=E2 OR COPY QUANTITY TO C_QUANTITY IF NO NUMERIC RESPONSE TO E2; USE INSTEAD OF QUANTITY GOING FORWARD]**

98. I'm not sure **[SKIP TO L1]**

E3. Is a smart thermostat for which you received a Focus on Energy discount *currently* installed in your home or business?

	Installed in my home	**Installed in my business**	**Not installed**	**I'm not sure**
Thermostat 1	○	○	○	○
[DISPLAY IF C_QUANTITY >1] Thermostat 2	○	○	○	○

[IF ALL RESPONSES ARE "HOME" OR "BUSINESS" SKIP TO E7]
[IF ALL RESPONSES ARE "NOT SURE" SKIP TO L1]

E4. **[IF ANY RESPONSES TO E3 = "NOT INSTALLED"]** Why did you not install the thermostat(s)? **[RANDOMIZE ITEMS 1-8]**

1. Difficult/unable to set up
2. Difficult to use
3. Home was less comfortable after it was installed
4. Concerned about internet security
5. Didn't like how it looked
6. Never planned to install
7. Haven't installed yet, but plan to install
8. My contractor recommended that I not use the new thermostat with my heating/cooling equipment
9. Other **[SPECIFY]**

98. I'm not sure

E5. What did you do with the thermostat(s) you did not install? **[SELECT UP TO 2]**

1. Stored for future use
2. Threw away/Disposed of/Sold
3. Gave away as a gift
4. Something else **[SPECIFY]**

98. I'm not sure **[EXCLUSIVE]**

E6. **[IF E5=3]** Did the person you gave the thermostat(s) to install it in Wisconsin?

1. Yes
2. No

98. I'm not sure

[IF ALL RESPONSES TO E3 = "NOT INSTALLED", SKIP TO L1]

E7. Who installed the smart thermostat(s) currently in your own home or business?

1. Myself/someone in my household
2. A Focus on Energy participating contractor
3. A non-participating contractor
4. Haven't installed it yet
5. Other **[SPECIFY]**

98. I'm not sure

E8. **[IF C_QUANTITY=1 AND E7=1,2,3]** What equipment does your new thermostat control? Select all that apply. **[SELECT ALL THAT APPLY]**

1. Furnace
2. Boiler
3. Air-source heat pump
4. Ductless heat pump
5. Central air conditioner
6. Other equipment **[SPECIFY]**

98. I'm not sure

E9. **[IF C_QUANTITY>1 AND E7=1,2,3]** You indicated you purchased **[C_QUANTITY]** smart thermostats. What equipment does your **first** new thermostat control? Select all that apply.

1. Furnace
2. Boiler
3. Air-source heat pump
4. Ductless heat pump
5. Central air conditioner
6. Other equipment **[SPECIFY]**

98. I'm not sure

E10. **[IF C_QUANTITY>1 AND E7=1,2,3]** You indicated you purchased **[C_QUANTITY]** smart thermostats. What equipment does your **second** new thermostat control? Select all that apply.

1. Furnace
2. Boiler
3. Air-source heat pump
4. Ductless heat pump
5. Central air conditioner
6. Other equipment **[SPECIFY]**

98. I'm not sure **[EXCLUSIVE]**

The next questions are about your ***previous*** thermostat, the one you used before you purchased a smart thermostat with a discount from Focus on Energy.

E11. What kind of thermostat did you use before you purchased your smart thermostat? **[SELECT ONE]**

1. Manual (you manually adjust the temperatures)
2. Programmable (you schedule certain temperatures at specific times / days)
3. Wi-fi enabled (you are able to adjust or scheduled temperature remotely using your phone or another device)
4. Smart (the thermostat adjusts the temperature for you and you can adjust the temperature remotely)
5. Did not previously use a thermostat
98. I'm not sure **[SKIP TO E14]**

E12. **[IF 0 = 2, 3, OR 4]** Was your ***previous*** thermostat programmed to adjust your home's temperature based on your daily schedule? (For example, did it automatically change the temperature at certain times of day?)

1. Yes
2. No
98. I'm not sure

E13. **[IF 0=1-4]** Regardless of whether you used a programmed schedule, how often did you **manually adjust** your previous thermostat to control the temperature?

1. Several times a day
2. Several times a week
3. A few times a month
4. Twice a month or less
5. Rarely or never
98. I'm not sure

Next we have a few questions about installing and using your ***new smart thermostat***.

E14. **[IF E7=1]** Did you have any difficulty physically installing your new thermostat?

1. Yes
2. No
98. I'm not sure

E15. **[ASK IF E14= 1]** What was difficult about installing it?

1. **[RECORD]**

E16. What method do you most often use to control your new smart thermostat?

1. An electronic device (smart phone, tablet or virtual assistant device)
2. Manual control at the thermostat, using the thermostat touch screen or controls
3. I don't control the thermostat **[SKIP TO E19]**
4. I'm not sure **[SKIP TO E19]**

E17. Have you had any difficulty setting up or using an electronic device to control your thermostat?

1. Yes
2. No **[SKIP TO E19]**
98. I'm not sure **[SKIP TO E19]**

E18. What has been difficult about setting up or using an electronic device to control your thermostat?

1. **[RECORD]**

E19. What other wi-fi connected devices that help save energy do you have installed in your home? **[MULTIPLE RESPONSE]**

1. None **[EXCLUSIVE]**
2. Smart plugs
3. Smart switches
4. Smart LED bulbs
5. Motion sensors
6. Light sensors
7. Temperature sensors
8. Door/windows closure sensors
9. Another device **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F. LEDs

[ASK SECTION IF MEASURE = "LED"**]**

F1. Our records show you purchased **[QUANTITY]** LED(s) from the Focus on Energy Online Marketplace. Is that right?

1. Yes, that's about right
2. No, that's not right
98. I'm not sure how many LEDs I purchased **[SKIP TO L1]**

F2. **[IF F1=2]** How many LEDs did you purchase from the Focus on Energy Online Marketplace?

1. _____ **[NUMERIC ONLY 0-99] [NUMERIC ONLY 0-99] [CREATE C_QUANTITY=**Error! Reference source not found. **OR COPY QUANTITY TO C_QUANTITY IF NO NUMERIC RESPONSE TO** Error! Reference source not found.**; USE INSTEAD OF QUANTITY GOING FORWARD]**

F3. How many of the LEDs are *currently* installed in your home?

1. _____ **[NUMERIC ONLY 0-99]**
98. I'm not sure **[SKIP TO F7]**

F4. **[IF C_QUANTITY > F3]** Did you install some of the LEDs but later remove them?

1. Yes
2. No
98. I'm not sure

F5. **[IF C_QUANTITY > F3]** What is your primary reason for not installing, or removing, the LEDs you purchased? **[RANDOMIZE ITEMS 1-8]**

1. Waiting for other bulbs to burn out
2. Have not installed yet, but plan to install later
3. Don't like the way the LEDs look
4. Don't like the light quality from the LEDs
5. Doesn't work with my dimmer or 3-way switch
6. Gave the LEDs away, or no longer have them
7. LEDs are broken, or failed or malfunctioned
8. Never planned to install
9. Other reason **[SPECIFY]**
98. I'm not sure

F6. **[IF C_QUANTITY) > F3]** What did you do with the LEDs *not currently* installed? Select up to two responses. **[ALLOW UP TO 2 RESPONSES]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F7. How satisfied are you with the LEDs you purchased?

1. Very satisfied **[SKIP TO H1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
98. I'm not sure **[SKIP TO H1]**

F8. Why are you **[INSERT RESPONSE FROM F7]**? Select all that apply. **[RANDOMIZE ITEMS 1-8]** **[MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the light color
6. Didn't work properly (delay coming on, flickering, etc.)

7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

G. Smart Thermostat Freeridership

[ASK SECTION IF MEASURE = "smart thermostat"**]**

[FORCED RESPONSES ACCORDING TO PROGRAMMING INSTRUCTIONS]

The next questions are about how you made your decisions to purchase a smart thermostat.

G1. When did you first hear about the availability of a Focus on Energy discount for smart thermostats? Was it….

1. Before you started shopping **[SKIP TO** G3**]**
2. When you received your order confirmation **[ASK G2]**
3. After you purchased the smart thermostat **[ASK** G2**]**
4. You had not heard of Focus on Energy before this survey **[ASK G2]**
98. (Don't know) **[SKIP TO G3]**

G2. **[ASK IF G1= 2, 3, 4]** So just to be clear, you purchased your smart thermostat before you heard anything about the Focus on Energy Focus on Energy discount. Is that correct?

1. Yes, that's correct **[SKIP TO G4]**
2. No, that's not correct **[ASK G7]**
98. Don't know **[ASK G3]**

G3. Before you heard about the Focus on Energy discount, had you already considered purchasing a smart thermostat?

1. Yes
2. No
98. Don't know

G4. Without the discount from Focus on Energy, what kind of thermostat would you have purchased?

1. A smart or learning thermostat
2. A WiFi thermostat (non-learning)
3. A programmable thermostat
4. A manual thermostat
5. Would not have purchased a new thermostat
98. Don't know

G5. **[ASK IF C_QUANTITY > 1]** Would you have purchased the same quantity of smart thermostats without the discount from Focus on Energy?

1. Yes, the same quantity **[ASK G6]**
2. No, would have purchased fewer **[ASK G6]**

3. No, would have purchased more **[ASK G6]**
4. No, would not have purchased anything at all **[SKIP TO** G7**]**
98. Don't know **[ASK G6]**

G6. Thinking about timing, without the Focus on Energy discount, would you have purchased the smart thermostat …?

1. At the same time
2. Later, but within 12 months
3. One to two years out
4. More than two years out
5. Never
98. Don't know

G7. **[ASK EVERYONE]** We would like to know more about the factors that contributed to your purchase of the smart thermostat. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the smart thermostat. **[1 TO 6 - RANDOMIZE LIST] [DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT"]**

1. **[RESPONSE FROM C1 IF C1≠ 5, 6 OR 7]**
2. The Focus on Energy cash-back incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a store representative, dealer or contractor
6. Previous participation in a Focus on Energy energy-efficiency offering or program

H. LED Freeridership

[ASK SECTION IF MEASURE = "LED"**]**
[FORCED RESPONSES ACCORDING TO PROGRAMMING INSTRUCTIONS]

The next questions are about how you made your decisions to purchase LEDs.

H1. Did you have any LEDs installed in your home before you heard of the Focus on Energy discounts for LEDs? If so, please tell us approximately what percentage of the light sockets in your home contained LEDs.

1. Yes, approximately __% of my home's light sockets contained LEDs
    a. Approximately how many total light sockets are in your home? [OPEN-ENDED/Don't Know]
2. No, I did not have any LEDs in my home
98. Don't know

H2. If the Focus on Energy discount had not been available, would you have bought LEDs for your home within 12 months?

1. Yes, at the same time
    a. How many? [OPEN-ENDED/Don't Know]
2. Yes, later but within the next 12 months
    a. How many? [OPEN-ENDED/Don't Know]
3. No, not within 12 months
4. No, I already had them installed in all available sockets
98. Don't know

H3. **[ASK EVERYONE]** We would like to know more about the factors that contributed to your purchase of the LEDs. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the LEDs. **[1 TO 6 - RANDOMIZE LIST] [DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT"]**

1. **[RESPONSE FROM C1 IF C1≠ 5, 6 OR 7]**
2. The Focus on Energy cash-back incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a store representative, dealer or contractor
6. Previous participation in a Focus on Energy energy-efficiency offering or program

I. Advanced Power Strip Freeridership

[ASK SECTION IF MEASURE = "smart power strip**"]**

[FORCED RESPONSES ACCORDING TO PROGRAMMING INSTRUCTIONS]

The next questions are about how you made your decisions to purchase advanced power strips.

I1. Did you have any advanced power strips installed in your home before you heard of the Focus on Energy discounts for advanced power strips? If so, please tell us how many.

1. Yes, I had [OPEN-ENDED/Don't Know] advanced power strips in my home
2. No, I did not have any advanced power strips in my home
99. Don't know

I2. If the Focus on Energy discount had not been available, would you have bought advanced power strips for your home within 12 months?

1. Yes, at the same time
    a. How many? [OPEN-ENDED/Don't Know]
2. Yes, later but within the next 12 months
    a. How many? [OPEN-ENDED/Don't Know]
3. No, not within 12 months
4. No, I already had them installed in all available sockets
99. Don't know

I3. **[ASK EVERYONE]** We would like to know more about the factors that contributed to your purchase of the advanced power strips. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the advanced power strips. **[1 TO 6 - RANDOMIZE LIST] [DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT"]**

1. **[RESPONSE FROM C1 IF C1≠ 5, 6 OR 7]**
2. The Focus on Energy cash-back incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a store representative, dealer or contractor
6. Previous participation in a Focus on Energy energy-efficiency offering or program

J. Showerhead Freeridership

[ASK SECTION IF MEASURE = "showerhead**"]**

[FORCED RESPONSES ACCORDING TO PROGRAMMING INSTRUCTIONS]

Now we'd like to ask you about how you made your decisions to purchase low-flow showerheads.

J1. Did you have any low-flow showerheads installed in your home before you heard of the Focus on Energy discounts for low-flow showerheads? If so, please tell us how many.

1. Yes, I had [OPEN-ENDED/Don't Know] low-flow showerheads in my home
2. No, I did not have any low-flow showerheads in my home
98. Don't know

J2. If the Focus on Energy discount had not been available, would you have bought low-flow showerheads for your home within 12 months?

1. Yes, at the same time
    a. How many? [OPEN-ENDED/Don't Know]
2. Yes, later but within the next 12 months
    a. How many? [OPEN-ENDED/Don't Know]
3. No, not within 12 months
4. No, I already had them installed in all available showers

98. Don't know

J3. **[ASK EVERYONE]** We would like to know more about the factors that contributed to your purchase of the low-flow showerheads. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the low-flow showerheads. **[1 TO 6 - RANDOMIZE LIST] [DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT"]**

1. **[RESPONSE FROM C1 IF C1≠ 5, 6 OR 7]**
2. The Focus on Energy cash-back incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a store representative, dealer or contractor
6. Previous participation in a Focus on Energy energy-efficiency offering or program

K. Faucet Aerator Freeridership

[ASK SECTION IF MEASURE = "faucet aerator**"]**

[FORCED RESPONSES ACCORDING TO PROGRAMMING INSTRUCTIONS]

Now we'd like to ask you about how you made your decisions to purchase low-flow faucet aerators.

K1. Did you have any low-flow faucet aerators installed in your home before you heard of the Focus on Energy discounts for low-flow faucet aerators? If so, please tell us how many.

1. Yes, I had [OPEN-ENDED/Don't Know] low-flow faucet aerators in my home
2. No, I did not have any low-flow faucet aerators in my home

98. Don't know

K2. If the Focus on Energy discount had not been available, would you have bought low-flow faucet aerators for your home within 12 months?

1. Yes, at the same time
    a. How many? [OPEN-ENDED/Don't Know]
2. Yes, later but within the next 12 months
    a. How many? [OPEN-ENDED/Don't Know]
3. No, not within 12 months
4. No, I already had them installed in all available faucets

99. Don't know

K3. **[ASK EVERYONE]** We would like to know more about the factors that contributed to your purchase of the low-flow faucet aerators. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the low-flow faucet aerators. **[1 TO 6 - RANDOMIZE LIST] [DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT"]**

1. **[RESPONSE FROM C1 IF C1≠ 5, 6 OR 7]**
2. The Focus on Energy cash-back incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a store representative, dealer or contractor
6. Previous participation in a Focus on Energy energy-efficiency offering or program

L. Spillover

[FORCED RESPONSES ACCORDING TO PROGRAMMING INSTRUCTIONS]

Now we would like to learn about any energy-saving improvements you may have made since purchasing the **[MEASURE]** and receiving a cash-back incentive from Focus on Energy.

L1. Since purchasing the **[MEASURE]** discounted by Focus on Energy, have you made any other energy savings improvements or high-efficiency equipment purchases for your home that you did NOT receive for free or a cash-back incentive from Focus on Energy or another organization?

1. Yes
2. No **[SKIP TO NEXT SECTION]**

98. Don't know **[SKIP TO SECTION NEXT SECTION]**

L2. What were the products that you installed without receiving for free or getting a cash-back incentive?

1. Gas boiler **[HOW MANY DID YOU INSTALL?]**
2. Gas furnace **[HOW MANY DID YOU INSTALL?]**
3. Gas tankless water heater **[HOW MANY DID YOU INSTALL?]**

4. Gas storage water heater **[HOW MANY DID YOU INSTALL?]**
5. Electric tankless water heater **[HOW MANY DID YOU INSTALL?]**
6. Electric storage water heater **[HOW MANY DID YOU INSTALL?]**
7. Insulation; attic **[HOW MANY SQUARE FEET?]**
8. Insulation; floor **[HOW MANY SQUARE FEET?]**
9. Insulation; ceiling **[HOW MANY SQUARE FEET?]**
10. Insulation; other [SPECIFY: _____] **[HOW MANY SQUARE FEET?]**
11. Air sealing **[HOW MANY LINEAR FEET?]**
12. Duct sealing **[HOW MANY LINEAR FEET?]**
13. Low-E Storm windows **[HOW MANY SQUARE FEET?]**
14. ENERGY STAR windows **[HOW MANY SQUARE FEET?]**
15. ENERGY STAR air purifier **[HOW MANY DID YOU INSTALL?]**
16. ENERGY STAR dehumidifier **[HOW MANY DID YOU INSTALL?]**
17. ENERGY STAR clothes washer **[HOW MANY DID YOU INSTALL?]**
18. ENERGY STAR dishwasher **[HOW MANY DID YOU INSTALL?]**
19. ENERGY STAR pool pump **[HOW MANY DID YOU INSTALL?]**
20. ENERGY STAR room air conditioner **[HOW MANY DID YOU INSTALL?]**
21. ENERGY STAR refrigerator **[HOW MANY DID YOU INSTALL?]**
22. ENERGY STAR freezer **[HOW MANY DID YOU INSTALL?]**
23. Smart thermostat **[HOW MANY DID YOU INSTALL?]**
24. Heat pump water heater **[HOW MANY DID YOU INSTALL?]**
25. Central air conditioner **[HOW MANY DID YOU INSTALL?]**
26. Air source heat pump **[HOW MANY DID YOU INSTALL?]**
27. Ductless heat pump **[HOW MANY DID YOU INSTALL?]**
28. Ground source heat pump
29. Heat pump; other [SPECIFY: _____] **[HOW MANY DID YOU INSTALL?]**
30. Advanced power strip **[HOW MANY DID YOU INSTALL?]**
31. Other [SPECIFY: _____] **[HOW MANY DID YOU INSTALL?]**
98. Don't know **[SKIP TO SECTION NEXT SECTION]**

L3. **[REPEAT FOR EACH ITEM MENTIONED IN L2]** How important was your experience with the Focus on Energy **[MEASURE]** offering in your decision to install **[INSERT EACH ONE SELECTED IN L2]**. Was it …?

1. **[DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT", "DON'T KNOW"]**

[ASK L4 FOR EACH ONE SELECTED IN L2 EXCEPT 3 (gas tankless water heater) , 4 (gas storage water heater), 5 (electric tankless water heater), 6 (electric storage water heater), 13 (Low-E Storm windows), 14 (ENERGY STAR windows), 15 (ENERGY STAR air purifier), 16 (ENERGY STAR dehumidifier), 17 (ENERGY STAR clothes washer), 18 (ENERGY STAR dishwasher), 19 (ENERGY STAR pool pump), 20 (ENERGY STAR room air conditioner), 22 (ENERGY STAR refrigerator), 22 (ENERGY STAR freezer), 30 (advanced power strip) OR 31 (other).]

L4. Why didn't you apply for and receive a Focus on Energy rebate for **[INSERT EACH ONE SELECTED IN L2]**?

1. Did not know rebate was available
2. Product did not qualify
3. Other **[SPECIFY: _____]**
98. Don't know

M. Demographics and Household Characteristics

The last few questions are for statistical purposes only.

M1. * What type of fuel does your **water heater** use?

1. Natural gas
2. Electricity
3. Propane/Bottled gas
4. Wood
5. Other **[SPECIFY:_____]**
98. I'm not sure

M2. * What is the main type of fuel you use to **heat your home**?

1. Natural Gas
2. Oil
3. Propane
4. Electricity
5. Wood
6. Other **[SPECIFY:_____]**
98. I'm not sure

M3. * What type of home do you live in?

1. Mobile/manufactured home
2. Single-family home, detached house
3. Attached house townhouse, row house, or duplex
4. Multifamily apartment or condo building with 4 or more units
5. Co-op/retirement community
6. Other **[SPECIFY:_____]**
98. I'm not sure

M4. * Do you or members of your household own or rent this home?

1. Own
2. Rent
3. Other: **SPECIFY:_____**
98. I'm not sure

M5. * What is the highest level of school that you have completed?

1. Less than 9th grade
2. 9th to 12th grade; no diploma
3. High school graduate [includes GED]
4. Some college, no degree
5. Associate's degree
6. Bachelor's degree
7. Graduate or professional degree
99. Prefer not to answer

Closing

M6. * Do you have any other comments about your experience with Focus on Energy that you would like to share?
[RECORD RESPONSE:_____]

M7. * On occasion, Focus on Energy may want to contact a customer to learn more about their participation experience. May we share your responses with a program manager, who may contact you regarding your experience?

1. Yes
2. No
98. I'm not sure

M8. Please review the contact information we have for you so we may contact you if you are selected as a $100 gift card winner. The gift card winners will be selected and notified within two weeks of the survey close.

1. **FIRSTNAME LASTNAME**
2. **EMAIL**
3. I do not wish to be included in the drawing

Thank you. We appreciate your help with this survey. Have a nice day.

[IF M8 ≠ 3] You will be added into the drawing for a $100 gift card.

To learn about additional opportunities to save energy and money in your home, please visit focusonenergy.com.

CADMUS

Wisconsin Focus on Energy - Packs Offering
2020 Participant Survey

Estimate survey launch: early September

Survey format: Online

Target Quotas

- Minimum of 70 SF respondents per standard pack
- Minimum of 70 MF respondents per standard pack
- Minimum of 70 respondents per Farmhouse Kit

General Instructions

- Programming instructions are in red **[LIKE THIS]** (the style is "Survey: Programming").
- Core residential questions are indicated with an asterisk (*). These questions have been previously approved by the Wisconsin PSC and APTIM.
- All questions are single-response unless specified otherwise.
- All questions are forced response, unless specified otherwise.
- For Standard Packs, **[PACK/KIT]** = "pack" and **[ENERGY SAVER PACK/ENERGY-SAVING KIT]** = "Energy Saver Pack." For Farmhouse Kits, **[PACK/KIT]** = "kit" and **[ENERGY SAVER PACK/ENERGY-SAVING KIT]** = "energy-saving kit."

Measure	Standard Packs						Farmhouse Kit
	Lightbulb	Fixed SH	Hand SH	Flood	Decorative	APS	
LED A19 (800 lumens)	4	2			2	3	4
LED A19 (1,100 lumens)	2						4
LED BR30 Reflector				6			
LED G25 Globe		3	3				
LED Candelabra					6		
Pipe Wrap (15 ft. roll)	1	1	1			1	1
Fixed Showerhead		1					1
Hand-Wand Showerhead			1				
Bathroom Faucet Aerator		2	2				1
DHW Temperature Card	1	1	1			1	
Advanced Power Strip						1	
LED Night Light							1
Weatherstripping							1
Outlet Gaskets (8 outlet, 4 switch)							12

INVITATION EMAIL

To: [EMAIL]

From: Focus on Energy Feedback

Subject: Are you enjoying your new **[ENERGY SAVER PACK/ENERGY-SAVING KIT]**? Let us know and you could win $100!

Dear **[FIRSTNAME AND LASTNAME]**,

We hope you are enjoying the **[PACK/KIT]** of energy-efficient products you received from Focus on Energy.

Our offerings are designed to help you and your family make smart choices to manage your energy use. That's why we invite you to share **your important feedback** on your recent experience with Focus on Energy, by taking our brief survey.

The survey will take about 10 minutes to complete. **As our thanks for completing the survey, we will enter you in a drawing to win a $100 Visa gift card.**

Just click the link below to get started.

[SURVEY LINK]

Your input is very important to us and will be kept confidential and only used for research purposes.

If you have problems with the survey link, please contact the survey coordinator, *[survey contact]*, via email at *[email address]*. If you would like to confirm the validity of the research effort, please call Mitch Horrie at the Public Service Commission of Wisconsin at (608) 267-3206.

We hope you will take this opportunity to have your voice heard. Thank you in advance for your time and for sharing your experiences.

Reminder Invitation

To: [EMAIL]
From: Focus on Energy Feedback
Subject: There's still time to give Focus on Energy feedback and win $100!

Dear [FIRSTNAME AND LASTNAME],

We recently invited you to tell us about your experience with the **[ENERGY SAVER PACK/ENERGY-SAVING KIT]** you received from Focus on Energy. We would still like to hear from you – **your input is very important to us**! We use the information from participants like you to continue to improve our programs.

Please take about 10 minutes to complete our survey. **As our thanks for completing the survey, we will enter you in a drawing to win a $100 VISA gift card.**

Just click the link below to get started.

[auto-generated link]

Your input is very important to us and will be kept confidential and only used for research purposes.

If you have problems with the survey link, please contact the survey coordinator, *[survey contact]*, via email at *[email address]*. If you would like to confirm the validity of the research effort, please call Mitch Horrie at the Public Service Commission of Wisconsin at (608) 267-3206.

We hope you will take this opportunity to have your voice heard. Thank you in advance for your time and for sharing your experiences.

A. Introduction and Screening

Records from Focus on Energy show that you received a **[PACK/KIT]** of energy-efficient products in **[MONTH]** 2020. Your pack contained easy-to-install-products such as **[CONTENTS]**.

The following survey will ask about how you received the pack and your satisfaction with the pack contents. At the end, you will be given the opportunity to enter to win a $100 Visa gift card as a token of our appreciation for your time.

A1. Do you recall receiving a free **[PACK/KIT]** of energy-saving products from Focus on Energy? **[IF NOT FARMHOUSE KITS]** You likely signed up to receive the pack online or by phone. **[IF FARMHOUSE KITS]** You likely received the kit from your utility account representative.

1. Yes
2. No **[THANK AND TERMINATE]**
98. Don't know **[THANK AND TERMINATE]**

TERMINATE MESSAGE: We are only surveying customers who recall receiving the pack. Thank you for your time.

B. Offering Awareness

B1. * **[IF NOT FARMHOUSE KITS]** Where did you most recently hear about Focus on Energy's Energy Saver Packs? **[RANDOMIZE EXCEPT FOR 13 AND 98]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager
2. When I participated in another Focus on Energy offering
3. Focus on Energy mailing (direct mail, brochure, postcard, etc.)
4. Utility mailing (bill insert, direct mail, brochure, postcard, etc.)
5. An email from my utility
6. An email from Focus on Energy
7. Family / friend / word-of-mouth
8. Focus on Energy website
9. Utility website
10. Other website **[SPECIFY]**
11. Social Media such as Twitter, Facebook, Instagram, LinkedIn, etc.
12. Internet advertising / online ad

13. Print media - magazine, newspaper article or advertisement
14. Focus on Energy representative
15. Utility representative
16. Community or utility event
17. Other **[SPECIFY]**
98. Don't know **[SKIP TO B3]**

B2. * **[IF NOT FARMHOUSE KITS]** Are there any other ways you heard about the packs? Select all that apply. **[RANDOMIZE EXCEPT FOR 1 (at the top) AND 14 and 98 (at the bottom)] [EXCLUDE RESPONSE FROM B1] [MULTIPLE RESPONSE]**

1. No other way **[EXCLUSIVE]**
2. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager
3. When I participated in another Focus on Energy offering
4. Focus on Energy mailing (direct mail, brochure, postcard, etc.)
5. Utility mailing (bill insert, direct mail, brochure, postcard, etc.)
6. An email from my utility
7. An email from Focus on Energy
8. Family / friend / word-of-mouth
9. Focus on Energy website
10. Utility website
11. Other website **[SPECIFY]**
12. Social Media such as Twitter, Facebook, Instagram, LinkedIn, etc.
13. Internet advertising / online ad
14. Print media - magazine, newspaper article or advertisement
15. Focus on Energy representative
16. Utility representative
17. Community or utility event
18. Other **[SPECIFY]**
98. Don't know **[EXCLUSIVE]**

B3. *What do you think is the best way for Focus on Energy to inform the public about energy efficiency offerings? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager
2. Promotion through other Focus on Energy offerings
3. Television
4. Radio
5. Print media, such as magazine, newspaper article or advertisement
6. Billboard / outdoor ad
7. Direct mail / brochure / postcard
8. Family / friend / word-of-mouth
9. Email from Focus on Energy

10. Focus on Energy or Utility website
11. Community or utility event
12. Other website **[SPECIFY]**
13. Social Media such as Twitter, Facebook, or Instagram
14. Other **[SPECIFY]**
15. Do not want to receive information **[EXCLUSIVE]**
98. Don't know **[EXCLUSIVE]**

B4. * **[IF NOT FARMHOUSE KITS]** What factor was the most important motivation for you to order your Energy Saver Pack? **[RANDOMIZE]**

1. Save energy / don't waste energy / be more energy efficient
2. Reduce energy costs / lower bill
3. Good for the environment
4. Recommended by a friend / relative
5. **[IF MULTIFAMILY]** Recommended by property owner or manager
6. Advertisement [newspaper, radio, online, etc.]
7. Utility sponsorship of the offering
8. Receiving free items to make home upgrades
9. Trying out new items to see if I like them
10. Other **[SPECIFY]**
98. Don't know

B5. **[IF NOT FARMHOUSE KITS]** What was the main reason you chose the specific pack you requested? **[SINGLE RESPONSE]**

1. Wanted to try a specific product(s) that I did not already own
2. Wanted to upgrade an existing but functioning item with an energy-efficient version
3. Needed to replace a specific item(s) that no longer worked properly or at all
4. Total number of products in pack
5. Estimated dollar value based on pack contents
6. Variety of products in pack
7. Felt the pack I ordered offered the greatest overall energy savings
8. Other **[SPECIFY]**
98. Don't know **[EXCLUSIVE]**

B6. **[IF B5 = 1 OR 2]** Which specific products motivated you to choose the pack you requested? Select all that apply. **[RANDOMIZE]** **[MULTIPLE RESPONSE]**

1. **[IF LIGHTBULB, FIXED SH, DECORATIVE, APS]** General service LEDs
2. **[IF FLOOD]** Reflector (flood) LEDs
3. **[IF FIXED SH, HAND SH]** Globe LEDs
4. **[IF DECORATIVE]** Candelabra (decorative) LEDs
5. **[IF FIXED SH]** Fixed showerhead

6. **[IF HAND SH]** Hand-wand showerhead
7. **[IF FIXED SH, HAND SH]** Faucet aerators
8. **[IF APS]** Advanced power strip
9. **[IF LIGHTBULB, FIXED SH, HAND SH, APS]** Pipe wrap
10. **[IF LIGHTBULB, FIXED SH, HAND SH, APS]** Hot water temperature card
98. Don't know **[EXCLUSIVE]**

B7. * Other than Focus on Energy's Energy Saver Packs, are you aware of any other Focus on Energy offerings or rebates?

1. Yes
2. No
98. Don't know

B8. * **[IF B7 = 1]** For the Focus on Energy offerings listed below, please indicate which ones you are aware of and which you have participated in**. [TABLE FORMAT; EACH OFFERING LISTED HAS A DROP DOWN MENU WITH THE THREE OPTIONS BELOW]**

1. Participated in this offering
2. Aware but have not participated
3. Not aware of this offering

Offering	Description
Insulation and Air Sealing	Incentives for weatherizing, with extra incentives for completing an energy assessment
Heating and Cooling	Incentives for upgrading or replacing your heating and cooling equipment
New Construction	Incentives for builders to construct homes that meet ENERGY STAR certification standards
Online Marketplace	Online store available through the Focus on Energy website, offering a range of energy-savings products for your home
Multifamily	A program for renters and landlords, that offers free installation of energy saving items in multifamily properties
Renewable Energy	Incentives for solar PV installations
Appliance Recycling	Recycling service for your old, working refrigerator, freezer, room air conditioner, or dehumidifier
Business offerings	Incentives for upgrades to lighting, heating and cooling and other equipment in commercial, industrial and agricultural property
Schools and Government	Incentives for upgrades to lighting, heating and cooling and other equipment in schools and government buildings
Pop-up Events	Focus on Energy sponsored sale of energy efficient kits at your employer or community event.
Retail Discounts	Discounts on LEDs or smart thermostats purchased in-store at retail locations across the state, or online from the manufacturer's website

C. LEDs

The next questions are about the items you received in your Energy Saver Pack.

A19 LED – Standard Mix (6 total)

[ASK SECTION IF LIGHTBULB]

Our records show you received six LED light bulbs – two rated at 11 watts (75W equivalent) and four rated at 9 watts (60W equivalent). These look like your standard light bulbs; the bulbs with higher wattage ratings are brighter.

C1. How many of the 11W LEDs are *currently* installed in your home or business? These are the brighter bulbs that you received. **[TABLE FORMAT; SEE BELOW]**

Number installed in my home	**[NUMERIC INPUT; MIN. 0, MAX. 2]**
Number installed in my business	**[NUMERIC INPUT; MIN. 0, MAX. 2]**
Number not installed	**[NUMERIC INPUT; MIN. 0, MAX. 2] [IF 0 THEN SKIP TO 0]**
Don't know	**[NUMERIC INPUT; MIN. 0, MAX. 2] [IF 2 THEN SKIP TO 0]**
Total	**[AUTOMATIC SUM; MUST EQUAL 2 TO ADVANCE]**

C2. What is your primary reason for not installing the 11W LED(s) you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Waiting for other bulbs to burn out
4. Have not installed yet/plan to install later
5. Never planned to install
6. Other **[SPECIFY]**

98. Don't know

C3. What did you do with the 11W LED(s) *not currently* installed? **[IF C1 NUMBER INSTALLED = 2 THEN ALLOW UP TO 2 RESPONSES]** Select up to two responses.

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

C4. How satisfied are you with the 11W LEDs you received?

1. Very satisfied **[SKIP TO C6]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO C6]**

C5. Why are you **[0]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

[PAGE BREAK]

C6. How many of the 9W LEDs are *currently* installed in your home or business? These bulbs are less bright than the others you received. **[TABLE FORMAT; SEE BELOW]**

Number installed in my home	**[NUMERIC INPUT; MIN. 0, MAX. 4]**
Number installed in my business	**[NUMERIC INPUT; MIN. 0, MAX. 4]**
Number not installed	**[NUMERIC INPUT; MIN. 0, MAX. 4] [IF 0 THEN SKIP TO C9]**
Don't know	**[NUMERIC INPUT; MIN. 0, MAX. 4] [IF 4 THEN SKIP TO C9]**
Total	**[AUTOMATIC SUM; MUST EQUAL 4 TO ADVANCE]**

C7. What is your primary reason for not installing the 9W LED(s) you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Waiting for other bulbs to burn out
4. Have not installed yet/plan to install later
5. Never planned to install
6. Other **[SPECIFY]**

98. Don't know

C8. What did you do with the 9W LED(s) *not currently* installed? Select all that apply. **[MULTIPLE RESPONSE]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

C9. How satisfied are you with the 9W LEDs you received?

1. Very satisfied **[SKIP TO D1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO D1]**

C10. Why are you **[C9]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

A19 LED – Farmhouse Mix (8 total)

[ASK SECTION IF FARMHOUSE KITS]

Our records show you received eight LED light bulbs in your energy-saving kit – four rated at 11 watts (75W equivalent) and four rated at 9 watts (60W equivalent). These look like your standard light bulbs; the bulbs with higher wattage ratings are brighter.

C11. How many of the 11W LEDs are *currently* installed in your home or business? These are the brighter bulbs that you received. **[TABLE FORMAT; SEE BELOW]**

Number installed in my home	**[NUMERIC INPUT; MIN. 0, MAX. 4]**
Number installed in my business	**[NUMERIC INPUT; MIN. 0, MAX. 4]**
Number not installed	**[NUMERIC INPUT; MIN. 0, MAX. 4] [IF 0 THEN SKIP TO C14]**
Don't know	**[NUMERIC INPUT; MIN. 0, MAX. 4] [IF 4 THEN SKIP TO C14]**
Total	**[AUTOMATIC SUM; MUST EQUAL 4 TO ADVANCE]**

C12. What is your primary reason for not installing the 11W LED(s) you received? **[RANDOMIZE]**

1. Difficult to install
2. Waiting for other bulbs to burn out
3. Have not installed yet/plan to install later
4. Never planned to install
5. Other **[SPECIFY]**

98. Don't know

C13. What did you do with the 11W LED(s) *not currently* installed? Select all that apply. **[MULTIPLE RESPONSE]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

C14. How satisfied are you with the 11W LEDs you received?

1. Very satisfied **[SKIP TO 0]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO 0]**

C15. Why are you **[C14]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

[PAGE BREAK]

C16. How many of the 9W LEDs are *currently* installed in your home or business? These bulbs are less bright than the others you received. **[TABLE FORMAT; SEE BELOW]**

Number installed in my home	**[NUMERIC INPUT; MIN. 0, MAX. 4]**
Number installed in my business	**[NUMERIC INPUT; MIN. 0, MAX. 4]**
Number not installed	**[NUMERIC INPUT; MIN. 0, MAX. 4] [IF 0 THEN SKIP TO C19]**
Don't know	**[NUMERIC INPUT; MIN. 0, MAX. 4] [IF 4 THEN SKIP TO C19]**
Total	**[AUTOMATIC SUM; MUST EQUAL 4 TO ADVANCE]**

C17. What is your primary reason for not installing the 9W LED(s) you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Waiting for other bulbs to burn out
4. Have not installed yet/plan to install later
5. Never planned to install
6. Other **[SPECIFY]**

98. Don't know

C18. What did you do with the 9W LED(s) *not currently* installed? Select all that apply. **[MULTIPLE RESPONSE]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

C19. How satisfied are you with the 9W LEDs you received?

1. Very satisfied **[SKIP TO D1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO D1]**

C20. Why are you **[C19]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the color
6. Didn't work properly (delay coming on, flickering, etc.)

7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**
98. Don't know **[EXCLUSIVE]**

A19 LEDs (2)

[ASK SECTION IF FIXED SH, DECORATIVE]

Our records show you received two A-lamp (standard) LEDs in your Energy Saver Pack. A-lamps are typical light bulbs.

C21. How many of the standard LEDs are *currently* installed in your home or business? **[TABLE FORMAT; SEE BELOW]**

Number installed in my home	**[NUMERIC INPUT; MIN. 0, MAX. 2]**
Number installed in my business	**[NUMERIC INPUT; MIN. 0, MAX. 2]**
Number not installed	**[NUMERIC INPUT; MIN. 0, MAX. 2] [IF 0 THEN SKIP TO 0]**
Don't know	**[NUMERIC INPUT; MIN. 0, MAX. 2] [IF 2 THEN SKIP TO 0]**
Total	**[AUTOMATIC SUM; MUST EQUAL 2 TO ADVANCE]**

C22. What is your primary reason for not installing the standard LEDs you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Waiting for other bulbs to burn out
4. Have not installed yet/plan to install later
5. Never planned to install
6. Other **[SPECIFY]**
98. Don't know

C23. What did you do with the standard LED(s) *not currently* installed? **[IF C23 NUMBER INSTALLED = 2 THEN ALLOW UP TO 2 RESPONSES]** Select up to two responses.

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**
98. Don't know **[EXCLUSIVE]**

C24. How satisfied are you with the standard LEDs you received?

1. Very satisfied **[SKIP TO D1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO D1]**

C25. Why are you **[0]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

A19 LEDs (3)

[ASK SECTION IF APS]

Our records show you received three LEDs in your Energy Saver Pack. These are standard light bulbs.

C26. How many of the LEDs are *currently* installed in your home or business? **[TABLE FORMAT; SEE BELOW]**

Number installed in my home	**[NUMERIC INPUT; MIN. 0, MAX. 3]**
Number installed in my business	**[NUMERIC INPUT; MIN. 0, MAX. 3]**
Number not installed	**[NUMERIC INPUT; MIN. 0, MAX. 3] [IF 0 THEN SKIP TO C29]**
Don't know	**[NUMERIC INPUT; MIN. 0, MAX. 3] [IF 3 THEN SKIP TO C29]**
Total	**[AUTOMATIC SUM; MUST EQUAL 3 TO ADVANCE]**

C27. What is your primary reason for not installing the LED(s) you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Waiting for other bulbs to burn out
4. Have not installed yet/plan to install later
5. Never planned to install
6. Other **[SPECIFY]**

98. Don't know

C28. What did you do with the LED(s) *not currently* installed? Select up to three responses. **[ALLOW UP TO 3 RESPONSES]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

C29. How satisfied are you with the LEDs you received?

1. Very satisfied **[SKIP TO D1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO D1]**

C30. Why are you **[C29]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

Globe LEDs

[ASK SECTION IF FIXED SH, HAND SH]

Our records show you received three globe LED light bulbs in your Energy Saver Pack. Globes look like standard light bulbs, but the bulb is larger and rounder.

C31. How many of the globe LEDs are *currently* installed in your home or business? **[TABLE FORMAT; SEE BELOW]**

Number installed in my home	**[NUMERIC INPUT; MIN. 0, MAX. 3]**
Number installed in my business	**[NUMERIC INPUT; MIN. 0, MAX. 3]**
Number not installed	**[NUMERIC INPUT; MIN. 0, MAX. 3] [IF 0 THEN SKIP TO C34]**
Don't know	**[NUMERIC INPUT; MIN. 0, MAX. 3] [IF 3 THEN SKIP TO C34]**
Total	**[AUTOMATIC SUM; MUST EQUAL 3 TO ADVANCE]**

C32. What is your primary reason for not installing the globe LED(s) you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Waiting for other bulbs to burn out
4. Have not installed yet/plan to install later
5. Never planned to install
6. Other **[SPECIFY]**

98. Don't know

C33. What did you do with the globe LED(s) *not currently* installed? Select up to three responses. **[ALLOW UP TO 3 RESPONSES]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

C34. How satisfied are you with the globe LEDs you received?

1. Very satisfied **[SKIP TO D1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO D1]**

C35. Why are you **[C34]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

Reflector LEDs

[ASK SECTION IF FLOOD]

Our records show you received six flood ("reflector") LED light bulbs in your Energy Saver Pack. Reflectors typically are triangle-shaped and emit light through one large flat lens on top of the bulb, as opposed to all the way around like a standard bulb.

C36. How many of the reflector LEDs are *currently* installed in your home or business? **[TABLE FORMAT; SEE BELOW]**

Number installed in my home	**[NUMERIC INPUT; MIN. 0, MAX. 6]**
Number installed in my business	**[NUMERIC INPUT; MIN. 0, MAX. 6]**
Number not installed	**[NUMERIC INPUT; MIN. 0, MAX. 6] [IF 0 THEN SKIP TO C39]**
Don't know	**[NUMERIC INPUT; MIN. 0, MAX. 6] [IF 6 THEN SKIP TO C39]**
Total	**[AUTOMATIC SUM; MUST EQUAL 6 TO ADVANCE]**

C37. What is your primary reason for not installing the reflector LED(s) you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Waiting for other bulbs to burn out
4. Have not installed yet/plan to install later
5. Never planned to install
6. Other **[SPECIFY]**

98. Don't know

C38. What did you do with the LED(s) *not currently* installed? Select all that apply. **[MULTIPLE RESPONSE]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

C39. How satisfied are you with the reflector LEDs you received?

1. Very satisfied **[SKIP TO D1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO D1]**

C40. Why are you **[C39]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

Candelabra LEDs

[ASK SECTION IF DECORATIVE]

Our records show you also received six candelabra LED bulbs in your Energy Saver Pack. Candelabra bulbs are smaller decorative lamps with a bulb shaped like a candle flame.

C41. How many of the candelabra LEDs are *currently* installed in your home or business? **[TABLE FORMAT; SEE BELOW]**

Number installed in my home	**[NUMERIC INPUT; MIN. 0, MAX. 6]**
Number installed in my business	**[NUMERIC INPUT; MIN. 0, MAX. 6]**
Number not installed	**[NUMERIC INPUT; MIN. 0, MAX. 6] [IF 0 THEN SKIP TO C44]**
Don't know	**[NUMERIC INPUT; MIN. 0, MAX. 6] [IF 6 THEN SKIP TO C44]**
Total	**[AUTOMATIC SUM; MUST EQUAL 6 TO ADVANCE]**

C42. What is your primary reason for not installing the candelabra LED(s) you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Waiting for other bulbs to burn out
4. Have not installed yet/plan to install later
5. Never planned to install
6. Other **[SPECIFY]**

98. Don't know

C43. What did you do with the candelabra LED(s) *not currently* installed? Select all that apply. **[MULTIPLE RESPONSE]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

C44. How satisfied are you with the candelabra LEDs you received?

1. Very satisfied **[SKIP TO D1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO D1]**

C45. Why are you **[C44]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

D. Advanced Power Strip

[ASK SECTION IF APS]

Our records show you also received a advanced power strip in your Energy Saver Pack.

D1. Is the advanced power strip you received currently being used?

1. Yes, in my home
2. Yes, in my business (commercial building)
3. Yes, in my business (industrial building)
4. No **[SKIP TO D3]**

98. Don't know **[SKIP TO D6]**

D2. For what purpose(s) are you using your advanced power strip? Select all that apply.

1. Home entertainment center [TVs, cable boxes, streaming devices Apple TV or Roku, DVD players]
2. Home office [laptops, desktop computers, computer monitors, scanners, printers, fax machines]
3. Gaming system
4. Other equipment **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

D3. **[IF D1 = YES]** Did you use the advanced power strip you received but later remove it?

1. Yes
2. No

98. Don't know

D4. **[IF D3 = YES]** What is your primary reason for not using, or installing but later removing, the advanced power strip you received? **[RANDOMIZE]**

1. Broken/didn't work
2. Difficult/unable to set up
3. Didn't like how it looked
4. Didn't like how the attached equipment worked when hooked up to it
5. Not enough regular outlets
6. Have not installed yet/plan to install later
7. Never planned to install
8. Other **[SPECIFY]**

98. Don't know

D5. **[IF D1 = NO]** What did you do with the advanced power strip *not currently* installed?

1. Stored for future use
2. Threw away
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know

D6. How satisfied are you with the advanced power strip you received?

1. Very satisfied **[SKIP TO E1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO E1]**

D7. Why are you **[D6]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Broken/doesn't work
2. Difficult/unable to set up
3. Didn't like how it looks
4. Didn't like how the attached equipment works when hooked up to it
5. Not enough regular outlets
6. Have not installed yet/never planned to install
7. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

E. Showerhead

[ASK SECTION IF FIXED SH, HAND SH, FARMHOUSE KIT]

Our records show you also received a showerhead in your **[ENERGY SAVER PACK/ENERGY-SAVING KIT]**.

E1. Is the showerhead you received *currently* installed in your home?

1. Yes **[SKIP TO E5]**
2. No

98. Don't know **[SKIP TO E5]**

E2. Did you install the showerhead you received but later remove it?

1. Yes
2. No

98. Don't know

E3. What is your primary reason for not using, or installing but later removing, the showerhead you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Didn't fit properly
4. Didn't like how it looked
5. Didn't like the water pressure
6. Have not installed yet/plan to install later
7. Never planned to install
8. Other **[SPECIFY]**

98. Don't know

E4. What did you do with the showerhead *not currently* installed?

1. Stored for future use
2. Threw away
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know

E5. How satisfied are you with the showerhead you received?

1. Very satisfied **[SKIP TO F1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO F1]**

E6. Why are you **[E5]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Broken/doesn't work
2. Difficult/unable to install
3. Didn't fit properly
4. Didn't like the water pressure
5. Didn't like how it looked
6. Have not installed yet/never planned to install
7. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

F. Faucet Aerators

[ASK SECTION IF FIXED SH, HAND SH, FARMHOUSE KIT]

Our records show you also received two faucet aerators in your **[ENERGY SAVER PACK/ENERGY-SAVING KIT]** .

F1. How many of the faucet aerators you received are *currently* installed in your home?

1. 0
2. 1
3. 2

98. Don't know **[SKIP TO F5]**

F2. **[IF F1 QUANTITY > 0]** Where did you install your faucet aerator(s)?

1. Bathroom faucet
2. Kitchen faucet
3. **[IF F1 QUANTITY = 2]** One on bathroom faucet, one on kitchen faucet

98. Don't know

F3. **[IF F1 QUANTITY < 2]** What is your primary reason for not installing the faucet aerator(s) you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Didn't fit properly
4. Didn't like how it looked
5. Didn't like the water pressure
6. Have not installed yet/plan to install later
7. Never planned to install
8. Other **[SPECIFY]**

98. Don't know

F4. **[IF F1 QUANTITY < 2]** What did you do with the faucet aerator(s) *not currently* installed? **[IF F1 QUANTITY = 2 THEN ALLOW UP TO 2 RESPONSES]** Select up to two responses.

1. Stored for future use
2. Threw away
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

F5. How satisfied are you with the faucet aerators you received?

1. Very satisfied **[SKIP TO G1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO G1]**

F6. Why are you **[F5]**? Select all that apply. **[RANDOMIZE]** **[MULTIPLE RESPONSE]**

1. Broken/didn't work
2. Difficult/unable to install
3. Didn't fit properly
4. Didn't like the water pressure
5. Didn't like how they look
6. Have not installed yet/never planned to install
7. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

G. Pipe Wrap Insulation

[ASK SECTION IF LIGHTBULB, FIXED SH, HAND SH, APS, FARMHOUSE KITS]

Our records also show you received pipe wrap insulation in your **[ENERGY SAVER PACK/ENERGY-SAVING KIT]**. This is a roll of one-inch wide stripping that you wrap around your water heater's pipes.

G1. Is the pipe wrap you received *currently* installed in your home?

1. Yes **[SKIP TO G4]**
2. No
98. Don't know **[SKIP TO G4]**

G2. What is your primary reason for not installing the pipe wrap you received? **[RANDOMIZE]**

1. **[IF CUSTOMER TYPE = MULTIFAMILY]** Property owner or manager would not allow install
2. Difficult to install
3. Wrong size
4. Didn't like how it looked
5. Have not installed yet/plan to install later
6. Never planned to install—pipes already fully insulated
7. Never planned to install—not interested in installing
8. Other **[SPECIFY]**
98. Don't know

G3. What did you do with the pipe wrap *not currently* installed?

1. Stored for future use
2. Threw away
3. Gave to someone else
4. Other **[SPECIFY]**
98. Don't know

G4. How satisfied are you with the pipe wrap you received?

1. Very satisfied **[SKIP TO H1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
98. Don't know **[SKIP TO H1]**

G5. Why are you **[G4]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Difficult to install
2. Wrong size
3. Didn't like how it looked
4. Have not installed yet/never planned to install
5. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

H. LED Nightlight

[ASK SECTION IF FARMHOUSE KITS]

Our records also show you received two LED nightlights in your energy-saving kit.

H1. How many of the LED nightlights you received are *currently* installed in your home or business?

1. 0
2. 1
3. 2

98. Don't know **[SKIP TO H5]**

H2. **[IF H1 NUMBER NOT INSTALLED > 0]** When you installed the LED nightlight(s), did you replace an existing nightlight? **[IF H1 NUMBER INSTALLED = 2 THEN ALLOW UP TO 2 RESPONSES]** Select up to two responses.

1. Yes, an LED nightlight
2. Yes, an incandescent nightlight
3. Yes – unsure what kind of nightlight
4. No

98. Don't know

H3. **[IF H1 NUMBER INSTALLED < 2]** What is your primary reason for not installing the LED nightlight(s) you received? **[RANDOMIZE]**

1. Waiting for other nightlights to burn out
2. Too bright
3. Not bright enough
4. Have not installed yet/plan to install later
5. Did not have a place to put it/Never planned to install
6. Other **[SPECIFY]**

98. Don't know

H4. **[IF H1 NUMBER INSTALLED < 2]** What did you do with the LED nightlight *not currently* installed?

1. Stored for future use
2. Threw away
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know

H5. How satisfied are you with the LED nightlight you received?

1. Very satisfied **[SKIP TO I1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO I1]**

H6. Why are you **[H5]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Waiting for other nightlights to burn out
2. Too bright
3. Not bright enough
4. Have not installed yet/never planned to install
5. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

I. Weatherstripping

[ASK SECTION IF FARMHOUSE KITS]

Our records also show you received weatherstripping. This is a self-adhesive rubber strip about ¼" wide used for doors and windows to seal out drafts.

I1. Is the weatherstripping you received *currently* installed in your home?

1. Yes **[SKIP TO I4]**
2. No

98. Don't know **[SKIP TO I4]**

I2. What is your primary reason for not installing the weatherstripping you received? **[RANDOMIZE]**

1. Difficult to install
2. Didn't like how it looked
3. Didn't work/didn't stick well enough
4. Too thick/too thin
5. Did not include enough for the area we wanted to cover
6. Have not installed yet/plan to install later

7. Never planned to install
8. Other **[SPECIFY]**
98. Don't know

I3. What did you do with the weatherstripping *not currently* installed?

1. Stored for future use
2. Threw away
3. Gave to someone else
4. Other **[SPECIFY]**
98. Don't know

I4. How satisfied are you with the weatherstripping you received?

1. Very satisfied **[SKIP TO J1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
98. Don't know **[SKIP TO J1]**

I5. Why are you **[I4]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Difficult to install
2. Didn't like how it looked
3. Didn't work/didn't stick well enough
4. Too thick/too thin
5. Did not include enough for the area we wanted to cover
6. Have not installed yet/never planned to install
7. Other **[SPECIFY]**
98. Don't know **[EXCLUSIVE]**

J. Outlet Gaskets

[ASK SECTION IF FARMHOUSE KITS]

Our records also show you received eight outlet gaskets. These are foam pads that install behind outlet plate covers to help prevent air penetration.

J1. How many of the outlet gaskets you received are *currently* installed in your home?

1. 1
2. 2
3. 3
4. 4
5. 5

6. 6
7. 7
8. 8 **[SKIP TO J4]**
98. Don't know **[SKIP TO J4]**

J2. What is your primary reason for not installing the outlet gaskets you received? **[RANDOMIZE]**

1. Difficult to install
2. Outlet plate didn't fit over them properly
3. Didn't like how they looked
4. Damaged easily
5. Didn't need them all
6. Have not installed yet/plan to install later
7. Never planned to install
8. Other **[SPECIFY]**
98. Don't know

J3. What did you do with the outlet gaskets *not currently* installed? Select all that apply. **[MULTIPLE RESPONSE]**

1. Stored for future use
2. Threw away
3. Gave to someone else
4. Other **[SPECIFY]**
98. Don't know

J4. How satisfied are you with the outlet gaskets you received?

1. Very satisfied **[SKIP TO K1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
98. Don't know **[SKIP TO K1]**

J5. Why are you **[J4]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Difficult to install
2. Outlet plate didn't fit over them properly
3. Didn't like how they looked
4. Damaged easily
5. Didn't need them all
6. Have not installed yet/never planned to install
7. Other **[SPECIFY]**
8. Don't know **[EXCLUSIVE]**

K. Switch Gaskets

[ASK SECTION IF FARMHOUSE KITS]

Our records also show you received four switch gaskets. These are foam pads that install behind light switch covers to help prevent air penetration.

K1. How many of the switch gaskets you received are *currently* installed in your home?

1. 1
2. 2
3. 3
4. 4 **[SKIP TO K4]**

98. Don't know **[SKIP TO K4]**

K2. What is your primary reason for not installing the switch gaskets you received? **[RANDOMIZE]**

1. Difficult to install
2. Outlet plate didn't fit over them properly
3. Didn't like how they looked
4. Damaged easily
5. Didn't need them all
6. Have not installed yet/plan to install later
7. Never planned to install
8. Other **[SPECIFY]**

98. Don't know

K3. What did you do with the switch gaskets *not currently* installed?

1. Stored for future use
2. Threw away
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know

K4. How satisfied are you with the switch gaskets you received?

1. Very satisfied **[SKIP TO L1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO L1]**

K5. Why are you **[K4]**? Select all that apply. **[RANDOMIZE]**

1. Difficult to install
2. Outlet plate didn't fit over them properly
3. Didn't like how they looked
4. Damaged easily
5. Didn't need them all
6. Have not installed yet/plan to install later
7. Other **[SPECIFY]**
8. Don't know **[EXCLUSIVE]**

L. Hot Water Temperature Card

[ASK SECTION IF {LIGHTBULB, FIXED SH, HAND SH, APS}]

Your kit should have included a hot water temperature card that indicates if there is an opportunity to turn down your water heater temperature to save energy.

L1. Did you use the card to test your water temperature?

1. Yes
2. No, but I plan to use it later
3. No, and I don't plan to use it
98. Don't know

L2. **[IF L1 = YES]** Did you reduce the temperature of your water heater as a result of using the card?

1. Yes
2. No
98. Don't know

M. Offering Satisfaction

[ASK IF NOT FARMHOUSE KITS]

The next questions will ask about your experience with your Energy Saver Pack.

M1. Did you request your Energy Saver Pack using the Focus on Energy website, or did you call the 1-800 number?

1. Website
2. 1-800 number **[SKIP TO M4]**
3. Other **[SPECIFY]** **[SKIP TO M4]**
98. Don't know **[SKIP TO M4]**

M2. How easy was it to fill out the online request for your Energy Saver Pack?

1. Very easy **[SKIP TO M4]**
2. Somewhat easy
3. Neither easy nor difficult
4. Somewhat difficult
5. Very difficult

98. Don't know **[SKIP TO M4]**

M3. Why was it **[0]**?

1. **[RECORD RESPONSE]**

98. Don't know

M4. After you submitted the request for your Energy Saver Pack**,** how long did it take to receive the pack in the mail?

1. Less than 2 weeks
2. Between 2 and 4 weeks
3. Between 4 and 6 weeks
4. More than 6 weeks

98. Don't know

M5. How satisfied were you with how long it took to receive your Energy Saver Pack?

1. Very satisfied
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know

M6. How satisfied were you with the guides and educational materials enclosed in your Energy Saver Pack?

1. Very satisfied **[SKIP TO N1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO N1]**

M7. Why were you **[M6]**?

1. Instructions were unclear/I had to consult additional sources (e.g., YouTube)
2. Instructions were missing
3. Already knew everything included in educational materials
4. Other **[SPECIFY]**

98. Don't know

N. Freeridership

The next few questions ask about measures that may already have been installed in your home prior to receiving **[ENERGY SAVER PACK/ENERGY-SAVING KIT]** from Focus on Energy and whether you had plans to purchase any of the pack items on your own.

N1. Before receiving the pack, had you already installed any of the following? **[RECORD RESPONSE FOR EACH, 1 = YES, 2 = NO, 98 = DON'T KNOW]**

a. **[DISPLAY/ASK IF PACK_NAME = LIGHTBULB, FIXED SH, DECORATIVE, APS, FARMHOUSE KITS]** LED A19
b. **[DISPLAY/ASK IF PACK_NAME = FLOOD]** LED BR30 Reflector
c. **[DISPLAY/ASK IF PACK_NAME = FIXED SH, HAND SH]** LED G25 Globe
d. **[DISPLAY/ASK IF PACK_NAME = DECORATIVE]** LED Candelabra
e. **[DISPLAY/ASK IF PACK_NAME = APS]** Advanced power strip
f. **[DISPLAY/ASK IF PACK_NAME = FIXED SH, HAND SH, FARMHOUSE KITS]** High-efficiency showerhead
g. **[DISPLAY/ASK IF PACK_NAME = FIXED SH, HAND SH, FARMHOUSE KITS]** Bathroom faucet aerator
h. **[DISPLAY/ASK IF PACK_NAME = LIGHTBULB, FIXED SH, HAND SH, APS, FARMHOUSE KITS]** Pipe wrap
i. **[DISPLAY/ASK IF PACK_NAME = FARMHOUSE KITS]** LED night light
j. **[DISPLAY/ASK IF PACK_NAME = FARMHOUSE KITS]** Outlet gaskets
k. **[DISPLAY/ASK IF PACK_NAME = FARMHOUSE KITS]** Switch gaskets

N2. **[DISPLAY/ASK IF N1A, N1B, N1C, N1D, N1E, N1F, N1G, N1I, N1J, N1K = 1, OTHERWISE SKIP TO N3]** How many of each of the following **[PACK/KIT]** items were already installed in your home before you received the Focus on Energy **[PACK/KIT]**? **[RECORD RESPONSE FOR EACH, 98 = DON'T KNOW]**

a. **[DISPLAY/ASK IF N1A= 1]** LEDs A19 **(% OF TOTAL SOCKETS): _____**
b. **[DISPLAY/ASK IF N1B= 1]** LEDs BR30 Reflector **(% OF TOTAL SOCKETS): _____**
c. **[DISPLAY/ASK IF N1C= 1]** LEDs G25 Globe **(% OF TOTAL SOCKETS): _____**
d. **[DISPLAY/ASK IF N1D= 1]** LEDs Candelabra **(% OF TOTAL SOCKETS): _____**
e. **[DISPLAY/ASK IF N1E= 1]** Advanced power strips **(# SMART STRIPS): _____**
f. **[DISPLAY/ASK IF N1F= 1]** High-efficiency showerheads **(# SHOWERHEADS): _____**

g. **[DISPLAY/ASK IF N1G= 1]** Bathroom faucet aerators **(# AERATORS): _____**
i. **[DISPLAY/ASK IF N1I= 1]** LED night light **(# LIGHTS): _____**
j. **[DISPLAY/ASK IF N1J= 1]** Outlet gaskets **(# GASKETS): _____**
k. **[DISPLAY/ASK IF N1K= 1]** Switch gaskets **(# GASKETS): _____**

N3. If you had not received the **[ENERGY SAVER PACK/ENERGY-SAVING KIT]** from Focus on Energy, would you have bought any of the following items for your home within 12 months? **[RECORD RESPONSE FOR EACH]**

Measure	Response Options			
	1. Yes, at the same time	2. Yes, later but within 12 months	3. No, not within 12 months	98. Don't know
a. **[DISPLAY/ASK IF PACK_NAME = LIGHTBULB, FIXED SH, DECORATIVE, APS, FARMHOUSE KITS]** LED A19				
b. **[DISPLAY/ASK IF PACK_NAME = FLOOD]** LEDs BR30 Reflector				
c. **[DISPLAY/ASK IF PACK_NAME = FIXED SH, HAND SH]** LED G25 Globe				
d. **[DISPLAY/ASK IF PACK_NAME = DECORATIVE]** LED Candelabra				
e. **[DISPLAY/ASK IF PACK_NAME = APS]** Advanced power strip				
f. **[DISPLAY/ASK IF PACK_NAME = FIXED SH, HAND SH, FARMHOUSE KITS]** High-efficiency showerheads				
g. **[DISPLAY/ASK IF PACK_NAME = FIXED SH, HAND SH, FARMHOUSE KITS]** High-efficiency bathroom faucet aerator				
h. **[DISPLAY/ASK IF PACK_NAME = LIGHTBULB, FIXED SH, HAND SH, APS, FARMHOUSE KITS]** Pipe wrap				
i. **[DISPLAY/ASK IF PACK_NAME = FARMHOUSE KITS]** LED night light				
j. **[DISPLAY/ASK IF PACK_NAME = FARMHOUSE KITS]** Outlet gaskets				
k. **[DISPLAY/ASK IF PACK_NAME = FARMHOUSE KITS]** Switch gaskets				
l. **[DISPLAY/ASK IF PACK_NAME = LIGHTBULB, FIXED SH, HAND SH, APS]** Hot water temperature card				

N4. If you had not received the **[ENERGY SAVER PACK/ENERGY-SAVING KIT]** from Focus on Energy, how many of the following items would you have bought for your home within 12 months? **[RECORD RESPONSE FOR EACH]**

Measure	Response Options	
	[RECORD #]	98. Don't know
a. **[DISPLAY/ASK IF N3A = 1, 2]** LED A19		
b. **[DISPLAY/ASK IF N3B = 1, 2]** LEDs BR30 Reflector		
c. **[DISPLAY/ASK IF N3C = 1, 2]** LED G25 Globe		
d. **[DISPLAY/ASK IF N3D = 1, 2]** LED Candelabra		
e. **[DISPLAY/ASK IF N3E = 1, 2]** Advanced power strip		
f. **[DISPLAY/ASK IF N3F = 1, 2]** High-efficiency showerheads		
g. **[DISPLAY/ASK IF N3G = 1, 2]** Bathroom faucet aerator		
h. **[DISPLAY/ASK IF N3H = 1, 2]** Pipe wrap		
i. **[DISPLAY/ASK IF N3I = 1, 2]** LED night light		
j. **[DISPLAY/ASK IF N3J = 1, 2]** Outlet gaskets		
k. **[DISPLAY/ASK IF N3L = 1, 2]** Switch gaskets		
l. **[DISPLAY/ASK IF N3L = 1, 2]** Hot water temperature card		

O. Energy-Saving Actions

O1. Your **[ENERGY SAVER PACK/ENERGY-SAVING KIT]** should have included a pamphlet with information on actions you can take to save energy. Which of these actions listed in the pamphlet have you taken? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Install ENERGY STAR® certified lightbulbs
2. Use motion-detector lights outdoors
3. Explore connected lighting products
4. Install a smart thermostat
5. Insulate your walls and attic
6. Change furnace filter
7. Upgrade to an energy efficient air conditioner, furnace, heat pump, or boiler
8. Open shades during the day to let in heat from the sun
9. Keep the freezer full
10. Recycle an old, working refrigerator or freezer
11. Purchase a new ENERGY STAR appliance
12. Wash laundry with cold water
13. Reduce your water heater temperature to 120 degrees
14. Install faucet aerators and water-saving showerheads
15. Did not want to take any of these actions **[EXCLUSIVE]**

16. Already took all of these actions before receiving pamphlet **[EXCLUSIVE]**
17. Did not receive pamphlet **[EXCLUSIVE]**
98. Don't know **[EXCLUSIVE]**

O2. Have you taken any other energy-saving actions since you received your **[PACK/KIT]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Turn down the temperature on my furnace
2. Turn up the temperature on my air conditioner
3. Take shorter or fewer showers
4. Not leave water running
5. Turn off appliances
6. Turn off computers
7. Turn off lights
8. Other **[SPECIFY]**
9. Did not take any other actions **[EXCLUSIVE]**
98. Don't know **[EXCLUSIVE]**

O3. **[IF {O1 = 7, 8, OR 9} AND {O2 = 8 OR 9}]** In general, did receiving and installing the energy-efficient products from your **[PACK/KIT]** motivate you to perform these actions?

1. Yes
2. No
98. Don't know

P. Spillover

Now we would like to learn about any energy-saving improvements you may have made since receiving the kit of energy-efficient products from Focus on Energy.

P1. Since receiving the free **[ENERGY SAVER PACK/ENERGY-SAVING KIT]** from Focus on Energy, have you made any other energy savings improvements or high-efficiency equipment purchases for your home that you did NOT receive for free or a rebate from Focus on Energy or another organization?

1. Yes
2. No **[SKIP TO** ERROR! REFERENCE SOURCE NOT FOUND.**]**
98. Don't know **[SKIP TO** ERROR! REFERENCE SOURCE NOT FOUND.**]**

P2. What were the products that you installed without receiving for free or getting a cash-back incentive? Note: A Focus on Energy incentive is not available for every product listed **[ALLOW MULTIPLE RESPONSES]**

1. Gas boiler **[HOW MANY DID YOU INSTALL?]**
2. Gas furnace **[HOW MANY DID YOU INSTALL?]**
3. Gas tankless water heater **[HOW MANY DID YOU INSTALL?]**

4. Gas storage water heater **[HOW MANY DID YOU INSTALL?]**
5. Electric tankless water heater **[HOW MANY DID YOU INSTALL?]**
6. Electric storage water heater **[HOW MANY DID YOU INSTALL?]**
7. Heat pump water heater **[HOW MANY DID YOU INSTALL?]**
8. ENERGY STAR clothes washer **[HOW MANY DID YOU INSTALL?]**
9. ENERGY STAR refrigerator **[HOW MANY DID YOU INSTALL?]**
10. ENERGY STAR freezer **[HOW MANY DID YOU INSTALL?]**
11. ENERGY STAR room air conditioner **[HOW MANY DID YOU INSTALL?]**
12. ENERGY STAR dishwasher
13. Smart thermostat **[HOW MANY DID YOU INSTALL?]**
14. Air source heat pump **[HOW MANY DID YOU INSTALL?]**
15. Ductless heat pump **[HOW MANY DID YOU INSTALL?]**
16. Geothermal heat pump **[HOW MANY DID YOU INSTALL?]**
17. Ground source (geothermal) heat pump **[HOW MANY DID YOU INSTALL?]**
18. Central air conditioner **[HOW MANY DID YOU INSTALL?]**
19. Insulation; attic **[HOW MANY SQUARE FEET?]**
20. Insulation; floor **[HOW MANY SQUARE FEET?]**
21. Insulation; ceiling **[HOW MANY SQUARE FEET?]**
22. Insulation; other **[SPECIFY]** **[HOW MANY SQUARE FEET?]**
23. Low-E storm windows **[HOW MANY SQUARE FEET?]**
24. ENERGY STAR windows **[HOW MANY SQUARE FEET?]**
25. Air sealing **[HOW MANY LINEAR FEET?]**
26. Duct sealing **[HOW MANY LINEAR FEET?]**
27. Advanced power strip **[HOW MANY DID YOU INSTALL?]**
28. Other **[SPECIFY]** **[HOW MANY DID YOU INSTALL?]**
98. Don't Know

P3. **[REPEAT FOR EACH ITEM MENTIONED IN P2]** How important was your experience with Focus on Energy's **[ENERGY SAVER PACK/ENERGY-SAVING KIT]** in your decision to install **[P2]**. Was it…?

1. **[DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT", "DON'T KNOW"]**

[ASK P4 FOR EACH ONE SELECTED IN P2 EXCEPT 3-12 (WATER HEATERS AND APPLIANCES), 23 (LOW-E STORM WINDOWS), 24 (WINDOWS), 27 (ADVANCED POWER STRIP) OR 28 (OTHER).]

P4. Why didn't you apply for and receive a Focus on Energy rebate for **[P2]**?

1. Did not know rebate was available
2. Product did not qualify
3. Other **[SPECIFY]**
98. Don't Know

Q. Customer Demographics

The last few questions are for statistical purposes only.

Q1. * What type of fuel does your water heater use?

1. Natural gas
2. Electricity
3. Propane/Bottled gas
4. Wood
5. Other **[SPECIFY]**

98. Don't know

Q2. * What is the main type of fuel you use to heat your home?

1. Natural Gas
2. Oil
3. Propane
4. Electricity
5. Wood
6. Other **[SPECIFY]**

98. Don't know

Q3. * What type of home do you live in?

1. Mobile/manufactured home
2. Single-family home, detached house
3. Attached house townhouse, row house, or duplex
4. Multifamily apartment or condo building with 4 or more units
5. Co-op/retirement community
6. University housing (dormitory)
7. Other **[SPECIFY]**

98. Don't know

Q4. * Do you or members of your household own or rent this home?

1. Own
2. Rent
3. Other **[SPECIFY]**

98. Don't know

Q5. * What is the highest level of school that you have completed?

1. Less than 9th grade
2. 9th to 12th grade; no diploma
3. High school graduate (includes GED)

4. Some college, no degree
5. Associate's degree
6. Bachelor's degree
7. Graduate or professional degree
99. (Refused)

R. Closing

R1. * Do you have any other comments about your experience with Focus on Energy that you would like to share?

1. **[RECORD RESPONSE]**
98. Don't know

R2. * On occasion, Focus on Energy may want to contact a customer to learn more about their participation experience. May we share your responses with a program manager, who may contact you regarding your experience?

1. Yes
2. No
98. Don't know

R3. Finally, we would like to confirm how to contact you if you are selected as a $100 gift card winner for completing this survey. The gift card winners will be selected and notified within two weeks after this survey closes.

1. FIRSTNAME LASTNAME
2. EMAIL
98. I do not want to be included in the drawing

Thank you. We appreciate your help with this survey. Have a nice day.

[IF R3 ≠ 98] You will be added into the drawing for a $100 gift card.

To learn about additional opportunities to save energy and money in your home, please visit focusonenergy.com.

CADMUS

Wisconsin Focus on Energy - Retail and E-tail Offering

2020 Participant Survey

Estimated survey launch: January 2021
Survey format: Online

Target Quotas:

Measure	Channel	Minimum Target
Smart Thermostats	Retail	70
LED Starter Kit (10 standard LEDs, 1 3-way, 1 desk lamp)	E-tail	70
Reflector (BR30) 6-pack	E-tail	70
Candelabra 6-pack	E-tail	70
Globe 6-pack	E-tail	70
Energy and Water Saving Kit (8 standard LEDs, 1 showerhead, 2 bath aerators, 1 kitchen aerator, temp turndown card, pipe insulation)	E-tail	70

General Instructions:

- Survey programming instructions are in red **[LIKE THIS]**
- Core residential questions are indicated with an asterisk (*). These questions have been previously approved by the Wisconsin PSC and APTIM.
- All questions are single-response unless specified otherwise.
- All questions are forced response, unless specified otherwise.

Variables to be Included in Sample

EMAIL
FIRSTNAME
LASTNAME
CUST IDMEASURE =
"smart thermostat(s)" [TSTAT],
"reflector LEDs" [BR30 PACK],
"candle LEDs" [CANDLE PACK],
"globe LEDs" [GLOBE PACK],
"LED Starter Kit" [STARTER KIT],
"Energy and Water Saving Kit" [MIXED KIT]
TOTAL_ITEMS = number of distinct items purchased (e.g., two globe packs and one thermostat = 2 items)
QUANTITY = total number of "MEASURE" items purchased (only the selected measure – kits and thermostats in units and six-pack quantities in multiples of 6)
MONTH = participation month
EVENT = sponsor of Etail event where products were purchased

Email Invitation

To: [EMAIL]
From: Focus on Energy Feedback
Subject: Are you enjoying your new [MEASURE]? Let us know and you could win $100!

Dear [FIRSTNAME AND LASTNAME],

[IF MEASURE = "smart thermostat(s)"]: We hope you are enjoying the new [MEASURE] you purchased with a discount from Focus on Energy.

[IF MEASURE ≠ "smart thermostat(s)"]: We hope you are enjoying the new [MEASURE] you purchased from a Focus on Energy online retail event, offered through **[EVENT]**.

[ALL MEASURES] Our offerings are designed to help you and your family make smart choices to manage your energy use. That's why we invite you to share **your important feedback** on your recent experience with Focus on Energy, by taking our brief survey.

The survey will take about 10 minutes to complete. **As our thanks for completing the survey, we will enter you in a drawing to win a $100 VISA gift card.**

Just click the link below to get started.

[auto-generated link]

Your input is very important to us and will be kept confidential and only used for research purposes.

If you have problems with the survey link, please contact the survey coordinator, *[survey contact]*, via email at *[email address]*. If you would like to confirm the validity of the research effort, please call Mitch Horrie at the Public Service Commission of Wisconsin at (608) 267-3206.

We hope you will take this opportunity to have your voice heard. Thank you in advance for your time and for sharing your experiences.

Reminder Invitation

To: [EMAIL]
From: Focus on Energy Feedback
Subject: There's still time to give Focus on Energy feedback and win $100!

Dear [FIRSTNAME AND LASTNAME],

We recently invited you to tell us about your experience using Focus on Energy discounts. We would still like to hear from you – **your input is very important to us**! We use the information from participants like you to continue to improve our programs.

Please take about 10 minutes to complete our survey. **As our thanks for completing the survey, we will enter you in a drawing to win a $100 VISA gift card.**

Just click the link below to get started.

[auto-generated link]

Your input is very important to us and will be kept confidential and only used for research purposes.

If you have problems with the survey link, please contact the survey coordinator, *[survey contact]*, via email at *[email address]*. If you would like to confirm the validity of the research effort, please call Mitch Horrie at the Public Service Commission of Wisconsin at (608) 267-3206.

We hope you will take this opportunity to have your voice heard. Thank you in advance for your time and for sharing your experiences.

A. Survey Introduction and Screener

[FOCUS ON ENERGY LOGO TO APPEAR ON START SCREEN]

Welcome! Thank you for sharing your experience with Focus on Energy.

[IF MEASURE = "smart thermostat(s)": Records from Focus on Energy show that you purchased **[MEASURE]** in **[MONTH]** 2020.

[IF MEASURE = "LED Starter Kit" OR "Energy and Water Saving Kit": Records from Focus on Energy show that you purchased an **[MEASURE]** in **[MONTH]** 2020 from a Focus on Energy online retail event, offered through **[EVENT]**.

[IF MEASURE = "reflector LEDs" OR "candle LEDs" OR "globe LEDs": Records from Focus on Energy show that you purchased **[MEASURE]** in **[MONTH]** 2020 from a Focus on Energy online retail event, offered through **[EVENT]**.

[ALL MEASURES] The following survey will ask about your satisfaction with the **[MEASURE]** and your purchasing decisions. At the end, you will be given the opportunity to enter to win a $100 Visa gift card as a token of our appreciation for your time.

[TERMINATE MESSAGE] Those are all the questions we have. Thank you.

A1. **[IF MEASURE = "smart thermostat(s)"]** Did you purchase smart thermostat(s) in 2020?

1. Yes
2. No **[TERMINATE]**
98. I'm not sure **[TERMINATE]**

A2. **[IF MEASURE = "smart thermostat(s)"]** Do you recall receiving a rebate from Focus on Energy for purchasing **[QUANTITY]** smart thermostat(s)?

1. Yes, that is correct
2. Yes, but it was a different quantity of smart thermostats
3. No, did not receive rebate(s) for smart thermostat(s) **[TERMINATE]**
98. I'm not sure **[TERMINATE]**

A3. **[IF MEASURE = "reflector LEDs" OR "candle LEDs" OR "globe LEDs"]** Do you recall purchasing **[QUANTITY] [MEASURE]** from a Focus on Energy online retail event in 2020?

1. Yes, that is correct
2. Yes, but it was a different quantity of **[MEASURE]**
3. No, did not purchase **[MEASURE] [TERMINATE]**
98. I'm not sure **[TERMINATE]**

A4. **[IF MEASURE = "LED Starter Kit"]** Do you recall purchasing **[QUANTITY] [MEASURE]**(s) from a Focus on Energy online retail event in 2020? The kits contained 10 standard LEDs, one 3-way LED, and one desk lamp LED.

1. Yes, that is correct
2. Yes, but it was a different quantity of **[MEASURE]**(s)
3. No, did not purchase **[MEASURE] [TERMINATE]**
98. I'm not sure **[TERMINATE]**

A5. **[IF MEASURE = "Energy and Water Saving Kit"]** Do you recall purchasing **[QUANTITY] [MEASURE]**(s) from a Focus on Energy online retail event in 2020? The kits included LEDs, faucet aerators, a showerhead, and pipe insulation.

1. Yes, that is correct
2. Yes, but it was a different quantity of **[MEASURE]**(s)
3. No, did not purchase **[MEASURE] [TERMINATE]**
98. I'm not sure **[TERMINATE]**

A6. **[IF 0 = 2]** For how many smart thermostat(s) did you receive rebates?

1. **[IF QUANTITY > 1]** One
2. **[IF QUANTITY = 1]** Two
3. More than two
98. I'm not sure

A7. **[IF A3 = 2]** How many **[MEASURE]** did you purchase?

1. **[IF QUANTITY > 1]** One six pack
2. **[IF QUANTITY = 1]** Two six packs
3. More than two six packs
98. I'm not sure

A8. **[IF A4 OR A5= 2]** How many **[MEASURE]**(s) did you purchase?

1. **[IF QUANTITY > 1]** One kit
2. **[IF QUANTITY = 1]** Two kits
3. More than two kits

98. I'm not sure

CREATE C_QUANTITY AND USE IN PLACE OF QUANTITY GOING FORWARD:

- **IF 0, A3, A4 OR A5 = 1: C_QUANTITY = COPY VALUE FROM QUANTITY**
- **IF 0, A3, A4 OR A5 = 2:**
  - **If A6 =1, C_QUANTITY = 1**
  - **If A6 =2 OR 3, C_QUANTITY = 2**
  - **If A6 =98, C_QUANTITY = COPY VALUE FROM QUANTITY**
  - **IF A7 =1, C_QUANTITY = 6**
  - **IF A7 =2 OR 3, C_QUANTITY = 12**
  - **If A7 =98, C_QUANTITY = COPY VALUE FROM QUANTITY**
  - **IF A8 =1, C_QUANTITY = 1**
  - **IF A8 =2 OR 3, C_QUANTITY = 2**
  - **If A8 =98, C_QUANTITY = COPY VALUE FROM QUANTITY**

CREATE VALUES FOR PACK/KIT ITEMS:

- **IF MEASURE = "LED Starter Kit" and C_QUANTITY=1**
  QTY_LED60 = 4
  QTY_LED75 = 3
  QTY_LED100 = 3
  QTY_LED_3WAY = 1
  QTY_LED_DESK = 1
- **IF MEASURE = "LED Starter Kit" and C_QUANTITY=2**
  QTY_LED60 = 8
  QTY_LED75 = 6
  QTY_LED100 = 6
  QTY_LED_3WAY = 2
  QTY_LED_DESK = 2
- **IF MEASURE = "Energy and Water Saving Kit" and C_QUANTITY=1**
  QTY_LED60 = 4
  QTY_LED75 = 2
  QTY_LED100 = 2
  QTY BATH = 2
  QTY_KITCH = 1
  QTY_SHOW = 1
  QTY_PIPE = 1
- **IF MEASURE = "Energy and Water Saving Kit" and C_QUANTITY=2**

QTY_LED60 = 8
QTY_LED75 = 4
QTY_LED100 = 4
QTY BATH = 4
QTY_KITCH = 2
QTY_SHOW = 2
QTY_PIPE = 2

B. Awareness

B1. **[IF MEASURE = "smart thermostat(s)"]** *Where did you most recently hear about Focus on Energy's rebates for smart thermostats? **[RANDOMIZE LIST EXCEPT 7, 8, 9, 20, 98; SINGLE RESPONSE]**

1. When I participated in another Focus on Energy program
2. Utility bill insert / direct mail / brochure / postcard mail from utility
3. Focus on Energy Direct mail/brochure/postcard
4. Focus on Energy email
5. Utility email / electronic newsletter
6. Family / friends / word-of-mouth
7. Focus on Energy website
8. Utility website
9. Other website **[SPECIFY: _____])**
10. Social Media such as Twitter, Facebook, Instagram, etc.
11. Internet advertising / online ad
12. Television
13. Radio
14. Print media - magazine, newspaper article or advertisement
15. Store or store website (Menards, Home Depot, etc.)
16. At a work, community or other event
17. From a utility representative
18. From a Focus on Energy representative
19. Through my employer, school or another organization
20. Some other way: [SPECIFY: _____]
98. I'm not sure **[EXCLUSIVE]**

B2. **[IF MEASURE = "smart thermostat(s)"]** *Are there any other ways you heard about the offering? **[RANDOMIZE LIST EXCEPT FOR 1 (at the top), 7-8-9 (in the middle) AND 21 and 98 (at the bottom). MULTIPLE RESPONSE]**

1. No other ways **[EXCLUSIVE]**
2. When I participated in another Focus on Energy program
3. Utility bill insert / direct mail / brochure / postcard mail from utility
4. Focus on Energy Direct mail/brochure/postcard
5. Focus on Energy email
6. Utility email / electronic newsletter

7. Family / friends / word-of-mouth
8. Focus on Energy website
9. Utility website
10. Other website **[SPECIFY: _____])**
11. Social Media such as Twitter, Facebook, Instagram, etc.
12. Internet advertising / online ad
13. Television
14. Radio
15. Print media - magazine, newspaper article or advertisement
16. Store or store website (Menards, Home Depot, etc.)
17. At a work, community or other event
18. From a utility representative
19. From a Focus on Energy representative
20. Through my employer, school or another organization
21. Some other way: [SPECIFY: _____]
98. I'm not sure **[EXCLUSIVE]**

B3. *What is the best way for Focus on Energy to inform people about energy efficiency offerings?
[RANDOMIZE ITEMS 1-13, MULTIPLE RESPONSE]

1. Promotion through other Focus on Energy offerings
2. Television
3. Radio
4. Print media, such as magazine, newspaper article or advertisement
5. Billboard / outdoor ad
6. Direct mail / brochure / postcard
7. Family / friend / word-of-mouth
8. Email from Focus on Energy
9. Focus on Energy or Utility website
10. Community or utility event
11. Other website: **SPECIFY:_____)**
12. Social Media such as Twitter, Facebook, or Instagram
13. A different source: **[SPECIFY: _____]**
14. I do not want to receive information **[EXCLUSIVE]**
98. I'm not sure **[EXCLUSIVE]**

C. *Motivation*

[IF TOTAL_ITEMS > 1 AND MEASURE = "LED Starter Kit" DISPLAY:] Our records show you purchased more than one type of kit or pack. For these questions, please focus your responses on the **LED Starter Kit that contained 10 standard LEDs, one 3-way LED, and one desk lamp LED**.

[IF TOTAL_ITEMS > 1 AND MEASURE = "Energy and Water Saving Kit" DISPLAY:] Our records show you purchased more than one type of kit or pack. For these questions, please focus your responses on the **Energy and Water Saving Kit that included LEDs, faucet aerators, a showerhead, and pipe insulation**.

[IF TOTAL_ITEMS > 1 AND MEASURE = "smart thermostat(s)" DISPLAY:] Our records show you purchased more than one type of item from Focus on Energy. For these questions, please focus your responses on the **smart thermostat(s)** you purchased.

[IF TOTAL_ITEMS > 1 AND (MEASURE = "reflector LEDs" OR "candle LEDs" OR "globe LEDs") DISPLAY:] Our records show you purchased more than one type of kit or pack. For these questions, please focus your responses on the **[MEASURE]** pack you purchased.

C1. *What was the most important reason you purchased your **[MEASURE]**? **[SINGLE RESPONSE, RANDOMIZE LIST.]**

1. Save energy and be more energy efficient
2. Reduce utility bill
3. Good for the environment
4. Recommended by a friend / relative
5. Recommended by a retailer, dealer, or contractor
6. Discount / incentive from Focus on Energy
7. Recommended by Focus on Energy or my utility
8. Wanted the latest technology
9. **[DISPLAY IF MEASURE = "smart thermostat(s)"]** Product had other features I wanted
10. Utility sponsorship of the offering
11. Smart investment with a good payback
12. Other **[SPECIFY: _____]**

98. I'm not sure

C2. **[WORDING IF MEASURE = "smart thermostat(s)"]** *Other than Focus on Energy's rebates for smart thermostats, are you aware of any other Focus on Energy offerings or rebates? **[WORDING IF MEASURE ≠ "smart thermostat(s)"]** Other than Focus on Energy's discounts for the **[MEASURE]**, are you aware of any other Focus on Energy offerings, discounts or rebates?

1. Yes
2. No

98. I'm not sure

C3. **[ASK IF C2=1]** *For the Focus on Energy offerings listed below, please indicate which ones you are aware of and which you have participated in**.** **[TABLE FORMAT; EACH OFFERING LISTED HAS A DROP DOWN MENU WITH THE THREE OPTIONS BELOW]**

1. Participated in this offering
2. Aware but have not participated
3. Not aware of this offering

Offering	Description
Energy Saving Packs	Free packs of energy saving items such as LEDs and low-flow showerheads and faucet aerators, delivered through the mail
Insulation and Air Sealing	Incentives for weatherizing, with extra incentives for completing an energy assessment
Heating and Cooling	Incentives for upgrading or replacing your heating and cooling equipment
New Construction	Incentives for builders to construct homes that meet ENERGY STAR certification standards
Online Marketplace	Online store available through the Focus on Energy website, offering a range of energy-savings products for your home
Multifamily	A program for renters and landlords, that offers free installation of energy saving items in multifamily properties
Renewable Energy	Incentives for solar PV installations
Appliance Recycling	incentives for recycling your old, working refrigerator, freezer, room air conditioner or dehumidifier
Business offerings	Incentives for upgrades to lighting, heating and cooling and other equipment in commercial, industrial and agricultural property
Schools and Government	Incentives for upgrades to lighting, heating and cooling and other equipment in schools and government buildings
[IF MEASURE="smart thermostat(s)"] Online Retail Events	Limited-time online shopping opportunity that offers discounts on advanced power strips and LEDs, sponsored by an employer, utility, or other organization
[IF MEASURE= "LED Starter Kit" OR "Energy and Water Saving Kit"] Retail Discounts	Discounts on LEDs or smart thermostats purchased in-store at retail locations across the state, or online from the manufacturer's website

D. Smart Thermostats

[ASK SECTION IF MEASURE="smart thermostat(s)"]

The next questions are about the smart thermostat(s) for which you received a Focus on Energy rebate in 2020.

D1. Is a smart thermostat for which you received a Focus on Energy discount *currently* installed in your home or business?

	Installed in my home	Installed in my business	Not installed	I'm not sure
Thermostat 1	◯	◯	◯	◯
[DISPLAY IF C_QUANTITY >1] Thermostat 2	◯	◯	◯	◯

[IF ALL RESPONSES ARE "HOME" OR "BUSINESS" SKIP TO D6]
[IF ALL RESPONSES ARE "NOT SURE" SKIP TO N1]
[IF ALL RESPONSES TO ERROR! REFERENCE SOURCE NOT FOUND. **= "NOT INSTALLED", SKIP TO N1]**

D2. **[IF ANY RESPONSES TO 0 = "NOT INSTALLED"]** Why did you not install the thermostat(s)? **[RANDOMIZE]**

1. Difficult/unable to set up
2. Difficult to use
3. Not compatible with my system
4. Concerned about internet security
5. Didn't like how it looked
6. Never planned to install in my home/business / Purchased as gift
7. Haven't installed yet, but plan to install
8. My contractor recommended that I not use the new thermostat with my heating/cooling equipment
9. Other **[SPECIFY]**

98. I'm not sure

D3. What did you do with the thermostat(s) that you did not install? **[SELECT UP TO 2]**

1. Stored for future use
2. Returned it/Plan to return it
3. Threw away/Disposed of/Sold
4. Gave away as a gift
5. Something else **[SPECIFY]**

98. I'm not sure

D4. **[IF 0=7 OR D3=1]** When do you expect to install your thermostat(s)?

1. Within the next 6 months
2. Within the next 12 months
3. Later than 12 months from now

98. I'm not sure

D5. **[IF D3=4]** Did the person you gave the thermostat(s) to install it in Wisconsin?

1. Yes
2. No
98. I'm not sure

D6. Who installed the smart thermostat(s) currently in your own home or business? **[ALLOW MULTIPLE RESPONSE]**

1. Myself/someone in my household
2. A Focus on Energy participating contractor
3. A non-participating contractor
4. Other **[SPECIFY]**
98. I'm not sure

D7. **[IF 0=1,2]** What equipment does your new thermostat control? Select all that apply. **[SELECT ALL THAT APPLY]**

1. Furnace
2. Boiler
3. Air-source heat pump
4. Ductless heat pump
5. Central air conditioner
6. Other equipment **[SPECIFY]**
98. I'm not sure

The next questions are about your ***previous*** thermostat, the one you used before you purchased a smart thermostat with a discount from Focus on Energy.

D8. What kind of thermostat did you use before you purchased your smart thermostat? **[SELECT ONE]**

1. Manual (you manually adjust the temperatures)
2. Programmable (you schedule certain temperatures at specific times / days)
3. Wi-fi enabled (you are able to adjust or scheduled temperature remotely using your phone or another device)
4. Smart (the thermostat adjusts the temperature for you and you can adjust the temperature remotely)
5. Did not previously use a thermostat **[SKIP TO D11]**
98. I'm not sure **[SKIP TO D11]**

D9. **[IF D8 = 2, 3, OR 4]** Was your ***previous*** thermostat programmed to adjust your home's temperature based on your daily schedule? (For example, did it automatically change the temperature when you were at work or asleep?)

1. Yes
2. No
98. I'm not sure

D10. How often did you manually adjust your ***previous*** thermostat to control the temperature? **[IF D9=1, ADD: "**These are adjustments you would manually make, regardless of the programmed schedule.**"]**

1. Several times a day
2. Several times a week
3. A few times a month
4. Twice a month or less
5. Rarely or never
98. I'm not sure

Next we have a few questions about installing and using your ***new smart thermostat***.

D11. **[IF D6=1]** Did you have any difficulty physically installing your new thermostat?

1. Yes
2. No
98. I'm not sure

D12. **[ASK IF D11= 1]** What was difficult about installing it?

1. [RECORD]

D13. What method do you most often use to control your new smart thermostat?

1. An electronic device (smart phone, tablet or virtual assistant device)
2. Manual, using the controls on the thermostat
3. I don't control the thermostat **[SKIP TO D16]**
4. I'm not sure **[SKIP TO D16]**

D14. Have you had any difficulty setting up or using an electronic device to control your thermostat?

1. Yes
2. No **[SKIP TO D16]**
98. I'm not sure **[SKIP TO D16]**

D15. What has been difficult about setting up or using an electronic device to control your thermostat?

1. **[RECORD]**

D16. What other wi-fi connected devices that help save energy do you have installed in your home? **[MULTIPLE RESPONSE]**

1. None **[EXCLUSIVE]**
2. Smart plugs
3. Smart switches
4. Smart LED bulbs
5. Motion sensors
6. Light sensors
7. Temperature sensors
8. Door/windows closure sensors
9. Another device **[SPECIFY]**

98. I'm not sure

E. LED-Only Packs

[ASK SECTION IF MEASURE= "reflector LEDs" OR "candle LEDs" OR "globe LEDs"]

[DISPLAY IF TOTAL_ITEMS > 1] Our records show you purchased more than one type of kit or pack. For these questions, please focus your responses on the **[MEASURE]** you purchased.

E1. Our records show you purchased a pack of **[C_QUANTITY] [MEASURE]** from the Focus on Energy online retail event. How many of the **[C_QUANTITY] [MEASURE]** from the Focus on Energy pack are *currently* installed in your home or business? **[TABLE FORMAT; SEE BELOW]**

a	Installed in my home	**[NUMERIC 0-99]**
b	Installed in my business	**[NUMERIC 0-99]**
c	Not currently installed	**[NUMERIC 0-99]**
d	Not sure	**[NUMERIC 0-99]**
e	Total	**[AUTO SUM; MUST EQUAL C_QUANTITY]**

[IF E1c = 0 AND E1d = 0; SKIP TO E5]

E2. **[IF E1c>0]** Did you install some of the LEDs but later remove them?

1. Yes
2. No

98. I'm not sure

E3. **[IF E1c>0]** What is your primary reason for not installing, or removing, the LEDs you purchased? **[RANDOMIZE]**

1. Waiting for other bulbs to burn out
2. Have not installed yet, but plan to install later
3. Don't like the way the LEDs look
4. Don't like the light quality from the LEDs
5. Doesn't work with my dimmer or 3-way switch

6. Gave the LEDs away, or no longer have them
7. LEDs are broken, or failed or malfunctioned
8. Never planned to install
9. Other reason **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

E4. **[IF E1c > 0]** What did you do with the **[MEASURE]** *not currently* installed? Select up to two responses. **[ALLOW UP TO 2 RESPONSES]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

E5. How satisfied are you with the LEDs you purchased?

1. Very satisfied [**SKIP TO L1**]
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
98. I'm not sure **[SKIP TO L1]**

E6. Why are you **[RESPONSE FROM E5]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the light color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F. Starter/Energy-Water Kit LEDs

[ASK SECTION IF MEASURE= "LED Starter Kit" OR "Energy and Water Saving Kit"]

[IF TOTAL_ITEMS > 1 AND MEASURE = "LED Starter Kit" DISPLAY:] Our records show you purchased more than one type of kit or pack. For these questions, please focus your responses on the **LED Starter Kit that contained 10 standard LEDs, one 3-way LED, and one desk lamp LED**.

[IF TOTAL_ITEMS > 1 AND MEASURE = "Energy and Water Saving Kit" DISPLAY:] Our records show you purchased more than one type of kit or pack. For these questions, please focus your responses on the **Energy and Water Saving Kit that included LEDs, faucet aerators, a showerhead, and pipe insulation**.

Our records show you received the following LEDs in your **[MEASURE]**.

Item **[INCLUDE ONLY ITEMS WHERE QTY>0]**	Description	Quantity
[IF QTY_LED60>0] 9w LEDs	60-watt equivalent, standard brightness	**QTY_LED60**
[IF QTY_LED75>0] 11w LEDs	75-watt equivalent, brighter	**QTY_LED75**
[IF QTY_LED100>0] 16w LEDs	100-watt equivalent, brightest	**QTY_LED100**
[IF QTY_LED_3WAY >0] 3-way LED(s)	3 levels of brightness	**QTY_LED_3WAY**
[IF QTY_LED_DESK >0] LED Desk Lamp(s)		**QTY_LED_DESK**

Standard LEDs – 60 watt

F1. You received **[QTY_LED60]** 9w (60 watt equivalent) LEDs in your **[MEASURE]**. How many of these bulbs are *currently* installed in your home or business? **[TABLE FORMAT; SEE BELOW]**

a	Installed in my home	**[NUMERIC 0-99]**
b	Installed in my business	**[NUMERIC 0-99]**
c	Not currently installed	**[NUMERIC 0-99]**
d	Not sure	**[NUMERIC 0-99]**
e	Total	**[AUTO SUM; MUST EQUAL QTY_LED60]**

[IF F1c + F1d = 0; SKIP TO F5]

F2. Did you install some of the **9 watt LEDs** but later remove them?

1. Yes
2. No
98. I'm not sure

F3. What is your primary reason for not installing, or removing, the **9 watt LEDs** you purchased? **[RANDOMIZE]**

1. Waiting for other bulbs to burn out
2. Have not installed yet, but plan to install later
3. Don't like the way the LEDs look
4. Don't like the light quality from the LEDs
5. Doesn't work with my dimmer or 3-way switch
6. Gave the LEDs away, or no longer have them
7. LEDs are broken, or failed or malfunctioned
8. Never planned to install
9. Other reason **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F4. What did you do with the **9 watt LEDs** *not currently* installed? Select up to two responses. **[ALLOW UP TO 2 RESPONSES]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**

98. I'm not sure **[EXCLUSIVE]**

F5. How satisfied are you with the **9 watt LEDs** included in the kit you purchased?

1. Very satisfied [**SKIP TO F7**]
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. I'm not sure **[SKIP TO F7]**

F6. Why are you **[RESPONSE FROM F5]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the light color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**

98. I'm not sure **[EXCLUSIVE]**

Standard LEDs - 75 watt equiv

F7. You received **[QTY_LED75]** **11w (75 watt equivalent) LEDs** in your **[MEASURE]**. How many of these bulbs are *currently* installed in your home or business? **[TABLE FORMAT; SEE BELOW]**

a	Installed in my home	**[NUMERIC 0-99]**
b	Installed in my business	**[NUMERIC 0-99]**
c	Not currently installed	**[NUMERIC 0-99]**
d	Not sure	**[NUMERIC 0-99]**
e	Total	**[AUTO SUM; MUST EQUAL QTY_LED75]**

[IF F7c + F7d = 0; SKIP TO F11]

F8. Did you install some of the **11 watt LEDs** but later remove them?

1. Yes
2. No
98. I'm not sure

F9. What is your primary reason for not installing, or removing, the **11 watt LEDs** you purchased? **[RANDOMIZE]**

1. Waiting for other bulbs to burn out
2. Have not installed yet, but plan to install later
3. Don't like the way the LEDs look
4. Don't like the light quality from the LEDs
5. Doesn't work with my dimmer or 3-way switch
6. Gave the LEDs away, or no longer have them
7. LEDs are broken, or failed or malfunctioned
8. Never planned to install
9. Other reason **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F10. What did you do with the **11 watt LEDs** *not currently* installed? Select up to two responses. **[ALLOW UP TO 2 RESPONSES]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F11. How satisfied are you with the **11 watt LEDs** included in the kit you purchased?

1. Very satisfied **[SKIP TO F13]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
98. I'm not sure **[SKIP TO F13]**

F12. Why are you **[RESPONSE FROM F11]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the light color
6. Didn't work properly (delay coming on, flickering, etc.)

7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

Standard LEDs – 100 watt

F13. You received **[QTY_LED100]** **16w (100 watt equivalent) LEDs** in your **[MEASURE]**. How many of these bulbs are *currently* installed in your home or business? **[TABLE FORMAT; SEE BELOW]**

a	Installed in my home	**[NUMERIC 0-99]**
b	Installed in my business	**[NUMERIC 0-99]**
c	Not currently installed	**[NUMERIC 0-99]**
d	Not sure	**[NUMERIC 0-99]**
e	Total	**[AUTO SUM; MUST EQUAL QTY_LED100]**

[IF F13c + F13d = 0; SKIP TO F17]

F14. Did you install some of the **16 watt LEDs** but later remove them?

1. Yes
2. No
98. I'm not sure

F15. What is your primary reason for not installing, or removing, the **16 watt LEDs** you purchased? **[RANDOMIZE]**

1. Waiting for other bulbs to burn out
2. Have not installed yet, but plan to install later
3. Don't like the way the LEDs look
4. Don't like the light quality from the LEDs
5. Doesn't work with my dimmer or 3-way switch
6. Gave the LEDs away, or no longer have them
7. LEDs are broken, or failed or malfunctioned
8. Never planned to install
9. Other reason **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F16. What did you do with the **16 watt LEDs** *not currently* installed? Select up to two responses. **[ALLOW UP TO 2 RESPONSES]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F17. How satisfied are you with the **16 watt LEDs** included in the kit you purchased?

1. Very satisfied [**SKIP TO F19**]
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
98. I'm not sure **[SKIP TO F19]**

F18. Why are you **[RESPONSE FROM F17]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the light color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

3-way LED

F19. You received **[QTY_LED_3WAY]** **3-way LEDs** in your **[MEASURE]**. How many of these bulbs are *currently* installed in your home or business? **[TABLE FORMAT; SEE BELOW]**

a	Installed in my home	**[NUMERIC 0-99]**
b	Installed in my business	**[NUMERIC 0-99]**
c	Not currently installed	**[NUMERIC 0-99]**
d	Not sure	**[NUMERIC 0-99]**
e	Total	**[AUTO SUM; MUST EQUAL QTY_LED_3WAY]**

[IF F19c + F19d = 0; SKIP TO F23]

F20. Did you install some of the **3-way LED(s)** but later remove them?

1. Yes
2. No
98. I'm not sure

F21. What is your primary reason for not installing, or removing, the **3-way LED(s)** you purchased? **[RANDOMIZE]**

1. Waiting for other bulbs to burn out
2. Have not installed yet, but plan to install later

3. Don't like the way the LEDs look
4. Don't like the light quality from the LEDs
5. Doesn't work with my dimmer or 3-way switch
6. Gave the LEDs away, or no longer have them
7. LEDs are broken, or failed or malfunctioned
8. Never planned to install
9. Other reason **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F22. What did you do with the **3-way LED(s)** *not currently* installed? Select up to two responses. **[ALLOW UP TO 2 RESPONSES]**

1. Stored for future use
2. Discarded/recycled
3. Gave to someone else
4. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F23. How satisfied are you with the **3-way LED(s)** you purchased?

1. Very satisfied [**SKIP TO F25**]
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
98. I'm not sure **[SKIP TO F25]**

F24. Why are you **[RESPONSE FROM F23]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Didn't fit properly in fixture
3. Difficult/unable to install
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the light color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Didn't work with dimmer/three-way switch
8. Have not installed yet/never planned to install
9. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

Desk Lamp

F25. You received **[QTY_LED_DESK] LED desk lamp(s)** in your **[MEASURE]**. How many of these lamps are you using in your home or business? **[TABLE FORMAT; SEE BELOW]**

a	Using in my home	**[NUMERIC 0-99]**
b	Using in my business	**[NUMERIC 0-99]**
c	Not currently using	**[NUMERIC 0-99]**
d	Not sure	**[NUMERIC 0-99]**
e	Total	**[AUTO SUM; MUST EQUAL QTY_LED_DESK]**

[IF F25c + F25d = 0; SKIP TO F29]

F26. Did you use some of the **desk lamps** but later stop using them?

1. Yes
2. No
98. I'm not sure

F27. What is your primary reason for not using the **desk lamp(s)** you purchased? **[RANDOMIZE]**

1. Not using yet, but plan to use later
2. Don't like the way the desk lamp looks
3. Don't like the light quality from the LEDs
4. Gave the lamp(s) away, or no longer have them
5. Lamp(s) are broken, or failed or malfunctioned
6. Never planned to use, don't have a need for it
7. Other reason **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F28. What did you do with the **desk lamps** that you're *not currently* using? Select up to two responses. **[ALLOW UP TO 2 RESPONSES]**

1. Stored for future use
2. Discarded
3. Gave to someone else
4. Other **[SPECIFY]**
98. I'm not sure **[EXCLUSIVE]**

F29. How satisfied are you with the **desk lamps** you purchased?

1. Very satisfied [**SKIP TO G1**]
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
98. I'm not sure **[SKIP TO G1]**

F30. Why are you **[RESPONSE FROM F29]**? Select all that apply. **[RANDOMIZE] [MULTIPLE RESPONSE]**

1. Burned out/broke/stopped working
2. Don't like the way the lamp looks
3. Don't like the lamp features or design (height, switch location, etc.)
4. Worked properly, but not bright enough
5. Worked properly, but didn't like the light color
6. Didn't work properly (delay coming on, flickering, etc.)
7. Have not installed yet/never planned to install
8. Other **[SPECIFY]**

98. I'm not sure **[EXCLUSIVE]**

G. Aerators

[ASK IF C>0]

G1. Our records show you also received **[QTY_BATH]** bathroom faucet aerators and **[QTY_KITCH]** kitchen faucet aerators in your Energy and Water Saving Kit.

G2. How many of the **bathroom** faucet aerator(s) you received are *currently* installed in your home?

1. **[RECORD RESPONSE. 0-2]** _____

98. Don't know **[SKIP TO G6]**

G3. How many of the **kitchen** faucet aerator(s) you received are *currently* installed in your home?

1. **[RECORD RESPONSE. 0-1]** _____

98. Don't know **[SKIP TO G6]**

IF G2 = [QTY_BATH] AND G3 = [QTY_KITCH] SKIP TO G6

G4. What is your primary reason for not installing the faucet aerator(s) you received? **[RANDOMIZE]**

1. Property owner or manager would not allow install
2. Difficult to install
3. Didn't fit properly
4. Didn't like how it looked
5. Didn't like the water pressure
6. Have not installed yet/plan to install later
7. Never planned to install
8. Other **[SPECIFY]**

98. Don't know

G5. What did you do with the faucet aerator(s) *not currently* installed? Select up to two responses.

1. Stored for future use
2. Threw away
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

G6. How satisfied are you with the faucet aerator(s) you received?

1. Very satisfied **[SKIP TO H1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TOH1]**

G7. Why are you **[RESPONSE FROM G6]**? **SELECT ALL THAT APPLY. [RANDOMIZE] [MULTIPLE RESPONSE]**

1. Broken/didn't work
2. Difficult/unable to install
3. Didn't fit properly
4. Didn't like the water pressure
5. Didn't like how they look
6. Have not installed yet/never planned to install
7. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

H. Showerheads

[ASK IF QTY_SHOW>0]

H1. Each Energy and Water Saving kit includes a showerhead. Is the showerhead from your Energy and Water Saving kit *currently* installed in your home?

1. Yes
2. No

98. Don't know **[SKIP TO H5]**

IF H1 = YES SKIP TO H5

H2. Did you install the showerhead you purchased but later remove it?

1. Yes
2. No

98. Don't know

H3. What is your primary reason for not using, or installing but later removing, the showerhead you received? **[RANDOMIZE]**

1. Property owner or manager would not allow install
2. Difficult to install
3. Didn't fit properly
4. Didn't like how it looked
5. Didn't like the water pressure
6. Have not installed yet/plan to install later
7. Never planned to install
8. Other **[SPECIFY]**

98. Don't know

H4. What did you do with the showerhead you received?

1. Stored for future use
2. Threw away
3. Gave to someone else
4. Other **[SPECIFY]**

98. Don't know

H5. How satisfied are you with the showerhead you received?

1. Very satisfied **[SKIP TO I1]**
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

98. Don't know **[SKIP TO I1]**

H6. Why are you **[RESPONSE FROM H5]**? **SELECT ALL THAT APPLY. [RANDOMIZE] [MULTIPLE RESPONSE]**

1. Broken/doesn't work
2. Difficult/unable to install
3. Didn't fit properly
4. Didn't like the water pressure
5. Didn't like how it looked
6. Have not installed yet/never planned to install
7. Other **[SPECIFY]**

98. Don't know **[EXCLUSIVE]**

I. Temp Card

[ASK SECTION IF MEASURE = "Energy and Water Saving Kit"]

Your kit included a hot water temperature card that indicates if there is an opportunity to turn down your water heater temperature to save energy.

I1. Did you use the card to test your water temperature?

1. Yes
2. No, but I plan to use it later
3. No, and I don't plan to use it
98. Don't know

I2. **[IF I1 = YES]** Did you reduce the temperature of your water heater as a result of using the card?

1. Yes
2. No
98. Don't know

J. Pipe Insulation

[ASK SECTION IF MEASURE = "Energy and Water Saving Kit"]

Your kit included pipe wrap for your hot water pipes.

J1. Did you use the pipe wrap?

1. Yes
2. No, but I plan to use it later
3. No, and I don't plan to use it
98. Don't know

J2. **[IF J1 = YES]** about how much did you use?

1. All of it
2. Not all, but more than half
3. Some, but less than half
4. None
98. Don't know

K. Smart Thermostat Freeridership

[ASK SECTION IF MEASURE="smart thermostat(s)"]

[FORCED RESPONSES ACCORDING TO PROGRAMMING INSTRUCTIONS]

The next questions are about how you made your decisions to purchase smart thermostat(s).

K1. When did you first hear about the availability of a Focus on Energy rebate for smart thermostats? Was it….

1. Before you made your purchase **[SKIP TO K3]**
2. After you purchased the **[MEASURE]** **[ASK** K2**]**
3. I had not heard of Focus on Energy before this survey **[ASK K2]**
98. Don't know **[SKIP TO K3]**

K2. **[ASK IF K1= 2, 3]** So just to be clear, you purchased your smart thermostat before you heard anything about the Focus on Energy rebate. Is that correct?

1. Yes, that's correct **[SKIP TO K7]**
2. No, that's not correct **[ASK K3]**
98. Don't know **[ASK K3]**

K3. Before you heard about the rebate and information from Focus on Energy, had you already considered purchasing **[MEASURE]**?

1. Yes
2. No
98. Don't know

K4. Without the rebate and information from Focus on Energy, what kind of thermostat would you have purchased?

1. A smart or learning thermostat
2. A WiFi thermostat (non-learning)
3. A programmable thermostat
4. A manual thermostat
5. Would not have purchased a new thermostat
98. Don't know

K5. Would you have purchased the same quantity of smart thermostats without the rebate and information from Focus on Energy?

1. Yes, the same quantity **[ASK K6]**
2. **[APPEARS IF C_QUANTITY > 1]** No, would have purchased fewer **[ASK K6]**
3. No, would have purchased more **[ASK K6]**
4. No, would not have purchased anything at all **[SKIP TO** K7**]**
98. Don't know **[ASK K6]**

K6. Thinking about timing, without the rebate and information from Focus on Energy, would you have purchased the smart thermostat …?

1. At the same time
2. Later, but within 12 months
3. One to two years out
4. More than two years out
5. Never
98. Don't know

K7. **[ASK EVERYONE]** We would like to know more about the factors that contributed to your purchase of the smart thermostat. Below is a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the smart thermostat. **[1 TO 6 - RANDOMIZE LIST] [DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT"]**

1. [Response from C1 IF C1 ≠ 5 OR 6 OR 98]
2. The Focus on Energy rebate
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy
5. Information from your utility
6. Recommendation from a store representative, dealer or contractor
7. Previous participation in a Focus on Energy energy-efficiency offering or program

L. Pack/Kit Freeridership

The next questions ask about measures that may already have been installed in your home prior to purchasing the **[MEASURE]** from Focus on Energy and whether you had plans to purchase any of the items on your own.

L1. Before purchasing the **[MEASURE]**, had you already installed any of the following types of items in your home or business? **[RECORD RESPONSE FOR EACH, 1 = YES, 2 = NO, 98 = DON'T KNOW]**

Measure	Response Options		
	1. YES	2. NO	98. Don't know
[DISPLAY IF MEASURE = "LED Starter Kit" OR "Energy and Water Saving Kit"] Standard A-Lamp LEDs			
[DISPLAY IF MEASURE = "reflector LEDs"] BR30 Reflector LEDs			
[DISPLAY IF MEASURE = "globe LEDs"] Globe LEDs			
[DISPLAY IF MEASURE = "candle LEDs"] Candelabra LEDs			
[DISPLAY IF MEASURE = "LED Starter Kit"] 3-Way LEDs			
[DISPLAY IF MEASURE = "Energy and Water Saving Kit"]			

High-efficiency showerheads			
[DISPLAY IF MEASURE = "Energy and Water Saving Kit"] High-efficiency faucet aerators			
[DISPLAY IF MEASURE = "Energy and Water Saving Kit"] Pipe wrap			
[DISPLAY IF MEASURE = "LED Starter Kit"] LED desk lamps			

L2. **[DISPLAY IF L10, L1**ERROR! REFERENCE SOURCE NOT FOUND.**, L1**ERROR! REFERENCE SOURCE NOT FOUND.**, L1**ERROR! REFERENCE SOURCE NOT FOUND.**, L1**ERROR! REFERENCE SOURCE NOT FOUND.**, L1**ERROR! REFERENCE SOURCE NOT FOUND.**, L1**ERROR! REFERENCE SOURCE NOT FOUND. **= 1, OTHERWISE SKIP TO L3]** How many of each of the following **[PACK/KIT]** items were already installed in your home or business before you purchased the Focus on Energy **[MEASURE]**? **[RECORD RESPONSE FOR EACH, 98 = DON'T KNOW]**

Measure	Response Options	
	[RECORD #]	98. Don't know
[DISPLAY IF L10 = 1] Standard A-Lamp LEDs **(% OF TOTAL SOCKETS)**		
[DISPLAY IF L1ERROR! REFERENCE SOURCE NOT FOUND. **= 1]** BR30 Reflector LEDS **(% OF TOTAL SOCKETS)**		
[DISPLAY IF L1ERROR! REFERENCE SOURCE NOT FOUND. **= 1]** Globe LEDS **(% OF TOTAL SOCKETS)**		
[DISPLAY IF L1ERROR! REFERENCE SOURCE NOT FOUND. **= 1]** Candelabra LEDS **(% OF TOTAL SOCKETS)**		
[DISPLAY IF L1ERROR! REFERENCE SOURCE NOT FOUND. **= 1]** 3-Way LEDs **(% OF TOTAL SOCKETS)**		
[DISPLAY IF L1ERROR! REFERENCE SOURCE NOT FOUND. **= 1]** High-efficiency showerheads **(# OF SHOWERHEADS)**		
[DISPLAY IF L1ERROR! REFERENCE SOURCE NOT FOUND. **= 1]** High-efficiency faucet aerators **(# OF AERATORS)**		
[DISPLAY IF L1ERROR! REFERENCE SOURCE NOT FOUND. **= 1]** LED desk lamps **(# OF LAMPS)**		

L3. If you had not purchased the **[MEASURE]** from Focus on Energy, would you have bought any of the following items for your home or business within 12 months? **[RECORD RESPONSE FOR EACH]**

Measure	Response Options			
	1. Yes, at the same time	2. Yes, later but within 12 months	3. No, not within 12 months	98. Don't know
a. **[DISPLAY IF MEASURE = "LED Starter Kit" OR "Energy and Water Saving Kit"]** Standard A-Lamp LEDs				
b. **[DISPLAY IF MEASURE = " reflector LEDs"]** BR30 Reflector				

LEDs				
c. **[DISPLAY IF MEASURE = "globe LEDs"]** Globe LEDs				
d. **[DISPLAY IF MEASURE = "candle LEDs"]** Candelabra LEDS				
e. **[DISPLAY IF MEASURE = "LED Starter Kit"]** 3-Way LEDs				
f. **[DISPLAY IF MEASURE = "Energy and Water Saving Kit"]** High-efficiency showerheads				
g. **[DISPLAY IF MEASURE = "Energy and Water Saving Kit"]** High-efficiency faucet aerators				
h. **[DISPLAY IF MEASURE = "Energy and Water Saving Kit"]** Pipe wrap				
i. **[DISPLAY IF MEASURE = "LED Starter Kit"]** LED desk lamps				
j. **[DISPLAY IF MEASURE = "Energy and Water Saving Kit"]** Hot water temperature card				

L4. If you had not purchased the **[MEASURE]** from Focus on Energy, how many of the following items would you have bought for your home or business within 12 months? **[RECORD RESPONSE FOR EACH]**

Measure	Response Options	
	[RECORD #]	98. Don't know
a. **[DISPLAY IF L3A = 1, 2]** Standard A-Lamp LEDs		
b. **[DISPLAY IF L3B = 1, 2]** BR30 Reflector LEDs		
c. **[DISPLAY IF L3C = 1, 2]** Globe LEDs		
d. **[DISPLAY IF L3D = 1, 2]** Candelabra LEDs		
e. **[DISPLAY IF L3E = 1, 2]** 3-Way LEDs		
f. **[DISPLAY IF L3F = 1, 2]** High-efficiency showerheads		
g. **[DISPLAY IF L3G = 1, 2]** High-efficiency faucet aerator		
i. **[DISPLAY IF L3I = 1, 2]** LED desk lamps		

M. Spillover

[FORCED RESPONSES ACCORDING TO PROGRAMMING INSTRUCTIONS]

Now we would like to learn about any energy-saving improvements you may have made since purchasing the **[MEASURE]** and receiving a discount or rebate from Focus on Energy.

M1. Since purchasing the **[MEASURE]** discounted by Focus on Energy, have you made any other energy savings improvements or high-efficiency equipment purchases for your home that you did NOT receive for free or a cash-back incentive from Focus on Energy or another organization?

1. Yes
2. No [SKIP TO NEXT SECTION]

98. Don't know **[SKIP TO SECTION NEXT SECTION]**

M2. What were the products that you installed without receiving for free or getting a cash-back incentive?

1. Gas boiler **[HOW MANY DID YOU INSTALL?]**
2. Gas furnace **[HOW MANY DID YOU INSTALL?]**
3. Gas tankless water heater **[HOW MANY DID YOU INSTALL?]**
4. Gas storage water heater **[HOW MANY DID YOU INSTALL?]**
5. Electric tankless water heater **[HOW MANY DID YOU INSTALL?]**
6. Electric storage water heater **[HOW MANY DID YOU INSTALL?]**
7. Insulation; attic **[HOW MANY SQUARE FEET?]**
8. Insulation; floor **[HOW MANY SQUARE FEET?]**
9. Insulation; ceiling **[HOW MANY SQUARE FEET?]**
10. Insulation; other [SPECIFY: _____]**[HOW MANY SQUARE FEET?]**
11. Air sealing **[HOW MANY LINEAR FEET?]**
12. Duct sealing **[HOW MANY LINEAR FEET?]**
13. Low-E Storm windows **[HOW MANY SQUARE FEET?]**
14. ENERGY STAR windows **[HOW MANY SQUARE FEET?]**
15. ENERGY STAR air purifier **[HOW MANY DID YOU INSTALL?]**
16. ENERGY STAR dehumidifier **[HOW MANY DID YOU INSTALL?]**
17. ENERGY STAR clothes washer **[HOW MANY DID YOU INSTALL?]**
18. ENERGY STAR dishwasher **[HOW MANY DID YOU INSTALL?]**
19. ENERGY STAR pool pump **[HOW MANY DID YOU INSTALL?]**
20. ENERGY STAR room air conditioner **[HOW MANY DID YOU INSTALL?]**
21. ENERGY STAR refrigerator **[HOW MANY DID YOU INSTALL?]**
22. ENERGY STAR freezer **[HOW MANY DID YOU INSTALL?]**
23. Smart thermostat **[HOW MANY DID YOU INSTALL?]**
24. Heat pump water heater **[HOW MANY DID YOU INSTALL?]**
25. Central air conditioner **[HOW MANY DID YOU INSTALL?]**
26. Air source heat pump **[HOW MANY DID YOU INSTALL?]**
27. Ductless heat pump **[HOW MANY DID YOU INSTALL?]**
28. Ground source heat pump
29. Heat pump; other [SPECIFY: _____] **[HOW MANY DID YOU INSTALL?]**
30. Advanced power strip **[HOW MANY DID YOU INSTALL?]**
31. Other [SPECIFY: _____] **[HOW MANY DID YOU INSTALL?]**
98. Don't know **[SKIP TO SECTION NEXT SECTION]**

M3. **[FOR EACH ITEM MENTIONED IN M2]** How important was your experience with the Focus on Energy **[MEASURE]** offering in your decision to install these items?

[INSERT SELECTION FROM M2]	**DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT", "DON'T KNOW"]**

[INSERT SELECTION FROM M2]	**DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT", "DON'T KNOW"]**
[INSERT SELECTION FROM M2]	**DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT", "DON'T KNOW"]**

[ASK M4 FOR EACH ONE SELECTED IN M2 EXCEPT 3 (gas tankless water heater) , 4 (gas storage water heater), 5 (electric tankless water heater), 6 (electric storage water heater), 13 (Low-E Storm windows), 14 (ENERGY STAR windows), 15 (ENERGY STAR air purifier), 16 (ENERGY STAR dehumidifier), 17 (ENERGY STAR clothes washer), 18 (ENERGY STAR dishwasher), 19 (ENERGY STAR pool pump), 20 (ENERGY STAR room air conditioner), 22 (ENERGY STAR refrigerator), 22 (ENERGY STAR freezer), 30 (advanced power strip) OR 31 (other).]

M4. Why didn't you apply for and receive a Focus on Energy rebate for **[INSERT EACH ONE SELECTED IN M2]**?

1. Did not know rebate was available
2. Product did not qualify
3. Other **[SPECIFY: _____]**

98. Don't know

N. Demographics and Household Characteristics

The last few questions are for statistical purposes only.

N1. * What type of fuel does your **water heater** use?

1. Natural gas
2. Electricity
3. Propane/Bottled gas
4. Wood
5. Other **[SPECIFY:_____]**

98. I'm not sure

N2. * What is the main type of fuel you use to **heat your home**?

1. Natural Gas
2. Oil
3. Propane
4. Electricity
5. Wood
6. Other **[SPECIFY:_____]**

98. I'm not sure

N3. * What type of home do you live in?

1. Mobile/manufactured home

2. Single-family home, detached house
3. Attached house townhouse, row house, or duplex
4. Multifamily apartment or condo building with 4 or more units
5. Co-op/retirement community
6. Other **[SPECIFY:_____]**
98. I'm not sure

N4. * Do you or members of your household own or rent this home?

1. Own
2. Rent
3. Other: **SPECIFY:_____**
98. I'm not sure

N5. * What is the highest level of school that you have completed?

1. Less than 9th grade
2. 9th to 12th grade; no diploma
3. High school graduate [includes GED]
4. Some college, no degree
5. Associate's degree
6. Bachelor's degree
7. Graduate or professional degree
99. Prefer not to answer

Closing

N6. * Do you have any other comments about your experience with Focus on Energy that you would like to share?
[RECORD RESPONSE:_____]

N7. * On occasion, Focus on Energy may want to contact a customer to learn more about their participation experience. May we share your responses with a program manager, who may contact you regarding your experience?

1. Yes
2. No
98. I'm not sure

N8. Finally, we would like to confirm where to send your prize if you are selected as a $100 gift card winner. Please enter a name and mailing address below. The gift card winners will be selected and notified within two weeks of the survey closing.

1. Record recipient name and mailing address below: **[RECORD RESPONSE:_____]**
2. I do not wish to be included in the drawing

Thank you. We appreciate your help with this survey. Have a nice day.

[IF N8 ≠ 3] You will be added into the drawing for a $100 gift card.

To learn about additional opportunities to save energy and money in your home, please visit focusonenergy.com.

CADMUS

Wisconsin Focus on Energy - Heating and Cooling Offering 2020 Participant Survey

Estimated launch date: early December 2020

Survey Format: Online

Target Quota:

- 210 Tier 1 Respondents
  - 70 Smart Thermostat Respondents
  - 70 GSHP Respondents (or as many as possible)
  - 70 Other HVAC Respondents (not furnace participants)
- 70 Tier 2 Respondents

General Instructions:

- Interviewer instructions are in green **[LIKE THIS]** (the style is "Survey: Interviewer Instructions").
- CATI programming instructions are in red ***[LIKE THIS]*** (the style is "Survey: Programming").
- Responses will be required for all questions, unless indicated
- Single response only, unless indicated
- Core questions marked with an asterisk (*)

This survey is designed for residential customers who received an incentive for purchasing and installing equipment through the Focus on Energy Heating and Cooling Offering.

SAMPLE Variables:
[FIRSTNAME] = CUSTOMER FIRST NAME
[LASTNAME] = CUSTOMER LAST NAME
[EMAIL] = CUSTOMER EMAIL
[MEASURE] = CONCENTRATED MEASURE FOR SURVEY
[QUANTITY] = NUMBER OF MEASURE INSTALLED (NUMERIC)
[TIER2] = 1 (YES) OR 0 (NO)
[COVID] = 1 (YES) OR 0 (NO)

A. Email Invitation

To: [EMAIL]
From: Focus on Energy Feedback
Subject: Are you enjoying your new **[MEASURE]**? Let us know and you could win $100!

Dear [FIRSTNAME AND LASTNAME],

We hope you are enjoying the new **[MEASURE]** you purchased with a discount from Focus on Energy.

Our offerings are designed to help you and your family make smart choices to manage your energy use. That's why we invite you to share **your important feedback** on your recent experience with Focus on Energy, by taking our brief survey.

The survey will take about 10 minutes to complete. **As our thanks for completing the survey, we will enter you in a drawing to win a $100 VISA gift card.**

Just click the link below to get started.

[auto-generated link]

Your input is very important to us and will be kept confidential and only used for research purposes.

If you have problems with the survey link, please contact the survey coordinator, *[survey contact]*, via email at *[email address]*. If you would like to confirm the validity of the research effort, please call Mitch Horrie at the Public Service Commission of Wisconsin at (608) 267-3206.

We hope you will take this opportunity to have your voice heard. Thank you in advance for your time and for sharing your experiences.

Reminder Invitation: *[SEND ONE WEEK AFTER LAUNCH]*

To: [EMAIL]
From: Focus on Energy Feedback
Subject: There's still time to give Focus on Energy feedback and win $100!

Dear [FIRSTNAME AND LASTNAME],

We recently invited you to tell us about your experience using Focus on Energy discounts. We would still like to hear from you – **your input is very important to us**! We use the information from participants like you to continue to improve our programs.

Please take about 10 minutes to complete our survey. **As our thanks for completing the survey, we will enter you in a drawing to win a $100 VISA gift card.**

Just click the link below to get started.

[auto-generated link]

Your input is very important to us and will be kept confidential and only used for research purposes.

If you have problems with the survey link, please contact the survey coordinator, *[survey contact]*, via email at *[email address]*. If you would like to confirm the validity of the research effort, please call Mitch Horrie at the Public Service Commission of Wisconsin at (608) 267-3206.

We hope you will take this opportunity to have your voice heard. Thank you in advance for your time and for sharing your experiences.

B. Introduction

Welcome! Thank you for participating in Focus on Energy's Heating and Cooling Offering. For the purposes of this survey, please focus your responses on your experience participating to just your

participation within this offering. Your feedback is very important to us and will help us improve our programs for customers like you. Your responses are confidential and will be used for research purposes only. When you complete the survey, you will be entered into a contest to win a $100 VISA gift card.

Open drop-down menus by clicking on this icon  **within the survey.**
Click on the "Next" and "Back" buttons at the bottom of each page to navigate through the survey.

C. Awareness and Motivation

C1. Our records show that you installed [MEASURE] in 2020. Do you remember having that installed in your home?

1. Yes
2. No [THANK AND TERMINATE]
99. Don't Know [THANK AND TERMINATE]

[TERMINATE LANGUAGE: Those are all the questions we have. Thank you.]

C2. * What factor was the most important motivation for you to participate in the Heating and Cooling Offering? [RANDOMIZE LIST EXCEPT FOR OTHER AND DON'T KNOW AT THE BOTTOM.]

1. Save energy / don't waste energy / be more energy efficient
2. Reduce energy costs / lower bill
3. Good for the environment
4. Recommended by a friend / relative
5. Recommended by a retailer / dealer
6. Recommended by a contractor
7. Cash / rebate / incentive payment
8. Advertisement [newspaper, radio, online, etc.]
9. Utility sponsorship of the offering
10. Other [SPECIFY: _____]
99. Don't know

C3. *Where did you most recently hear about Focus on Energy's incentives for [MEASURE]? [RANDOMIZE LIST EXCEPT FOR OTHER AND DON'T KNOW AT THE BOTTOM]

1. When I participated in another Focus on Energy offering
2. Utility bill insert / direct mail / brochure / postcard mail from utility
3. Focus on Energy direct mail / brochure / postcard
4. Focus on Energy email
5. Utility email / electronic newsletter
6. Family / friend / word-of-mouth
7. Focus on Energy website
8. Utility website
9. Other website **[SPECIFY]**
10. Social Media such as Twitter, Facebook, Instagram, LinkedIn, etc.
11. Internet advertising / online ad

12. Print media - magazine, newspaper article or advertisement
13. Focus on Energy representative
14. Utility representative
15. Community or utility event
16. Installer, contractor, trade ally
17. A different source: [SPECIFY: _____]
99. Don't know

C4. *Are there any other ways you heard about the offering? **[RANDOMIZE LIST FOR ITEMS 2 THROUGH 11. MULTIPLE RESPONSE, EXCLUDE RESPONSE FROM C3]**

1. No other ways [EXCLUSIVE]
2. When I participated in another Focus on Energy offering
3. Utility bill insert / direct mail / brochure / postcard mail from utility
4. Focus on Energy direct mail / brochure / postcard
5. Focus on Energy email
6. Utility email / electronic newsletter
7. Family / friend / word-of-mouth
8. Focus on Energy website
9. Utility website
10. Other website **[SPECIFY]**
11. Social Media such as Twitter, Facebook, Instagram, LinkedIn, etc.
12. Internet advertising / online ad
13. Print media - magazine, newspaper article or advertisement
14. Focus on Energy representative
15. Utility representative
16. Community or utility event
17. Installer, contractor, trade ally
18. A different source: [SPECIFY: _____]
99. Don't know [EXCLUSIVE]

C5. [ASK IF C3=12 OR C4=13] What benefits did the contractor or installer mention that convinced you to participate in the Heating and Cooling Offering? Select all that apply. [RANDOMIZE LIST EXCEPT FOR OTHER AND DON'T KNOW; MULTIPLE RESPONSES ALLOWED]

1. Save energy/don't waste energy/be more energy efficient
2. This is a smart investment with a good payback
3. Reduce energy costs/lower bill
4. Good for the environment
5. Increase home comfort/address uneven temperatures
6. Improve indoor air quality/get rid of mold or allergens
7. Cash / rebate / incentive payment
8. Utility sponsorship of the offering
9. Other [SPECIFY: _____]
99. Don't know [EXCLUSIVE]

C6. *What is the best way for Focus on Energy to inform people about energy efficiency offerings? **[RANDOMIZE ITEMS 1-13, MULTIPLE RESPONSE]**

1. Promotion through other Focus on Energy offerings
2. Television
3. Radio
4. Print media, such as magazine, newspaper article or advertisement
5. Billboard / outdoor ad
6. Direct mail / brochure / postcard
7. Family / friend / word-of-mouth
8. Email from Focus on Energy
9. Focus on Energy or Utility website
10. Community or utility event
11. Other website: **SPECIFY:_____)**
12. Social Media such as Twitter, Facebook, or Instagram
13. A different source: **[SPECIFY: _____]**
14. I do not want to receive information [EXCLUSIVE]
99. Don't know [EXCLUSIVE]

C7. *Other than Focus on Energy's Heating and Cooling Offering, are you aware of any other Focus on Energy offerings or rebates?

1. Yes
2. No
99. Don't know

C8. **[ASK IF C7=1]** *For the Focus on Energy offerings listed below, please indicate which ones you are aware of and which you have participated in**. [TABLE FORMAT; EACH OFFERING LISTED HAS A DROP DOWN MENU WITH THE THREE OPTIONS BELOW]**

1. Participated in this offering
2. Aware but have not participated
3. Not aware of this offering

Offering	Description
Energy Saving Packs	Free packs of energy saving items such as LEDs and low-flow showerheads and faucet aerators, delivered through the mail
Insulation and Air Sealing	Incentives for weatherizing, with extra incentives for completing an energy assessment
New Construction	Incentives for builders to construct homes that meet ENERGY STAR certification standards
Online Marketplace	Online store available through the Focus on Energy website, offering a range of energy-savings products for your home
Multifamily	A program for renters and landlords, that offers free installation of energy saving items in multifamily properties

Offering	Description
Renewable Energy	Incentives for solar PV installations
Appliance Recycling	Recycling service for your old, working refrigerator, freezer, room air conditioner, or dehumidifier
Business offerings	Incentives for upgrades to lighting, heating and cooling and other equipment in commercial, industrial and agricultural property
Schools and Government	Incentives for upgrades to lighting, heating and cooling and other equipment in schools and government buildings
Pop-up Events	Focus on Energy sponsored sale of energy efficient kits at your employer or community event.
Retail Discounts	Discounts on LEDs or smart thermostats purchased in-store at retail locations across the state, or online from the manufacturer's website

D. Trade Ally and Application Process

D1. How did you find the contractor who installed your new equipment? [RANDOMIZE LIST EXCEPT FOR OTHER AND DON'T KNOW]

1. Used the same contractor previously
2. Called Focus on Energy
3. Focus on Energy's website, i.e. Trade Ally Online Directory
4. Focus on Energy or Utility representative
5. Referral from Family / friend / word-of-mouth
6. Retailer / store – Home Depot, Lowes, etc.
7. Focus on Energy advertising
8. Social media from Focus on Energy
9. Social media other than Focus on Energy
10. Contractor advertising
11. Personal research
12. Other [SPECIFY:_____]
99. Don't Know

D2. What was the top reason in choosing your contractor who conducted your energy efficiency installation? [RANDOMIZE LIST EXCEPT FOR OTHER AND DON'T KNOW]

1. Used the same contractor previously
2. They were the least expensive/price
3. They were close by/near my house
4. Listed on Focus on Energy website, i.e. Trade Ally Online Directory
5. Only program-eligible contractor available in my area
6. Referral from friend, family member, colleague
7. Influenced by an advertisement or website
8. Timing/scheduling worked out
9. Only one available for emergency replacement
10. They appeared to provide the best quality/value; appeared to be the most trustworthy
11. [ASK IF UTILITY = XCEL OR WE ENERGY] Knowledge/familiarity with the additional incentives from Xcel or We Energy
12. Other [SPECIFY:_____]
99. Don't Know

D3. [IF D2 = 4] How easy was the Focus on Energy website when selecting a contractor?

1. Very easy [SKIP TO D5]
2. Somewhat easy [SKIP TO D5]
3. Neither easy nor difficult [SKIP TO D5]
4. Somewhat difficult
5. Very difficult

99. Don't know [SKIP TO D5]

D4. [IF D3= 4 or 5] Can you tell me what made using the Focus on Energy website difficult for selecting a contractor?

1. [RECORD VERBATIM]

99. Don't know

Please think back to the application process to receive the incentive for the next few questions.

D5. Did you or your contractor fill out the application to receive your rebate?

1. My contractor filled out my application
2. I filled out my application
3. Both myself and my contractor filled out my application

99. Don't know

D6. [IF D5 = 2 OR 3] How would you rate the ease of filling out the application?

1. Very easy
2. Somewhat easy
3. Neither easy nor difficult
4. Somewhat difficult
5. Very difficult

99. Don't know

D7. [IF D6 = 4 OR 5] Can you let us know why filling out the application was not very easy? Select all that apply. [RANDOMIZE LIST EXCEPT FOR OTHER AND DON'T KNOW; MULTIPLE RESPONSES ALLOWED]

1. Hard to locate required information (utility account number, equipment model/serial numbers, etc.)
2. Application form was too long
3. Application form was too confusing
4. Difficultly keeping track of receipts / invoices
5. Trouble with submitting application
6. Other [SPECIFY:_____]

99. Don't know [EXCLUSIVE]

E. Tier 2 Awareness

E1. [ASK IF FLAG FOR TIER 2 = 1] Our records show that you received a higher incentive amount because you qualified for Tier 2 incentives This reward level is qualified through an income eligibility application. Before today, were you aware that you received higher incentives?

1. Yes
2. No [SKIP TO F1]
99. Don't know [SKIP TO F1]

E2. [ASK IF E1 = 1] Were you interested in the Heating and Cooling incentives before you learned you learned you were eligible for higher incentives?

1. Yes
2. No
99. Don't know

E3. [ASK IF E1 = 1] How did you learn that you qualified for the higher incentives? [RANDOMIZE LIST EXCEPT FOR OTHER AND DON'T KNOW]

1. When I participated in another Focus on Energy offering
2. Installer / Contractor / Trade Ally
3. Focus on Energy or Utility Website
4. Focus on Energy or Utility Representative
5. Utility bill insert / direct mail / brochure / postcard mail from utility
6. Focus on Energy direct mail / brochure/postcard
7. Internet advertising / online ad
8. Community or utility event
9. Other **[SPECIFY:_____]**
99. Don't know

F. Freeridership

[FORCED RESPONSES ACCORDING TO PROGRAMMING INSTRUCTIONS]
For the next questions, please think about how you made your decision to purchase a high-efficiency **[MEASURE]**.

F1. When did you first hear about the availability of the Focus on Energy Heating and Cooling Offering incentive for **[MEASURE]**s?

1. Before you contacted your contractor to purchase a system **[SKIP TO F3]**
2. When the contractor provided the quote for purchase and installation **[SKIP TO F3]**
3. After your contractor installed your system **[ASK F2]**
4. When you received your incentive check from Focus on Energy **[ASK F2]**
5. After you purchased your system **[ASK F2]**
6. You had not heard of Focus on Energy before this call **[ASK F2]**
99. (Don't know) **[SKIP TO F3]**

F2. **[ASK IF F1=3, 4, 5 OR 6]** So just to be clear, you purchased your **[MEASURE]** before you heard anything about the Focus on Energy Heating and Cooling Offering incentive. Is that correct?

1. Yes, that's correct **[SKIP TO F4]**
2. No, that's not correct **[ASK F3]**
99. Don't know **[ASK F3]**

F3. Before you heard about the offering, had you already considered installing a **[MEASURE]**?

1. Yes
2. No
99. Don't know

F4. **[ASK IF MEASURE ≠ Smart Thermostat OR GSHP]** Without the rebate from Focus on Energy, would you have purchased and installed a **[MEASURE]** that was just as efficient, less efficient or more efficient than what you purchased?

1. Just as efficient
2. Less efficient
3. More efficient
99. Don't know

F5. **[ASK IF MEASURE=Smart Thermostat]** Without the rebate from Focus on Energy, what kind of thermostat would you have installed?

1. A smart or learning thermostat
2. A WiFi thermostat (non-learning)
3. A programmable thermostat
4. A manual thermostat
5. Would not have installed a new thermostat
99. Don't know

F6. **[ASK IF MEASURE=GSHP]** Without the rebate from Focus on Energy, what would you have installed instead of the ground source heat pump? Would you have…

1. Installed a smaller, less expensive geothermal or ground source heat pump
2. Installed the same size, same-cost geothermal or ground source heat pump
3. Installed a larger, more expensive geothermal or ground source heat pump
4. Not installed a ground source heat pump at all
99. (Don't know)

F7. **[ASK IF F6=1 OR 3]** How much **[RESPONSE FROM F6: SMALLER/LARGER]** would your system have been, as a percentage?

F8. **[ASK IF QUANTITY > 1]** Would you have installed the same quantity of **[MEASURE]**s without the rebate from Focus on Energy?

1. Yes, the same quantity **[ASK F9]**
2. No, would have installed fewer **[ASK F9]**
3. No, would have installed more **[ASK F9]**
4. No, would not have installed anything at all **[SKIP TO F10]**
99. (Don't know) **[ASK F9]**

F9. Thinking about timing, without the Focus on Energy rebate, would you have installed the **[MEASURE]** system…?

1. At the same time
2. Later, but within 12 months
3. One to two years out

4. More than two years out
5. Never
99. (Don't know)

F10. **[ASK EVERYONE]** We would like to know more about the factors that contributed to your purchase of the **[MEASURE]** system. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 4 meaning the factor was "very important" in your decision to purchase the **[MEASURE]** system. [1 TO 6 - RANDOMIZE LIST] [DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT"]

1. **[RESPONSE FROM C2 IF C2 ≠ 6, 7 OR 9]**
2. The Focus on Energy Heating and Cooling incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a contractor or vendor
6. Previous participation in a Focus on Energy energy-efficiency offering or program

G. Spillover

[FORCED RESPONSES ACCORDING TO PROGRAMMING INSTRUCTIONS]
Now we would like to learn about any energy-saving improvements you may have made since installing the **[MEASURE]** and receiving an incentive from Focus on Energy.

G1. Since installing the **[MEASURE]** system and receiving an incentive from Focus on Energy, have you made any other energy savings improvements or high-efficiency equipment purchases for your home that you did NOT receive for free or a rebate from Focus on Energy or another organization?

1. Yes
2. No **[SKIP TO NEXT SECTION]**
99. Don't know **[SKIP TO SECTION NEXT SECTION]**

G2. What were the products that you installed without receiving for free or getting an incentive?

1. Gas boiler **[HOW MANY DID YOU INSTALL?]**
2. Gas furnace **[HOW MANY DID YOU INSTALL?]**
3. Gas tankless water heater **[HOW MANY DID YOU INSTALL?]**
4. Gas storage water heater **[HOW MANY DID YOU INSTALL?]**
5. Electric tankless water heater **[HOW MANY DID YOU INSTALL?]**
6. Electric storage water heater **[HOW MANY DID YOU INSTALL?]**
7. Insulation; attic **[HOW MANY SQUARE FEET?]**
8. Insulation; floor **[HOW MANY SQUARE FEET?]**
9. Insulation; ceiling **[HOW MANY SQUARE FEET?]**
10. Insulation; other **[SPECIFY: _____] [HOW MANY SQUARE FEET?]**
11. Air sealing **[HOW MANY LINEAR FEET?]**
12. Duct sealing **[HOW MANY LINEAR FEET?]**
13. Low-E Storm windows **[HOW MANY SQUARE FEET?]**
14. ENERGY STAR windows **[HOW MANY SQUARE FEET?]**
15. ENERGY STAR air purifier **[HOW MANY DID YOU INSTALL?]**
16. ENERGY STAR dehumidifier **[HOW MANY DID YOU INSTALL?]**
17. ENERGY STAR clothes washer **[HOW MANY DID YOU INSTALL?]**

18. ENERGY STAR dishwasher **[HOW MANY DID YOU INSTALL?]**
19. ENERGY STAR pool pump **[HOW MANY DID YOU INSTALL?]**
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24. Heat pump water heater **[HOW MANY DID YOU INSTALL?]**
25. Central air conditioner **[HOW MANY DID YOU INSTALL?]**
26. Air source heat pump **[HOW MANY DID YOU INSTALL?]**
27. Ductless heat pump **[HOW MANY DID YOU INSTALL?]**
28. Ground source heat pump
29. Heat pump; other **[SPECIFY: _____] [HOW MANY DID YOU INSTALL?]**
30. Smart power strip **[HOW MANY DID YOU INSTALL?]**
31. Other **[SPECIFY: _____] [HOW MANY DID YOU INSTALL?]**
99. Don't know **[SKIP TO SECTION NEXT SECTION]**

G3. **[REPEAT FOR EACH ITEM MENTIONED IN G2]** How important was your experience with the Focus on Energy Heating and Cooling Offering in your decision to install **[INSERT EACH ONE SELECTED IN G2]**. Was it …?

1. [DROP DOWN LIST OR RADIO BUTTON SELECTION; "1 – NOT AT ALL IMPORTANT", "2", "3", "4", "5 – VERY IMPORTANT", "DON'T KNOW"]

[ASK G4 FOR EACH ONE SELECTED IN G2 EXCEPT 3 (gas tankless water heater) , 4 (gas storage water heater), 5 (electric tankless water heater), 6 (electric storage water heater), 13 (Low-E Storm windows), 14 (ENERGY STAR windows), 15 (ENERGY STAR air purifier), 16 (ENERGY STAR dehumidifier), 17 (ENERGY STAR clothes washer), 18 (ENERGY STAR dishwasher), 19 (ENERGY STAR pool pump), 20 (ENERGY STAR room air conditioner), 22 (ENERGY STAR refrigerator), 22 (ENERGY STAR freezer), 30 (smart power strip) OR 31 (other).]

G4. Why didn't you apply for and receive a Focus on Energy rebate for **[INSERT EACH ONE SELECTED IN G2]**?

1. Did not know rebate was available
2. Product did not qualify
3. Other [SPECIFY: _____]
99. Don't know

H. COVID-19 Questions

H1. Have you noticed an increase in your home energy usage due to COVID-19 related guidelines of sheltering-in-place?

1. Yes
2. No
99. Don't know

H2. [IF H1 = 1 AND FLAG FOR COVID = 1] Was the change in your home energy usage part of your motivation to participate in the Heating and Cooling Offering?

1. Yes
2. No
99. Don't know

H3. [IF FLAG FOR COVID = 1] Did you have any issues securing the model or brand of equipment you wanted to install in your home?

1. Yes
2. No
99. Don't know

H4. [IF H3 = 1] Are you aware if the issue securing the model or brand of equipment was due to a supply chain disruption caused by COVID-19?

1. Yes
2. No
99. Don't know

H5. [IF FLAG FOR COVID = 1] How satisfied were you with the contractor's sensitivity towards social distancing and contact? Would you say you were…

1. Very satisfied [SKIP TO I1]
2. Somewhat satisfied [SKIP TO I1]
3. Neither satisfied nor dissatisfied [SKIP TO I1]
4. Somewhat dissatisfied
5. Very dissatisfied
99. Don't know [SKIP TO I1]

H6. [IF H5 = 4 or 5] Can you tell me how the contractor's sensitivity towards social distancing and contact was dissatisfying?

1. [OPEN ENDED TEXT]
99. Don't know

I. Energy Usage Motivations

I1. How much do you agree with each of the following statements? [FORMAT: DROP DOWN MENUS. RANDOMIZE LIST OF ITEMS; SAME 6 RESPONSE OPTIONS FOR EACH ITEM]

1. Strongly agree
2. Somewhat agree
3. Neither agree nor disagree
4. Somewhat disagree
5. Strongly disagree
6. Does not apply

I1a. I try to save energy to lower my energy bill

I1b. Keeping the home comfortable is more important than saving on my bill

I1c. I've tried a few things to save energy, but have not seen any real savings on my energy bill

I1d. It is important to conserve resources to be more environmentally friendly

I1e. I prefer to use the most advanced technologies available to control my energy use

I1f. I am willing to pay more for efficient products that will save me money in the long term

I1g. I am willing to pay more for efficient products that are more environmentally friendly
I1h. Energy efficient improvements increase my home's comfort
I1i. I'm not interested in improving my home's efficiency
I1j. I wish Focus on Energy would give me more options to help manage my energy usage
I1k. It is too expensive to be efficient at home

I2. How informed do you feel about all the ways you can save energy, including buying and using energy efficient appliances and equipment?
1. Very informed
2. Somewhat informed
3. Neutral
4. Not too informed
5. Not at all informed
99. Don't know

I3. How much attention do you pay to the amount of energy (gas or electric) that you use in your home?
1. Very close attention
2. A fair amount of attention
3. Some attention
4. Not much attention
5. No attention at all
99. Don't know

J. Demographics and Household Information/Business Firmographics

The last few questions are for statistical purposes only.

J1. *What type of fuel does your **water heater** use?
1. Natural gas
2. Electricity
3. Propane/Bottled gas
4. Wood
5. Other [SPECIFY:_____]
99. Don't know

J2. *What is the main type of fuel you use to **heat your home**?
1. Natural Gas
2. Oil
3. Propane
4. Electricity
5. Wood
6. Other [SPECIFY:_____]
99. Don't know

J3. *What type of home do you live in?

1. Mobile/manufactured home
2. Single-family home, detached house
3. Attached house townhouse, row house, or duplex
4. Multifamily apartment or condo building with 4 or more units
5. Co-op/retirement community
6. Other [SPECIFY:_____]

99. Don't know

J4. *Do you or members of your household own or rent this home?

1. Own
2. Rent
3. Other: SPECIFY:_____)

99. Don't know

J5. [ASK IF J4 = 2 OR 3] How is your electric utility bill paid?

1. Your utility bills you directly
2. Your maintenance fees or rent includes utility costs
3. Your bill is split evenly between units within the complex
4. Other: SPECIFY:_____)

99. Don't know

J6. [ASK IF J4 = 2 OR 3] How is your gas utility bill paid?

1. Your utility bills you directly
2. Your maintenance fees or rent includes utility costs
3. Your bill is split evenly between units within the complex
   Other: SPECIFY:_____)

99. Don't know

J7. * What is the highest level of school that you have completed?

1. Less than 9th grade
2. 9th to 12th grade; no diploma
3. High school graduate [includes GED]
4. Some college, no degree
5. Associate's degree
6. Bachelor's degree
7. Graduate or professional degree

88. Prefer not to answer

K. Closing

K1. * Do you have any other comments about your experience with Focus on Energy that you would like to share?

1. **[OPEN ENDED TEXT]**
2. No
99. Don't know

K2. * On occasion, Focus on Energy may want to contact a customer to learn more about their participation experience. May we share your responses with a program manager, who may contact you regarding your experience?

1. Yes
2. No
99. Don't know

K3. Finally, we would like to confirm how to contact you if you are selected as a $100 gift card winner for completing this survey. The gift card winners will be selected and notified within two weeks after this survey closes.

1. FIRSTNAME LASTNAME
2. EMAIL
88. I do not want to be included in the drawing

Thank you. We appreciate your help with this survey. Have a nice day.

[IF K3 ≠ 88] You will be added into the drawing for a $100 gift card.

To learn about additional opportunities to save energy and money in your home, please visit focusonenergy.com.

CADMUS

Wisconsin Focus on Energy – Insulation and Air Sealing Offering 2020 Participant Survey

Estimated survey launch: Late September 2020

Survey format: Phone

Target Quotas

70 tier 1 respondents
70 tier 2 respondents

General Instructions:

Interviewer instructions are in green **[LIKE THIS]** (the style is "Survey: Interviewer Instructions").
CATI programming instructions are in red **[LIKE THIS]** (the style is "Survey: Programming").
Responses will be required for all questions, unless indicated
Questions are single response, unless otherwise indicated
Items that should not be read by the interviewer are in parentheses like this ( ).
Core questions are marked with an asterisk (*)

This survey is designed for residential customers who received an incentive for purchasing and installing building shell improvements through the Focus on Energy Insulation and Air Sealing Offering.

SAMPLE Variables:

[CONTACT_NAME] = CUSTOMER NAME
[MEASURE_LIST] = TEXT INSERT LIST OF ALL MEASURES
[MEASURE_ONE] = TEXT INSERT FOR SELECTED MAIN MEASURE
[TIER2] = 1 (YES) OR 0 (NO)
[AIR_SEALING] = 1 (YES) OR 0 (NO)
[COVID] = 1 (YES) OR 0 (NO) [TO BE CREATED BASED ON D8]

1. Introduction and Screening

Hello, my name is _____ from _____. I'm calling on behalf of Focus on Energy. May I please speak to [CONTACT_NAME]?

Hello, I am following up on the [MEASURE_LIST] you completed in 2020 for which you received an incentive from Focus on Energy.

A1. *Are you the person that is most familiar with that improvement (these improvements) and the incentive you received?

1. (Yes)
2. (No)
98. (Don't know) [ASK TO SPEAK WITH SOMEONE WHO KNOWS AND BEGIN AGAIN]
88. (Refused) [THANK AND TERMINATE]

A2. *[ASK IF A1 = 2 OR 99] May I please speak with that person? [IF NOT AVAILABLE, ATTEMPT TO SCHEDULE A CALL BACK]

1. (Yes)
2. (No) [THANK AND TERMINATE]
98. (Don't know)
88. (Refused) [THANK AND TERMINATE]

A3. *Great, Focus on Energy would like to make their insulation and air sealing offering as effective as possible. Would you be willing to participate in a short survey to help Focus on Energy improve it? Survey participants will be entered in a drawing to win a $100 Visa gift card and all of your answers will be kept confidential.

1. (Yes)
2. (No) [THANK AND TERMINATE]
98. (Don't know)
88. (Refused) [THANK AND TERMINATE]

[TERMINATION SCRIPT: "Thank you very much for your time."]

[If customer is wary of the survey, reassure them that you are not selling anything. If necessary, offer the following contact: MITCH HORRIE at the Public Service Commission of Wisconsin (608- 267-3206) as the person to contact with any questions about the validity of the research.]

[NOTE TO INTERVIEWER: If the respondent says that they have already been contacted by the program via an email/online survey or a postcard survey, the following response should be provided: *"Focus on Energy follows up with each participant to ensure that it has met its high customer service standards through a brief online or postcard questionnaire. The survey that I am calling about now explores additional questions to help improve this offering."]*

2. *Awareness and Participation*

B1. Our records show that you completed the following upgrades in 2020: [MEASURE_LIST]. Have you made any additional upgrades through the Focus on Energy Insulation & Air Sealing Offering? [RECORD ALL THAT APPLY] [IF NEEDED: PLEASE TELL ME THE ADDITIONAL UPGRADES YOU MADE THROUGH THE INSULATION & AIR SEALING OFFERING FROM FOCUS ON ENERGY]

1. (Air Sealing)
2. (Attic Insulation)
3. (Foundation Insulation)
4. (Wall Insulation)
5. (Duct Sealing & Insulation)
6. (Other: [SPECIFY: _____])
7. (None) [THANK AND TERMINATE]

98. (Don't know) [THANK AND TERMINATE]
88. (Refused) [THANK AND TERMINATE]

B2. *What factor was the most important motivation for you to participate in the Insulation & Air Sealing Offering? [SINGLE RESPONSE ONLY]

1. (Save energy / don't waste energy / be more energy efficient)
2. (Smart investment with a good payback)
3. (Reduce energy costs / lower bill)
4. (Good for the environment)
5. (Recommended by a friend / relative)
6. (Recommended by a retailer / dealer)
7. (Recommended by a contractor)
8. (Cash / rebate / incentive payment)
9. (Advertisement [newspaper, radio, online, etc.])
10. (Utility sponsorship of the offering)
11. (Home comfort / reduce drafts)
12. (Healthier home / air quality / address mold/mildew)
13. (Address ice dams or other water damage issues)
14. (Other [SPECIFY: _____])

98. (Don't know)
88. (Refused)

B3. *Where did you <u>most recently</u> hear about the Focus on Energy's Insulation & Air Sealing Offering? [SINGLE RESPONSE ONLY]

1. (When I participated in another Focus on Energy offering)
2. (Utility bill insert / direct mail / brochure / postcard mail from utility)
3. (Focus on Energy direct mail / brochure/postcard)
4. (Utility email / electronic newsletter)

5. (Focus on Energy email)
6. (Family / friend / word-of-mouth)
7. (Focus on Energy website)
8. (Utility website)
9. (Other website [SPECIFY: _____])
10. (Social Media such as Twitter, Facebook, Instagram, etc.)
11. (Internet advertising / online ad)
12. (Television)
13. (Radio)
14. (Print media - magazine, newspaper article or advertisement)
15. (Installer / contractor / trade ally)
16. (Focus on Energy or Utility representative)
17. (Community or utility event)
18. (Realtor)
19. (Other [SPECIFY:_____])
98. (Don't know) [SKIP to B6]
88. (Refused) [SKIP to B6]

B4. *Are there any other ways you heard about the offering? [RECORD ALL THAT APPLY] [EXCLUDE RESPONSE FROM B3 UNLESS OTHER SPECIFY.]

1. (No other way)
2. (When I participated in another Focus on Energy offering)
3. (Utility bill insert / direct mail / brochure / postcard mail from utility)
4. (Focus on Energy direct mail / brochure / postcard)
5. (Utility email / electronic newsletter)
6. (Focus on Energy email)
7. (Family / friend / word-of-mouth)
8. (Focus on Energy website)
9. (Utility website)
10. (Other website [SPECIFY: _____])
11. (Social Media such as Twitter, Facebook, Instagram, etc.)
12. (Internet advertising / online ad)
13. (Television)
14. (Radio)
15. (Print media - magazine, newspaper article or advertisement)
16. (Installer / contractor / trade ally)
17. (Focus on Energy or Utility representative)
18. (Community or utility event)
19. (Realtor)
20. (Other [SPECIFY:_____])

98. (Don't know)
88. (Refused)

B5. [ASK IF B3=15 OR B4 = 16] What benefits did the contractor or installer mention that convinced you to participate in the offering? [RECORD ALL THAT APPLY]

1. (Save energy / don't waste energy / be more energy efficient)
2. (Smart investment with a good payback)
3. (Reduce energy costs/lower bill)
4. (Good for the environment)
5. (Cash / rebate / incentive payment)
6. (Home comfort / reduce drafts)
7. (Healthier home / air quality / address mold/mildew)
8. (Address ice dams or other water damage issues)
9. (Other [SPECIFY: _____])
98. (Don't know)
88. (Refused)

B6. *What do you think is the best way for Focus on Energy to inform the public about energy efficiency programs? [RECORD ALL THAT APPLY] [EXCLUDE RESPONSE FROM B3 UNLESS "OTHER SPECIFY".]

1. (Promotion through other Focus on Energy offerings)
2. (Television)
3. (Radio)
4. (Print media, such as magazine, newspaper article or advertisement)
5. (Billboard / outdoor ad)
6. (Direct mail / brochure / postcard)
7. (Family / friend / word-of-mouth)
8. (Email from Focus on Energy)
9. (Focus on Energy or Utility website)
10. (Community or utility event)
11. (Other website [SPECIFY:_____])
12. (Social Media such as Twitter, Facebook, or Instagram)
13. (Other [SPECIFY:_____])
14. (Do not want to receive information)
98. (Don't know)
88. (Refused)

B7. *Other than Focus on Energy's Insulation & Air Sealing Offering, are you aware of any other Focus on Energy offerings or incentives?

1. (Yes)
2. (No)

98. (Don't know)
88. (Refused)

B8. [ASK IF B7=1] *Which offerings or incentives are you aware of? [RECORD ALL THAT APPLY]

1. (**Efficient Packs**) [Other key words: Simple Energy Efficiency, energy-saving packs or kits, light bulb packs or kits]
2. **(Heating and Cooling)** [Other key words: HVAC, furnace, air conditioning, heat pumps, ground-source heat pumps, geothermal]
3. (**New Construction**) [Other key words: new homes, building a new home, new build]
4. (**Retail Discounts**) [Other key words: lighting, lighting discounts, LED bulbs, rebates on light bulbs, smart strips, power strips, smart thermostats]
5. (**Pop Up Events**) [Other key words: pop-up retail, temporary sale at office/work, temporary online sale arranged through work]
6. (**Online Marketplace**) [Other key words: online store, website selling efficient items]
7. (**Multifamily**) [Other key words: multifamily direct install, multifamily energy savings, landlord installed efficient products, free products for renters]
8. (**Renewables**) [Other key words: solar, PV (photovoltaic)]
9. (**Appliance Recycling**) [Other key words: refrigerator/freezer/appliance pickup]
10. (**Business offerings**) [Other key words: audits for businesses, energy efficient lighting for businesses, rebates for businesses or farmers]
11. (**Schools and Government**) [Other key words: rebates for schools, rebates for government buildings]
12. (Other **[SPECIFY:_____]**)

98. (Don't know)
88. (Refused)

B9. *Have you participated in any other Focus on Energy offerings? [DO NOT READ, BUT PROMPT IF NECESSARY; RECORD ALL THAT APPLY; IF NEEDED: SUCH AS REBATES ON LED BULBS, ENERGY STAR APPLIANCES, ENERGY-EFFICIENT UPGRADES OR HOME ENERGY AUDITS]

1. (Yes)
2. (No)

98. (Don't know)
88. (Refused)

B10. [ASK IF B9=1] *Which offerings have you participated in? [PHONE: DO NOT READ, BUT PROMPT IF NECESSARY; RECORD ALL THAT APPLY]

1. (**Building Shell in a previous year**) [i.e., this is not the first time they have participated in the program being surveyed. Other key words: Insulation & Air Sealing Offering]
2. (**Efficient Packs**) [Other key words: Simple Energy Efficiency, energy-saving packs or kits, light bulb packs or kits]
3. (**Heating and Cooling**) [Other key words: HVAC, furnace, air conditioning, heat pumps, ground-source heat pumps, geothermal]

4. (**New Construction**) [Other key words: new homes, building a new home, new build]
5. (**Retail**) [Other key words: lighting, lighting discounts, LED bulbs, rebates on light bulbs, smart strips, power strips, smart thermostats, pop-up retail, temporary sale at office/work]
6. (**Online Marketplace**) [Other key words: online store, website selling efficient items]
7. (**Multifamily**) [Other key words: multifamily direct install, multifamily energy savings, landlord installed efficient products, free products for renters]
8. (**Renewables**) [Other key words: solar, PV (photovoltaic)]
9. (**Appliance Recycling**) [Other key words: refrigerator/freezer/appliance pickup]
10. (**Business offerings**) [Other key words: audits for businesses, energy efficient lighting for businesses, rebates for businesses or farmers]
11. (**Schools and Government**) [Other key words: rebates for schools, rebates for government buildings]
12. (Other **[SPECIFY:_____]**)
98. (Don't know)
88. (Refused)

B11. Have you viewed any Focus on Energy posts on social media?

1. (Yes)
2. (No)
98. (Don't know)
88. (Refused)

B12. [IF 0.39079856.99.88 = 1] On what social media platforms did you see Focus on Energy?

1. (Facebook)
2. (Twitter)
3. (Instagram)
4. (YouTube)
5. (Other [SPECIFY:_____])
98. (Don't know)
88. (Refused)

B13. [IF 0.39079856.99.88 = 1] Did you find the Focus on Energy social media content helpful or useful?

1. (Yes)
2. (No)
98. (Don't know)
88. (Refused)

B14. On what social media platforms would you prefer to see Focus on Energy content? [RECORD ALL THAT APPLY]

1. (Facebook)
2. (Twitter)

3. (Instagram)
4. (YouTube)
5. (Other [SPECIFY:_____])
6. (None)
98. (Don't know)
88. (Refused)

B15. What type of content would you like to see more of on social media from Focus on Energy? [RECORD ALL THAT APPLY]

1. (Energy savings tips and information)
2. (Environmental information)
3. (Incentive information)
4. (Program or offering information)
5. (Local business promotion)
6. (Event information)
7. (Weather / climate updates)
8. (Other [SPECIFY:_____])
98. (Don't know)
88. (Refused)

3. Tier 2 Awareness

[SKIP TO D1 IF TIER2 = 0]

C1. Our records show that you received a higher incentive amount because you qualified for Tier 2 incentives [IF NEEDED: This reward level is qualified through an income eligibility application]. Before today, were you aware that you received higher incentives?

1. (Yes)
2. (No) [SKIP TO D1]
98. (Don't know) [SKIP TO D1]
88. (Refused) [SKIP TO D1]

C2. [ASK IF C1 = 1] Were you interested in the Focus on Energy Insulation & Air Sealing Offering before you learned you were eligible for higher incentives?

1. (Yes)
2. (No)
98. (Don't know)
88. (Refused)

C3. [ASK IF C1 = 1] How did you learn that you qualified for the higher incentives?

1. (When I participated in another Focus on Energy offering)
2. (Installer/Contractor/Trade Ally)
3. (Focus on Energy or Utility Website)

4. (Focus on Energy or Utility Representative)
5. (Utility bill insert / direct mail / brochure / postcard mail from utility)
6. (Focus on Energy direct mail / brochure/postcard)
7. (Internet advertising / online ad)
8. (Community or utility event)
9. (Other [SPECIFY:_____])
98. (Don't know)
88. (Refused)

4. Home Energy Assessment Trade Ally and Satisfaction

D1. [ASK IF AIR_SEALING = 0] Did you receive a home energy assessment performed by a contractor prior to installing your insulation?

1. (Yes)
2. (No) [SKIP TO E2]
98. (Don't know) [SKIP TO E2]
88. (Refused) [SKIP TO E2]

D2. Thinking back to when you first decided to receive a home energy assessment, what was your top motivation to have an assessment performed in your home?

1. (Save money / high utility bill)
2. (To be more environmentally friendly)
3. (To address air quality issues, i.e. allergens, asthma-related)
4. (To deal with mold or mildew)
5. (To deal with ice dams or other water damage)
6. (Home was drafty or uncomfortable)
7. (General home maintenance)
8. (To address pest/insect infestation)
9. (To address safety issues)
10. (Recommended by a friend/relative)
11. (Recommended by a retailer/dealer)
12. (Recommended by a contractor)
13. (Other [SPECIFY: _____])
98. (Don't know)
88. (Refused)

D3. How did you find the contractor who conducted your home energy assessment?

1. (Called Focus on Energy)
2. (Focus on Energy's website, i.e. Trade Ally Online Directory)
3. (Focus on Energy or Utility representative)
4. (Contractor came to my door)
5. (Referral from Family / friend / word-of-mouth)

6. (Referral from another contractor) [ASK: What type of contractor?_____])
7. (Community or utility event)
8. (Television)
9. (Radio)
10. (Print media, such as magazine, newspaper article or advertisement)
11. (Social Media such as Twitter, Facebook, Instagram, etc.)
12. (Internet advertising / online ad)
13. (Other utility website)
14. (Online key word search)
15. (Other [SPECIFY:_____])

98. (Don't know)
88. (Refused)

D4. Why did you choose the contractor that you did to perform the assessment?

1. (They were the least expensive/price)
2. (They were close by/near my house)
3. (Listed on Focus on Energy website, i.e. Trade Ally Online Directory)
4. (Only program-eligible contractor available in my area)
5. (Referral from friend, family member, colleague)
6. (Referral from other contractor [ASK: What type of contractor?_____])
7. (Influenced by an advertisement or website)
8. (Timing)
9. (they appeared to provide the best quality/value; appeared to be the most trustworthy)
10. (Knowledge/familiarity with the additional incentives from Xcel Energy or We Energy)
11. (Other [SPECIFY:_____])

98. (Don't know)
88. (Refused)

D5. [IF D4= 3] How helpful was the Focus on Energy website when selecting a contractor? Would say it was…[READ LIST]

1. Very helpful [SKIP TO D7]
2. Mostly helpful [SKIP TO D7]
3. A mix of helpful and not helpful [SKIP TO D7]
4. Not too helpful
5. Not at all helpful

98. (Don't know) [SKIP TO D7]
88. (Refused) [SKIP TO D7]

D6. [IF D5= 4 or 5] Can you tell me what made using the Focus on Energy website difficult when selecting a contractor?

1. [RECORD VERBATIM]

98. (Don’t know)
88. (Refused)

D7. How helpful was the contractor in helping you understand how your home uses energy? Would you say the contractor was … [READ LIST]

1. Very helpful
2. Mostly helpful
3. A mix of helpful and not helpful
4. Not too helpful
5. Not at all helpful
98. (Don't know)
88. (Refused)

D8. Did you receive your home energy assessment after the Safer at Home order went int effect (March 25, 2020)?

1. (Yes) [CREATE VARIABLE, COVID=1]
2. (No) [SKIP TO D11] [CREATE VARIABLE, COVID=0]
98. (Don't know) [SKIP TO D11]
88. (Refused) [SKIP TO D11]

D9. [IF D8 = 1] How satisfied were you with the contractor's sensitivity towards social distancing and contact? Were you… [READ LIST]

1. Very satisfied [SKIP TO D11]
2. Somewhat satisfied [SKIP TO D11]
3. Neither satisfied nor dissatisfied [SKIP TO D11]
4. Somewhat dissatisfied
5. Very dissatisfied
98. (Don't know) [SKIP TO D11]
88. (Refused) [SKIP TO D11]

D10. [IF D9 = 4 or 5] Can you tell me how the contractor's sensitivity towards social distancing and contact was dissatisfying?

1. [RECORD VERBATIM]
98. (Don't know)
88. (Refused)

D11. Did the assessment contractor provide you with a written report on your home's energy use and information about incentives available from Focus on Energy? [SPECIFY IF REPORT AND/OR INCENTIVE INFORMATION]

1. (Yes, report and incentive information)
2. (Yes, report, but no incentive information)
3. (Yes, incentive information, but no report)
4. (No) [SKIP TO E1]
98. (Don't know) [SKIP TO E1]
88. (Refused) [SKIP TO E1]

D12. [IF D11 = 1-3] Did the assessment contractor provide you with energy efficiency equipment upgrade recommendations that could be made in your home?

1. (Yes)
2. (No) [SKIP TO E1]
98. (Don't know) [SKIP TO E1]
88. (Refused) [SKIP TO E1]

D13. [IF D12 = 1] How important were the assessment results in your decision to participate in the Insulation & Air Sealing Offering? Would you say they were… [READ LIST]

1. Very important
2. Somewhat important
3. Neutral
4. Somewhat unimportant
5. Very unimportant
98. (Don't know)
88. (Refused)

D14. [IF D12 = 1] Of the recommended improvements that were provided by your assessment contractor, did you complete all of the recommendations, some of the recommendations, or none of the recommendations?

1. (All of the recommendations)
2. (Some of the recommendations)
3. (None of the recommendations)
98. (Don't know)
88. (Refused)

D15. [IF D14 = 3] Are you planning to make any of the contractor-recommended improvements to your home by the end of the year?

1. (Yes)
2. (No)
98. (Don't know)
88. (Refused)

D16. [IF D14 = 2] Are you planning to make any of the remaining contractor-recommended improvements by the end of the year?

1. (Yes)
2. (No)
98. (Don't know)
88. (Refused)

D17. [IF D15 = 2 OR D16 = 2] Why are you not planning to complete [IF D15 = 2 READ "ANY OF THE RECOMMENDATIONS, IF D16 = 2, READ "THE REMAINING RECOMMENDATIONS"] provided by your assessment contractor by the end of the year? [RECORD ALL THAT APPLY]

1. (I did not think the recommendations/improvements were necessary)
2. (I didn't believe the recommendations/improvements would really save energy/improve my home comfort)
3. (I couldn't afford the recommendations/improvements)
4. (I didn't like/trust the contractor)
5. (I didn't know who to hire to complete the recommendations/improvements)
6. (It was too much hassle/I didn't get around to it)
7. (I postponed completing the recommendations/improvements due to COVID-19)
8. (Other [SPECIFY:_____])

98. (Don't know)
88. (Refused)

5. Installation Trade Ally and Satisfaction

Next I'd like to ask you some questions about the contractor who [IF [MEASURE_ONE] ≠ AIR SEALING, READ "installed [MEASURE_ONE]." IF [MEASURE_ONE] = AIR SEALING, READ "completed the air sealing."]

E1. [IF D1 = YES] Did you use the same contractor from the assessment to [IF [MEASURE_ONE] ≠ AIR SEALING, READ "install [MEASURE_ONE]." IF [MEASURE_ONE] = AIR SEALING, READ "complete the air sealing."]?

1. (Yes) [SKIP TO E8]
2. (No)

98. (Don't know) [SKIP TO E8]
88. (Refused) [SKIP TO E8]

E2. How did you find the contractor who [IF [MEASURE_ONE] ≠ AIR SEALING, READ "installed [MEASURE_ONE]." IF [MEASURE_ONE] = AIR SEALING, READ "completed the air sealing."]?

1. (Called Focus on Energy)
2. (Focus on Energy's website, i.e. Trade Ally Online Directory)
3. (Focus on Energy or Utility representative)
4. (Contractor came to my door)
5. (Referral from Family / friend / word-of-mouth)
6. (Referral from another contractor) [ASK: WHAT TYPE OF CONTRACTOR?_____])
7. (Community or utility event)
8. (Television)
9. (Radio)
10. (Print media, such as magazine, newspaper article or advertisement)
11. (Social Media such as Twitter, Facebook, Instagram, etc.)

12. (Internet advertising / online ad)
13. (Other utility website)
14. (Online key word search)
15. (Other [SPECIFY:_____])

98. (Don't know)
88. (Refused)

E3. What was the top reason you choose the contractor who [IF [MEASURE_ONE] ≠ AIR SEALING, READ "INSTALLED [MEASURE_ONE]" IF [MEASURE_ONE] = AIR SEALING, READ "COMPLETED THE AIR SEALING"]?

1. (They were the least expensive/price)
2. (They were close by/near my house)
3. (Listed on Focus on Energy website, i.e. Trade Ally Online Directory)
4. (Only program-eligible contractor available in my area)
5. (Referral from friend, family member, colleague)
6. (Referral from other contractor [ASK: WHAT TYPE OF CONTRACTOR?_____])
7. (Influenced by an advertisement or website)
8. (Timing)
9. (They appeared to provide the best quality/value; appeared to be the most trustworthy)
10. (Knowledge/familiarity with the additional incentives from Xcel Energy or We Energy)
11. (Other [SPECIFY:_____])

98. (Don't know)
88. (Refused)

E4. [IF E3 = 3] How easy was the Focus on Energy website when selecting a contractor? Was it… [READ LIST]

1. Very easy [SKIP TO E6]
2. Somewhat easy [SKIP TO E6]
3. Neither easy nor difficult [SKIP TO E6]
4. Somewhat difficult
5. Very difficult

98. (Don't know) [SKIP TO E6]
88. (Refused) [SKIP TO E6]

E5. [IF E4 = 4 or 5] Can you tell me what made using the Focus on Energy website difficult when selecting a contractor?

1. [RECORD VERBATIM]

98. (Don't know)
88. (Refused)

E6. [ASK IF COVID=1 and E1=2] How satisfied were you with the contractor's sensitivity towards social distancing and contact? Were you… [READ LIST]

1. Very satisfied [SKIP TO E9]
2. Somewhat satisfied [SKIP TO E9]
3. Neither satisfied nor dissatisfied [SKIP TO E9]
4. Somewhat dissatisfied
5. Very dissatisfied

98. (Don't know) [SKIP TO E9]
88. (Refused) [SKIP TO E9]

E7. [IF E6 = 4 or 5] Can you tell me how the contractor's sensitivity towards social distancing and contact was dissatisfying?

1. [RECORD VERBATIM]

98. (Don't know)
88. (Refused)

E8. [ASK IF COVID = 1] Did you have any difficulty finding contractors or auditors due to shelter-in-place orders or other constraints due to COVID-19?

1. (Yes)
2. (No)

98. (Don't know)
88. (Refused)

E9. Did you or your contractor fill out the Focus on Energy incentive application?

1. (Contractor)
2. (Me/customer)
3. (Both me/customer and contractor)

98. (Don't know)
88. (Refused)

E10. [IF E9 = 2 OR 3] How would you rate the ease of filling out the application? Would you say the process was… [READ LIST]

1. Very easy
2. Somewhat easy
3. Neither easy nor difficult
4. Somewhat difficult
5. Very difficult

98. (Don't know)
88. (Refused)

E11. [IF E10 = 4 OR 5] Can you tell me what made filling out the application difficult? [RECORD ALL THAT APPLY]

1. (Hard to locate account number)
2. (Application form was too long)
3. (Application form was too confusing)
4. (Difficulty keeping track of receipts / invoices)
5. (Trouble with submitting application)
6. (Other [SPECIFY:_____])

98. (Don't know)
88. (Refused)

6. *Energy Usage Motivations*

Next I have a few questions about your energy usage.

F1. For each of the next statements, please let us know if you [1] strongly agree, [2] somewhat agree, [3] neither agree nor disagree, [4] somewhat disagree, [5] strongly disagree: [RANDOMIZE RESPONSES] [READ LIST]

1. I try to save energy to lower my energy bill
2. Keeping the home comfortable is more important than saving money on my bill
3. I've tried a few things to save energy, but have not seen any real savings on my energy bill
4. It is important to conserve resources to be more environmentally friendly
5. I prefer to use the most advanced technologies available to control my energy use
6. I am willing to pay more for efficient products that will save me money in the long term
7. I am willing to pay more for efficient products that are more environmentally friendly
8. Energy efficient improvements increase my home's comfort
9. I'm not interested in improving my home's efficiency
10. I wish Focus on Energy would give me more options to help me manage my energy usage
11. It is too expensive to be efficient at home

F2. Have you noticed an increase in your home energy usage due to COVID-19 related guidelines of sheltering-in-place?

1. (Yes)
2. (No)

98. (Don't know)
88. (Refused)

F3. [IF F2 = 1 AND FLAG FOR COVID = 1] Was the change in your home energy usage part of your motivation to participate in the Insulation & Air Sealing Offering?

3. (Yes)
4. (No)

98. (Don't know)
88. (Refused)

F4. Did air quality concerns in your home influence or motivate your participation in the Insulation & Air Sealing Offering?

1. (Yes)
2. (No)
98. (Don't know)
88. (Refused)

7. Financing

These next questions are designed to provide us with an understanding of how you paid for [MEASURE_ONE].

G1. How did you pay for the portion of the [MEASURE_ONE] cost that was not covered by incentives? Did you pay for it with … [Select all that apply. Percentages refer to the what percent of the of the respondent's portion of the cost was paid with that payment method. Total percentages should add up to 100%.]

1. (Cash or debit [What percent of your portion? ___])
2. (Home equity loan [What percent of your portion? ___])
3. (Credit card [What percent of your portion? ___])
4. (Another form of credit [What percent of your portion? __])
5. (Other [Please specify: _____])
98. (Don't know)
88. (Refused)

8. Demographics and Household Information/Business Firmographics

Now I have just a few final questions.

H1. What type of fuel does your water heater use?

1. (Natural gas)
2. (Electricity)
3. (Propane/Bottled gas)
4. (Wood)
5. (Other [SPECIFY:_____])
98. (Don't know)
88. (Refused)

H2. * What is the main type of fuel you use to heat your home?

1. (Natural Gas)
2. (Oil)
3. (Propane)
4. (Electricity)
5. (Wood)
6. (Other [SPECIFY:_____])

98. (Don't know)
88. (Refused)

H3. * What type of home do you live in?
1. (Mobile/manufactured home)
2. (Single-family home, detached house)
3. (Attached house townhouse, row house, or duplex)
4. (Co-op/retirement community)
5. (Other [SPECIFY:_____])
98. (Don't know)
88. (Refused)

H4. *Do you or members of your household own or rent this home?
1. (Own)
2. (Rent)
3. (Other: SPECIFY:_____)
98. (Don't know)
88. (Refused)

H5. [ASK IF H4 = 2 OR 3] How is your electric utility bill paid?
1. (Your utility bills you directly)
2. (Your maintenance fees or rent includes utility costs)
3. (Your bill is split evenly between units within the complex)
4. (Other [SPECIFY:_____])
98. (Don't know)
88. (Refused)

H6. [ASK IF H4 = 2 OR 3] How is your gas utility bill paid?
1. (Your utility bills you directly)
2. (Your maintenance fees or rent includes utility costs)
3. (Your bill is split evenly between units within the complex)
4. (Other [SPECIFY:_____])
98. (Don't know)
88. (Refused)

H7. *What is the highest level of school that you have completed?
1. (Less than 9th grade)
2. (9th to 12th grade; no diploma)
3. (High school graduate [includes GED])
4. (Some college, no degree)
5. (Associate's degree)
6. (Bachelor's degree)

7. (Graduate or professional degree)
88. (Refused)

9. Closing

I1. Do you have any other comments about your experience with Focus on Energy that you would like to share?

1. [RECORD RESPONSE:_____]
98. (Don't know)
88. (Refused)

I2. * On occasion, Focus on Energy may want to contact a customer to learn more about their participation experience. May we share your responses with a program manager, who may contact you regarding your experience?

1. (Yes)
2. (No)
99. (Don't know)

I3. Finally, we would like to confirm how to contact you if you are selected as a $100 gift card winner for completing this survey. The gift card winners will be selected and notified within two weeks after this survey closes.

1. [CONTACT NAME]
2. [EMAIL]
88. (I do not wish to be included in the drawing)

Thank you. We appreciate your help with this survey. Have a nice day.

[READ IF I2 ≠ 0.39079856.99.8888]: You will be added into the drawing for a $100 Visa gift card.

CADMUS

Focus on Energy Nonresidential Solutions Agribusiness Offering CY 2020 Participant Survey Questions

Researchable Questions		
Key Research Topics	**Areas of Investigation**	**Related Section/ Questions**
Screening	Confirm record of participation	A
Awareness and influential persons	How participants learned about the incentive	B1-B2
Participant Experience/Portfolio Transition topics	Ease of applying and finding information	B3
	Comparison to historical experience (if applicable); energy advisor support; identify opportunities for improvement	B4-B7; B12-B14
	Application ease	B8-B11
Participant Decision-making	Motivations for energy efficient upgrades	Section C
Barriers to EE	Top challenges for making energy efficient improvements and how Focus on Energy can help overcome those challenges	Section D
Program Influence/NTG	Freeridership	Section E-F
	Spillover	Section G

General Instructions

- Interviewer instructions are in green **[LIKE THIS]** (the style is "Survey: Interviewer Instructions").
- CATI programming instructions are in red **[LIKE THIS]** (the style is "Survey: Programming").
- Items that should not be read by the interviewer are in parentheses like this ( ).

Quota= 70 completes

SAMPLE Variables:
[CONTACT_NAME]
[SITE_ADDRESS]
[MEASURE_CATEGORY1]
[MEASURE_CATEGORY2]
[MEASURE_CATEGORY3]
[MEASURE_CATEGORY1_QUANTITY]
[MEASURE_CATEGORY2_QUANTITY]
[MEASURE_CATEGORY3_QUANTITY]
[PROPERTY.USAGE.1]
[SERVICE]

A. Introduction

A1. Hello, my name is **[NAME]** and I am calling on behalf of Wisconsin's Focus on Energy. Focus on Energy would like to learn more about your recent energy efficiency project experience for the property at **[SITE_ADDRESS]**.

[IF NO CONTACT NAME, OR CONTACT NO LONGER WORKS FOR ORG]: May I please speak with the person who was most involved with the energy efficiency project your company recently completed with Focus on Energy?
[IF CONTACT NAME PROVIDED]: May I please speak with **[CONTACT_NAME]**?

1. (Yes)
2. (Yes, call transferred) **[START OVER WITH NEW RESPONDENT]**
3. (No, not available) **[SCHEDULE CALLBACK]**
99. (DON'T KNOW) **[ASK TO SPEAK WITH SOMEONE WHO WOULD KNOW AND START AGAIN]**
88. (REFUSED) **[THANK AND TERMINATE]**

Back-up information, not to be programmed:

[If "No – Not available," ask if Respondent would like to arrange a more convenient time for us to call them back or if you can leave a message for that person.]

[IF RESPONDENT ASKS HOW LONG, SAY: "APPROXIMATELY 10 MINUTES."]
[IF NEEDED:] This survey is for research purposes only and this is not a marketing call. Your participation in this study is important so that Focus on Energy can improve its energy efficiency offerings for businesses and other organizations.

[**Only if asked** for a Focus on Energy contact to verify the survey authenticity, offer Mitch Horrie with the Public Service Commission of Wisconsin, 608.267.3206
.]

[**Only if respondent says they already did a survey:** Thank you for your responses to that survey. This is another Focus on Energy study that you have been selected for, that asks a few more questions about your experience with the offering and your decision-making. If you have a few more spare minutes, we would greatly appreciate your responses!]

A2. *Our records show that you installed energy efficient equipment or had services performed including **[MEASURE_CATEGORY1]**, **[MEASURE_CATEGORY2]**, and **[MEASURE_CATEGORY3]** at **[SITE_ADDRESS]**. To ensure our records are correct, can you confirm that you installed this/these upgrades or had this/these services performed in the past year?

1. (Yes)
2. (No, wrong year) **[RECORD CORRECT YEAR, IF POSSIBLE]**
3. (No, wrong address) **[RECORD CORRECT ADDRESS]**
4. (No, wrong measure) **[CORRECT BELOW]**

F3a. (**MEASURE_CATEGORY1** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE1]**

F3a. (**MEASURE_CATEGORY2** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE2]**

F3a. (**MEASURE_CATEGORY3** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE3]**

5. (No, I did not install any measures) **[THANK AND TERMINATE]**
99. (Don't know) **[IS THERE SOMEONE WE COULD SPEAK WITH THAT WOULD KNOW THIS? RECORD NAME AND CONTACT INFORMATION:_____]**
88. (Refused) **[THANK AND TERMINATE]**

B. Awareness and Customer Experience

B1. *How did your organization learn about the Focus on Energy incentives available for this project? **[DO NOT READ LIST] [CHECK ALL THAT APPLY]**
[IF RESPONDENT MENTIONS WEBSITE, CLARIFY IF WAS THE UTILITY OR FOCUS ON ENERGY WEBSITE SO YOU KNOW HOW TO CODE ANSWER ON LIST.]

1. (Contact with Focus on Energy representative through phone or in person)
2. (Focus on Energy email or e-newsletter)
3. (Focus on Energy website)
4. (Focus on Energy sponsored workshop or event)
5. (Focus on Energy printed materials, brochure)
6. (Contact with utility representative)
7. (Utility mailing, newsletter, email, bill insert, or utility website)
8. (Word of mouth: family, friend, or business colleague)
9. (I contacted my contractor/ vendor to ask)
10. (My contractor or vendor let me know about them)
11. (Previously participated in program or offering/received an incentive)
12. (Through a trade association or professional organization) **[SPECIFY:_____]**)
13. (Other **[SPECIFY:_____]**)
99. (Don't know)
88. (Refused)

B2. *I'm going to read you a short list. Please tell me who, if anyone, was involved in helping you initiate your energy efficiency project. **[READ LIST AND MARK 1=YES, 2=NO, 99=DON'T KNOW; 88 REFUSED FOR EACH]**

1. Your contractor or vendor
2. Focus on Energy staff
3. Your utility account manager

B3. *How would you describe your experience in learning about whether your project or equipment qualified for a Focus on Energy incentive? Would you say that project eligibility information was…

1. Very clear
2. Mostly clear

3. A mix of clear and not clear
4. Mostly not clear, or
5. Not clear at all?
99. (Don't know)
88. (Refused)

B4. *[IF B1≠11 READ:] Prior to receiving any incentives from Focus on Energy in 2020, had you worked with Focus on Energy in previous years? [IF B1=11 READ]: You mentioned you had previously participated in a Focus on Energy offering. Is that correct?

1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

B5. *[IF B4=1 AND (B1=1 OR B2.2=1)] You mentioned that you learned about the incentives through a Focus on Energy representative or Energy Advisor or worked with one to complete your project. For this year's project, did you work with the same contact you had worked with previously?

1. (Yes)
2. (No)
3. (Other: _____)
99. (Don't know)
88. (Refused)

B6. *[IF B4=1] Overall, how would you say your experience with Focus on Energy was this year compared to prior years? Would you say it was….

1. About the same,
2. More positive, or
3. Less positive?
99. (Don't know)
88. (Refused)

B7. * [IF B6=2 OR 3] Why do you say that? [OPEN END]

B8. *Did you receive an incentive check in the mail for the upgrades you recently completed, or did your contractor provide a discount on the cost of the project?

1. (Incentive check in the mail)
2. (Contractor discount)
99. (Don't know)
88. (Refused)

B9. *Who took the lead role in completing the application for the financial incentive? Was it… [RANDOMIZE] [READ OPTIONS, ALLOW ONLY ONE RESPONSE]

1. You (i.e., respondent)
2. Someone at your organization
3. The contractor and/or vendor
4. A Focus on Energy Energy Advisor

5. Someone else **[SPECIFY:_____]**
99. (Don't know)
88. (Refused)

B10. **[ASK IF B9=1]** *How easy would you say this paperwork was to complete? Would you say: **[READ LIST]**

1. Very easy,
2. Mostly easy,
3. A mix of easy and challenging,
4. Mostly challenging, or
5. Very challenging?

99. (Don't know)
88. (Refused)

B11. **[ASK IF B10= 3, 4 OR 5]** *Why do you say that? **[OPEN END]**

B12. **[IF B2.2=1]** *Overall, how satisfied were you with the project support you received from your Focus on Energy Energy Advisor? Would you say: **[READ LIST]**

1. Very satisfied,
2. Somewhat satisfied,
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied, or
5. Very dissatisfied?

99. (Don't know)
88. (Refused)

B13. **[IF B12=2-5]** *Why do you say that? **[OPEN END]**

B14. *What could Focus on Energy have done to improve your overall experience, if anything? **[DO NOT READ THE LIST, RECORD ALL THAT APPLY]**

1. (Better/more communication **[SPECIFY: WHO WOULD YOU LIKE MORE COMMUNICATION FROM?_____]**)
2. (Quicker response time **[SPECIFY: WHO WOULD YOU LIKE A QUICKER RESPONSE TIME FROM?__]**)
3. (Larger selection of eligible equipment **[ASK: WHAT ENERGY-EFFICIENT EQUIPMENT SHOULD FOCUS ON ENERGY OFFER INCENTIVES FOR?_____]**)
4. (Increasing the incentive amount)
5. (Simplify the application process **[ASK: IN WHAT WAY SHOULD IT BE SIMPLIFIED?_____?]**)
6. (Allow me to fill out the applications online)
7. (Simplify the website **[ASK: IN WHAT WAY?_____]**)
8. (Provide quicker approval on applications)
9. (Send incentive check out faster)
10. (Simplify the incentive catalogue **[ASK IN WHAT WAY]**)
11. (Other **[SPECIFY:_____]**)

12. (No, nothing)
99. (Don't know)
88. (Refused)

C. Decision Making

Now I'd like to understand more about how your property made decisions about your specific energy efficiency project.

C1. *What factor was most important to your company's decision to make the energy-efficient upgrades for which you received an incentive? **[DO NOT READ LIST; SINGLE RESPONSE]**

1. (To save money on energy bills / reduce energy costs)
2. (To reduce energy consumption or energy demand / be more efficient / company conservation or environmental targets)
3. (To obtain a Focus on Energy or bonus incentive)
4. (To obtain a tax credit)
5. (To replace old (but still functioning) equipment)
6. (To replace broken equipment)
7. (To enhance performance or aesthetics of our equipment/system(s))
8. (To improve comfort)
9. (Tenant satisfaction/retention)
10. (To reduce maintenance or other non-energy operating costs)
11. (Other **[SPECIFY_____]**)
99. (Don't know)
88. (Refused)

C2. Are there certain topics you would like Focus on Energy to provide in-person or online trainings for next year?

1. (Yes [Please specify which topic you're interested in]: _____)
2. (No)
99. (Not sure / don't know)
88. (Refused)

C3. Are you considering implementing other energy efficient equipment or building upgrades in the next year?

1. (Yes)
2. (No)
99. (Not sure / don't know)
88. (Refused)

C4. **[IF C3=1]** What other upgrades are you considering? [MULTIPLE ANSWERS ALLOWED; DO NOT READ LIST]

1. (Lighting, such as LED, or advanced lighting controls technologies; or equipment such as troffers, fixtures, lamps, sensors, indoor or outdoor)

2. (HVAC, such as air conditioning, heating technology or equipment such as heat pumps, furnaces, boilers, air conditioners, chillers, thermostats, pumps, variable frequency drives [VFDs], air handlers/rooftop units)
3. (Water heaters)
4. (Compressed air nozzles, variable speed drives [VSD], filters, valves)
5. (Building envelope)
6. (Horticultural lighting)
7. (Refrigeration tuneups)
8. (Grain dryer tuneups)
9. (Other [RECORD_____])
99. (Don't know)
88. (Refused)

C5. **[IF C3=2 or 3]** Why not? [MULTIPLE ANSWERS ALLOWED; DO NOT READ LIST]

1. (No more affordable energy efficiency opportunities exist)
2. (Not in the budget for next year)
3. (Not willing to commit because of Covid-19)
4. (Not willing to commit because of the economic recession)
5. (Not willing to commit because of low crop or milk prices)
6. (Other [record verbatim response: _____])

D. Barriers

The next questions are to understand the barriers your organization may face when implementing an energy efficiency project.

D1. *If you had to choose just one, what would you say is normally the largest challenge in implementing energy efficiency projects and upgrades at your organization? This does not take into account the Covid-19 pandemic. Would you say: **[READ LIST; RECORD ONLY ONE]**

1. Cost
2. Time
3. Technical questions or technical issues, or
4. Your organization's own internal decision making or budgeting process
99. (Don't know)
88. (Refused)

D2. *What could be done to help your company overcome challenges with energy efficiency improvements? **[DO NOT READ LIST, ALLOW MULTIPLE RESPONSES]**

1. (Nothing)
2. (Higher incentives)
3. (Provide immediate or upfront discounts/incentives)
4. (Offer low-interest loans)
5. (Simplify the paperwork) **[ASK HOW:_____]**)
6. (Provide better/more information about the offering **[SPECIFY WHAT TYPE OF INFORMATION THEY NEED:_____]**)

7. (Provide an energy audit)
8. (Technical support for proposed equipment)
9. (Technical support for understanding project payback period/ROI)
10. (Other **[RECORD VERBATIM ANSWER_____]**)
99. (Don't know)
88. (Refused)

D3. * In 2021, how will your organization's interest in or ability to complete energy efficiency projects like this one be different, as a result of COVID-19? **[SELECT ALL THAT APPLY]**

1. (It will not be different)
2. (Reduced: Less budget available)
3. (Reduced: Other priorities, more competing projects)
4. (Reduced: Staff will have less time to work on this type of project)
5. (Reduced: Will not be able to identify efficient measures because building usage has changed)
6. (Reduced: Will not prioritize improving buildings because future use is uncertain)
7. (Enhanced: More budget available)
8. (Enhanced: More interest in cost-cutting projects like efficiency)
9. (Enhanced: Easier to complete projects when buildings not in use)
10. (Other) **[SPECIFY:_____]**
99. (Don't know)
88. (Refused)

E. Freeridership

[IF B8 = 2 AND B2.1= 1 THEN SKIP TO SECTION F, OTHERWISE ASK THIS SECTION - CONTRACTOR DID NOT PROVIDE A DISCOUNT]

[IF SERVICE=0, READ] Now I'd like to talk with you a bit more about your decisions to purchase the new **[MEASURE_CATEGORY1 OR C_MEASURE1].** Even though you may have received incentives for other energy saving equipment and services, these questions are just about the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that was purchased. **[IF SERVICE=1, READ]** Now I'd like to talk with you a bit more about your decisions to purchase the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. Even though you may have received incentives for other energy saving equipment and services, these questions are just about the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that was purchased.

[INTERVIEWER NOTE ABOUT THIS SECTION (DON'T READ TO RESPONDENT): THIS SECTION IS BASED ON HYPOTHETICAL BEHAVIOR SO WE ARE ASKING SIMILAR QUESTIONS TO VERIFY THAT WE ARE GATHERING THE CORRECT RESPONSES.]

E1. **[IF SERVICE=0, READ]** First, did your organization have specific plans to install the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option before learning about the Focus on Energy incentive? **[IF SERVICE=1, READ]** First, did your organization have specific plans to have the **[MEASURE_CATEGORY1 OR C_MEASURE1]** performed before learning about the Focus on Energy incentive?

1. (Yes) **[ASK E2]**
2. (No) **[SKIP TO E4]**

99. (DON'T KNOW) **[SKIP TO E4]**
88. (REFUSED) **[SKIP TO E4]**

E2. **[IF SERVICE=0, READ]** Prior to learning about the incentive, was the purchase of the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] included in your organization's capital budget? **[IF SERVICE=1, READ]** Prior to learning about the incentive, was the purchase of **[MEASURE_CATEGORY1 OR C_MEASURE1]** services included in your organization's capital budget?

1. (Yes)
2. (No) **[SKIP TO E4]**
99. (DON'T KNOW) **[SKIP TO E4]**
88. (REFUSED) **[SKIP TO E4]**

E3. **[IF SERVICE=0, READ]** Had your organization ***ALREADY*** ordered or purchased the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] ***BEFORE*** your organziation heard about the Focus on Energy incentive? **[IF SERVICE=1, READ]** Had your organization ***ALREADY*** ordered or purchased the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services ***BEFORE*** your organization heard about the Focus on Energy incentive?

1. (Yes)
2. (No)
99. (DON'T KNOW)
88. (REFUSED)

E4. **[IF SERVICE=0, READ]** Would you have purchased and installed the same energy efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the incentive and information or education from Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services without the incentive and information or education from Focus on Energy?

1. (Yes) **[SKIP TO E7]**
2. (No) **[SKIP TO E9]**
99. (DON'T KNOW) **[ASK E5]**
88. (REFUSED) **[ASK E5]**

E5. **[IF SERVICE=0, READ]** Would you have installed **something** without the incentive and information or education from Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased **some services** without the incentive and information or education from Focus on Energy? **[DO NOT READ LIST UNLESS NECESSARY]**

1. (Yes, would have installed something / purchase some service) **[ASK E6]**
2. (No, would NOT have installed anything / not purchased any services)) **[SKIP TO E13]**
99. (DON'T KNOW) **[SKIP TO E13]**
88. (REFUSED) **[SKIP TO E13]**

E6. **[IF SERVICE=0, READ]** When you say you **would have installed** something, would you have installed something that was just as energy efficient as the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** When you say you **would have had services performed**, would you have purchased services that produced as much energy efficiency as the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**

2. (No) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**
88. (REFUSED) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**

E7. **[ASK IF SERVICE=0]** And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK E8]**
2. (No, would have installed less) **[ASK E8]**
3. (No, would have installed more) **[ASK E8]**
99. (DON'T KNOW) **[ASK E8]**
88. (REFUSED) **[ASK E8]**

E8. **[IF SERVICE=0, READ]** Without the incentive for the **[MEASURE_CATEGORY1 OR C_MEASURE1]** and information or education from Focus on Energy, would you have installed the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]… **[IF SERVICE=1, READ]** Without the incentive for the **[MEASURE_CATEGORY1 OR C_MEASURE1]** and information or education from Focus on Energy, would you have had the **[MEASURE_CATEGORY1 OR C_MEASURE1]** performed… **[READ LIST AND RECORD ONE RESPONSE]**

1. Within the same year? **[SKIP TOE13]**
2. Within one to two years? **[SKIP TO E13]**
3. Within three to five years? **[SKIP TO E13]**
4. In more than five years? **[SKIP TO E13]**
99. (DON'T KNOW) **[SKIP TO E13]**
88. (REFUSED) **[SKIP TO E13]**

E9. **[ASK E9 TO E12 IF E4 =2]** **[IF SERVICE=0, READ]** When you say **you would not have installed** the same energy-efficient**[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all? **[IF SERVICE=1, READ]** When you say **you would not have purchased** the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services without the incentive and information or education from Focus on Energy, would you have purchased any services at all?

1. (Yes, would have installed something / purchased some service) **[ASK E10]**
2. (No, would not have installed anything at all / not purchased any services) **[SKIP TO E13]**
99. (DON'T KNOW) **[ASK E10]**
88. (REFUSED) **[ASK E10]**

E10. **[ASK E9 TO E12 IF E4 =2]** **[IF SERVICE=0, READ]** Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy efficient as the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** Without the incentive and information or education from Focus on Energy, would you have purchased services that produced as much energy efficiency as the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**
2. (No) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**
88. (REFUSED) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**

E11. **[ASK IF SERVICE=0] [ASK E9 TO E12 IF E4 =2/ ASK FOR MEASURE_CATEGORY1 WITH QUANTITY GREATER THAN 1]** Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK E12]**
2. (No, would have installed less) **[ASK E12]**
3. (No, would have installed more) **[ASK E12]**

99. (DON'T KNOW) **[ASK E12]**
88. (REFUSED) **[ASK E12]**

E12. **[ASK E9 TO E12 IF E4 =2[IF SERVICE=0, READ]** And, would you have installed the same energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. . . **[IF SERVICE=1, READ]** And, would you have had the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services performed. . . **[READ LIST AND RECORD ONE RESPONSE]**

1. In the same year?
2. In one to two years?
3. In three to five years?
4. More than five years out?

99. (DON'T KNOW)
88. (REFUSED)

E13. **[ASK EVERYONE] [IF SERVICE=0, READ]** We would like to know more about the factors that contributed to your purchase of the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. **[IF SERVICE=1, READ]** We would like to know more about the factors that contributed to your purchase of the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. **[1 TO 6 - RANDOMIZE LIST]**

1. **[RESPONSE FROM C1 IF C1≠3, 99 OR 88]**
2. The Focus on Energy incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a contractor or vendor
6. Previous participation in a Focus on Energy energy efficiency program or offering

99. (DON'T KNOW)
88. (REFUSED)

F. Freeridership- Contractor

[ASK EITHER SECTION E OR SECTION F- NOT BOTH]

[ASK IF B8=2 AND B2.1 = 1 – CONTRACTOR HELPED IN THE DECISION MAKING AND PROVIDED A DISCOUNT]

[IF SERVICE=0, READ] Now I'd like to talk with you about the new energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**. Even though your contractor may have performed other services or installed other energy efficient equipment, these questions are just about the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**. **[IF SERVICE=1, READ]** Now I'd like to talk with you about the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. Even though your contractor may have performed other services or installed energy efficient equipment, these questions are just about the **[MEASURE_CATEGORY1 OR C_MEASURE1]** service.

[INTERVIEWER NOTE ABOUT THIS SECTION (DON'T READ TO RESPONDENT): THIS SECTION IS BASED ON HYPOTHETICAL BEHAVIOR SO WE ARE ASKING SIMILAR QUESTIONS TO VERIFY THAT WE ARE GATHERING THE CORRECT RESPONSES.]

F1. At the time that you first started working with your contractor on this project, had you…? **[READ LIST AND RECORD ONE FOR EACH: 1=YES OR 2=NO OR 99=DON'T KNOW OR 88=REFUSED]**

1. **[IF SERVICE=0, READ]** Already been thinking about purchasing the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already been thinking about purchasing the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services?
2. **[IF SERVICE=0, READ]** Already begun collecting information about energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already begun collecting information about **[MEASURE_CATEGORY1 OR C_MEASURE1]** services?
3. **[IF SERVICE=0, READ]** Already selected the particular energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]** and were going to purchase it? **[IF SERVICE=1, READ]** Already selected the particular **[MEASURE_CATEGORY1 OR C_MEASURE1]** services and were going to purchase them?
4. **[IF SERVICE=0, READ]** Already purchased the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already purchased the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services?
5. **[IF SERVICE=0, READ]** Already installed the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already purchased the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services?
6. **[ASK ALL]** Already heard about Focus on Energy?

99. (DON'T KNOW)
88. (REFUSED)

F2. **[IF SERVICE=0, READ]** Just to make sure I understand, did your organizationhave specific plans to install the energy efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option before you began working with your contractor? **[IF SERVICE=1, READ]** Just to make sure I understand, did your organizationhave specific plans to purchase **[MEASURE_CATEGORY1 OR C_MEASURE1]** services before you began working with your contractor?

1. (Yes) **[ASK F3]**
2. (No) **[SKIP TO F4]**

99. (DON'T KNOW) **[SKIP TO F4]**
88. (REFUSED) **[SKIP TO F4]**

F3. **[IF SERVICE=0, READ]** Before you began working with your contractor, was the purchase of the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] included in your organization's capital budget? **[IF SERVICE=1, READ]** Before you began working with your contractor, was the purchase of the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services included in your organization's capital budget?

1. (Yes)
2. (No) **[SKIP TO F5]**
99. (DON'T KNOW) **[SKIP TO F5]**
88. (REFUSED) **[SKIP TO F5]**

F4. **[IF SERVICE=0, READ]** Did your contractor help your organization make the decision to include the purchase of the energy efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] in your property's capital budget? **[IF SERVICE=1, READ]** Did your contractor help your organization make the decision to include the purchase of the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services in your porganization's capital budget?

1. (Yes) **[ASK F5]**
2. (No) **[ASK F5]**
99. (DON'T KNOW) **[ASK F5]**
88. (REFUSED) **[ASK F5]**

F5. **[IF SERVICE=0, READ]** Would you have purchased and installed the same energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the assistance from your contractor and Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services without the assistance from your contractor and Focus on Energy?

1. (Yes) **[SKIP TO F8]**
2. (No) **[SKIP TO F10]**
99. (DON'T KNOW) **[ASK F6]**
88. (REFUSED) **[ASK F6]**

F6. **[IF SERVICE=0, READ]** Would you have installed **something** without the assistance of your contractor and Focus on Energy? **[IF SERVICE=1, READ]** Would you had **some services performed** without the assistance of your contractor and Focus on Energy? **[DO NOT READ LIST UNLESS NECESSARY]**

1. **[IF SERVICE=0]** (Yes, would have installed something **[IF SERVICE=1] (**Yes, would have performed some service) **[ASK F7]**
2. **[IF SERVICE=0]** (No, would not have installed anything / **[IF SERVICE=1]** (No, would not performed any service) **[SKIP TO F16]**
99. (DON'T KNOW) **[SKIP TO F16]**
88. (REFUSED) **[SKIP TO F16]**

F7. **[IF SERVICE=0, READ]** When you say you **would have installed** something, would you have installed something that was just as energy efficient as the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** When you say you **would have had services performed**, would

you have purchased services that produced as much energy efficiency as the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK F8 / IF SERVICE=1 SKIP TO F9]**
2. (No) **[IF SERVICE=0 ASK F8 / IF SERVICE=1 SKIP TO F9]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK F8 / IF SERVICE=1 SKIP TO F9]**
88. (REFUSED) **[IF SERVICE=0 ASK F8 / IF SERVICE=1 SKIP TO F9]**

F8. **[ASK IF SERVICE=0 FOR MEASURE_CATEGORY1 WITH QUANTITY GREATER THAN 1]** And without the involvement of your contractor and Focus on Energy would you have installed the same number of energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK F9]**
2. (No, would have installed less) **[ASK F9]**
3. (No, would have installed more) **[ASK F9]**
99. (DON'T KNOW) **[ASK F9]**
88. (REFUSED) **[ASK F9]**

F9. **[IF SERVICE=0, READ]** Without the assistance from your contractor and Focus on Energy, would you have installed the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]… **[IF SERVICE=1, READ]** Without the assistance from your contractor and Focus on Energy, would you have had the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services performed… **[READ LIST AND RECORD ONE RESPONSE]**

1. Within the same year? **[SKIP TO F16]**
2. Within one to two years? **[SKIP TO F16]**
3. Within three to five years? **[SKIP TO F16]**
4. In more than five years? **[SKIP TO F16]**
99. (DON'T KNOW) **[SKIP TO F16]**
88. (REFUSED) **[SKIP TO F16]**

F10. **[ASK F10 TO F14 IF F5=2] [IF SERVICE=0, READ]** When you say **you would not have installed** the same **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the assistance from your contractor and Focus on Energy, would you have installed anything at all? **[IF SERVICE=1, READ]** When you say **you would not have performed** the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services without the assistance from your contractor and Focus on Energy, would you have had any energy-saving services performed at all?

1. (Yes) **[ASK F11]**
2. (No) **[SKIP TO F16]**
99. (DON'T KNOW) **[ASK F11]**
88. (REFUSED) **[ASK F11]**

F11. **[ASK F10 TO F14 IF F5=2] [IF SERVICE=0, READ]** Without the assistance from your contractor and Focus on Energy, **would you have installed** something that was just as energy efficient as the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** Without the assistance from your contractor and Focus on Energy, **would you have purchased services** that produced as much energy efficiency as the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK F12 / IF SERVICE=1 SKIP TO F13]**
2. (No) **[IF SERVICE=0 ASK F12 / IF SERVICE=1 SKIP TO F13]**

99. (DON'T KNOW) **[IF SERVICE=0 ASK F12 / IF SERVICE=1 SKIP TO F13]**
88. (REFUSED) **[IF SERVICE=0 ASK F12 / IF SERVICE=1 SKIP TO F13]**

F12. **[ASK F10 TO F14 IF F5=2 AND SERVICE=0]** Without the assistance from your contractor and Focus on Energy, would you have installed the same amount of energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK F13]**
2. (No, would have installed less) **[ASK F13]**
3. (No, would have installed more)**[ASK F13]**

99. (DON'T KNOW) **[ASK F13]**
88. (REFUSED) **[ASK F13]**

F13. **[ASK F10 TO F14 IF F5=2] [IF SERVICE=0, READ]** And, would you have installed the same energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. . . **[IF SERVICE=0, READ]** And, would you have purchased the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. . . **[READ LIST AND RECORD ONE RESPONSE]**

1. In the same year? **[ASK F14]**
2. In one to two years? **[ASK F14]**
3. In three to five years? **[ASK F14]**
4. More than five years out? **[ASK F14]**

99. (DON'T KNOW) **[ASK F14]**
88. (REFUSED) **[ASK F14]**

F14. **[ASK F10 TO F14 IF F5=2]** If the assistance or information from your contractor had not been available, would you have done anything differently on this project?

1. (Yes) **[ASK F15]**
2. (No) **[SKIP TO F16]**

99. (DON'T KNOW) **[SKIP TO F16]**
88. (REFUSED) **[SKIP TO F16]**

F15. What would you have done differently? **[RECORD OPEN ENDED RESPONSE]**

F16. **[IF SERVICE=0, READ]** We would like to know more about the factors that contributed to your purchase of the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. **[IF SERVICE=1, READ]** We would like to know more about the factors that contributed to your purchase of the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. **[RANDOMIZE LIST]**

1. **[RESPONSE FROM C1 IF C1≠3, 99 OR 88]**
2. The Focus on Energy incentive or discount
3. Recommendation from Focus on Energy Staff

4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a contractor or vendor
6. Previous participation in a Focus on Energy energy efficiency program or offering
99. (DON'T KNOW)
88. (REFUSED)

G. Spillover

[ASK EVERYONE SECTION G]

G1. Since making these energy-efficiency upgrades has your company installed any other energy-efficient products in your facility that you did ***NOT*** receive a Focus on Energy incentive for? **[IF NEEDED: BY ENERGY-EFFICIENT PRODUCTS, I MEAN HIGH EFFICIENCY HVAC EQUIPMENT, HIGH EFFICIENCY WATER HEATERS, HIGH EFFICIENCY MOTORS, OR ENERGY STAR LIGHTING SUCH AS LED LIGHTBULBS.]**

1. (Yes) **[ASK G2]**
2. (No) **[SKIP TO SECTION H]**
99. (DON'T KNOW) **[SKIP TO SECTION H]**
88. (REFUSED) **[SKIP TO SECTION H]**

G2. What were the other energy-efficient products that you installed without getting an incentive? **[DO NOT READ LIST; MARK ALL THAT APPLY; 99=DON'T KNOW, 88=REFUSED] [IF THE CUSTOMER SAYS THEY BOUGHT SOMETHING BUT HAVE NOT INSTALLED IT, THE EQUIPMENT HAS TO BE INSTALLED AND OPERATING FOR US TO COUNT IT TOWARDS SPILLOVER.]**

1. (LEDs)
2. (Fluorescent tubes (T5s, T8s, etc.))
3. (Efficient lighting controls (occupancy sensors, daylighting, timers))
4. (High efficiency motors)
5. (Air source heat pumps)
6. (Ground source heat pumps)
7. (Central AC)
8. (VSD (variable speed drive))
9. (Water heating equipment)
10. (Boiler)
11. (Compressed air equipment)
12. (Gas furnaces)
13. (Exit signs)
14. (Refrigeration equipment (refrigerators, freezers))
15. Operational improvements **[SPECIFY:_____]**
16. (Other) **[SPECIFY:_____]**
99. (DON'T KNOW) **[SKIP TO SECTION H]**
88. (REFUSED) **[SKIP TO SECTION H]**

[ASK G2.11-G2.13 IF G2=1, 2]

G2.11 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What is the wattage of the lighting? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.12 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** In what location was it installed (Wall/Ceiling/Outdoors)? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.13 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What type of equipment was removed or replaced? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.21- G2.22 IF G2=3]

G2.2.1 How many lamps are controlled by the efficient lighting controls installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.2.2 What is the average wattage of the lamps controlled by the efficient lighting controls installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.31-G2.33 IF G2=4]

G2.31 How is the high efficiency motor controlled? (Always on, manual start/stop, VSD / ECM / VFD, Other)? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.33 On what equipment was the high efficiency motor installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.33 What is the horsepower of the high efficiency motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.41 IF G2=5, 6] [ASK G2.42 IF G2=5, 6, 7] [ASK G2.43 IF G2=5, 6, 7]

G2.41 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What is the heating efficiency rating (HSPF) of the **[INSERT ITEM FROM G2]**? **[RECORD NUMERIC RESPONSE: 0.1 TO 20.0 "HSPF Rating (BTU/watt-hr)", 99=DON'T KNOW, 88=REFUSED]**

G2.42 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What is the cooling efficiency rating (SEER/EER) of the **[INSERT ITEM FROM G2]**? **[RECORD NUMERIC RESPONSE: 0.1 TO 30.0 "SEER/EER Rating", 99=DON'T KNOW, 88=REFUSED]**

G2.43 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What is the capacity of the **[INSERT ITEM FROM G2]**? **[RECORD NUMERIC RESPONSE: 0 TO 1,000,000 "BTUs", 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.51-G2.52 IF G2=8]

G2.51 On what type of equipment was the VSD (variable speed drive) motor installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.52 What is the horsepower of the VSD (variable speed drive) motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.61-G2.64 IF G2=9]

G2.61 What type of water heating equipment was purchased and installed? **[READ LIST]**

1. Water heater with storage
2. Tankless water heater
98. (Don't know)
99. (Refused)

G2.62 What Fuel type is used? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.63 What is the efficiency factor (EF) rating of the water heating equipment? **[RECORD NUMERIC RESPONSE: 0.00 TO 0.99 "Efficiency Factor (EF)", 99=DON'T KNOW, 88=REFUSED]**
G2.64 **[ASK IF G2.61 NOT EQUAL TO "TANKLESS WATER HEATER"]** What is the capacity of the equipment in gallons? **[RECORD NUMERIC RESPONSE: 0 TO 10000 "Capacity in Gallons", 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.71-G2.72 IF G2=11]

G2.71 What is the compressed air equipment being used for? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.72 What is the horsepower of the compressor motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.81-G2.82 IF G2=12]

G2.81 What is the efficiency rating of the gas furnace? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.82 What is the output capacity of the gas furnace? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.91 IF G2=14]

G2.91 What type of refrigeration equipment was purchased and installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

G3. **[REPEAT FOR EACH ITEM MENTIONED IN G2]** How many **[INSERT ITEM FROM G2]** did you install? **[RECORD NUMBER_____, 99 FOR DON'T KNOW, 88 FOR REFUSED, AND -96 FOR N/A]]**

G4. **[REPEAT FOR EACH ITEM MENTIONED IN G2]** Please tell me how important [**IF ANY 0.39079856.99.88.1=1 READ,** "assistance from your contractor and information and education from Focus on Energy" **OTHERWISE READ,** "the Focus on Energy Agribusiness offering"] was in your decision to install **[ANSWER FROM G2]**" Was it…?: **[READ LIST EMPHASIZE EACH ANSWER OPTION AND PAUSE IN BETWEEN EACH OPTION.]**

1. Very important,
2. Somewhat important,
3. Neutral,
4. Not too important, or
5. Not at all important

99. (Don't know)
88. (Refused)

G5. Was **[INSERT EACH ITEM FROM G2]** installed at **[SITE ADDRESS]**?
1. Yes
2. No (**ASK:** What is the address of the location where you installed **[INSERT EACH ITEM FROM G2]**? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
99. (Don't know)
88. (Refused)

H. Closing

H1. *Do you have any other comments about your experience with Focus on Energy that you would like to share?
[RECORD RESPONSE:_____; 99 FOR DON'T KNOW, 88 FOR REFUSED]

H2. *On occasion, Focus on Energy may want to contact a customer to learn more about their participation experience. May we share your responses with a program manager, who may contact you regarding your experience?
1. Yes
2. No
99. (Don't know)
88. (Refused)

Thank you. We appreciate your help with this survey. Have a nice day.

CADMUS

Focus on Energy Nonresidential Solutions Commercial and Industrial Offering
CY 2020 Participant Survey Questions

Researchable Questions		
Key Research Topics	**Areas of Investigation**	**Related Questions**
Screening	Survey initiation, project verification	Section A
Awareness	Sources of participant awareness and project initiation	Section B
Decision Making	Key factors influencing participants' decision to participate in energy upgrades	Section C
Barriers	Obstacles to installing high-efficiency equipment	Section D
Small Business Experience	Awareness of small business online portal; interest in energy assessment	Section E
	Energy efficiency pack measure installation verification and	
	Satisfaction with energy efficiency pack products	
Program Impacts	Verify installation and persistence of kit measures	Section F
	Determine net program impacts	Sections F, G, H

General Instructions

- Interviewer instructions are in green **[LIKE THIS]** (the style is "Survey: Interviewer Instructions").
- CATI programming instructions are in red **[LIKE THIS]** (the style is "Survey: Programming").
- Items that should not be read by the interviewer are in parentheses like this ( ).

Quota= 190 completes (70 kit participants and 120 standard participants)

SAMPLE Variables:
[CONTACT NAME]
[SITE ADDRESS]
[SMALL BUSINESS] (TRUE/FALSE): previous Small Business Program participants or those who received a small business energy efficiency pack
[RESTAURANT/TAVERN PACK] (TRUE/FALSE)
[OFFICE PACK] (TRUE/FALSE)
[RETAIL PACK] (TRUE/FALSE)
[MEASURE CATEGORY1]
[MEASURE CATEGORY2]
[MEASURE CATEGORY3]
[MEASURE CATEGORY1_QUANTITY]
[MEASURE CATEGORY2_QUANTITY]
[MEASURE CATEGORY3_QUANTITY]
[SERVICE]

A. Introduction

A1. Hello, my name is **[NAME]** and I am calling on behalf of Wisconsin's Focus on Energy. Focus on Energy would like to learn more about your recent energy efficiency project experience for the property at **[SITE ADDRESS]**.

[IF NO CONTACT NAME, OR CONTACT NO LONGER WORKS FOR ORG]: May I please speak with the person who was most involved with the energy efficiency project your company recently completed with Focus on Energy?
[IF CONTACT NAME PROVIDED]: May I please speak with **[CONTACT NAME]**?

1. (Yes)
2. (Yes, call transferred) **[START OVER WITH NEW RESPONDENT]**
3. (No, not available) **[SCHEDULE CALLBACK]**
99. (DON'T KNOW) **[ASK TO SPEAK WITH SOMEONE WHO WOULD KNOW AND START AGAIN]**
88. (REFUSED) **[THANK AND TERMINATE]**

Back-up information, not to be programmed:

[If "No – Not available," ask if Respondent would like to arrange a more convenient time for us to call them back or if you can leave a message for that person.]

[IF RESPONDENT ASKS HOW LONG, SAY: "APPROXIMATELY 10 MINUTES."]
[IF NEEDED:] This survey is for research purposes only and this is not a marketing call. Your participation in this study is important so that Focus on Energy can improve its energy efficiency offerings for businesses and other organizations.

[**Only if asked** for a Focus on Energy contact to verify the survey authenticity, offer Mitch Horrie with the Public Service Commission of Wisconsin, 608.267.3206]

[**Only if respondent says they already did a survey:** Thank you for your responses to that survey. This is another Focus on Energy study that you have been selected for, that asks a few more questions about your experience with the offering and your decision-making. If you have a few more spare minutes, we would greatly appreciate your responses!]

A2. *Our records show that you installed energy efficient equipment or had services performed including **[MEASURE CATEGORY1]**, **[MEASURE CATEGORY2]**, and **[MEASURE CATEGORY3]** at **[SITE ADDRESS]**. To ensure our records are correct, , can you confirm this information?

1. (Yes)
2. (No, wrong year) **[RECORD CORRECT YEAR, IF POSSIBLE]**
3. (No, wrong address) **[RECORD CORRECT ADDRESS]**
4. (No, wrong measure) **[CORRECT BELOW]**

F3a. (**MEASURE CATEGORY1** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE1]**

F3a. (**MEASURE CATEGORY2** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE2]**

F3a. (**MEASURE CATEGORY3** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE3]**

5. (No, I did not install any measures) **[THANK AND TERMINATE]**
99. (Don't know) **[IS THERE SOMEONE WE COULD SPEAK WITH THAT WOULD KNOW THIS? RECORD NAME AND CONTACT INFORMATION:_____]**
88. (Refused) **[THANK AND TERMINATE]**

B. Awareness and Customer Experience

B1. **[SKIP IF SMALL BUSINESS=TRUE]** How many locations does your organization operate in Wisconsin?

1. [RECORD NUMBER:_____]
99. (Don't know)
88. (Refused)

B2. **[SKIP IF SMALL BUSINESS=TRUE]** How many people does your organization employ in Wisconsin (best guess)?

1. [RECORD NUMBER:_____]
99. (Don't know)
88. (Refused)

B3. *How did your organization learn about the Focus on Energy incentives available for this project? **[DO NOT READ LIST] [CHECK ALL THAT APPLY]**
[IF RESPONDENT MENTIONS WEBSITE CLARIFY IF UTILITY OR FOCUS ON ENERGY WEBSITE SO YOU KNOW HOW TO CODE ANSWER ON LIST.]

1. (Contact with Focus on Energy representative through phone or in person)
2. (Focus on Energy email or e-newsletter)
3. (Focus on Energy website)
4. (Focus on Energy sponsored workshop or event)
5. (Focus on Energy printed materials, brochure)
6. (Contact with utility representative)
7. (Utility mailing, bill insert, newsletter, email or utility website)
8. (Word of mouth: family, friend, or business colleague)
9. (I contacted my contractor/ vendor to ask)
10. (My contractor or vendor let me know about them)
11. (Previously participated in program or offering/received an incentive)
12. (Through a trade association or professional organization **[SPECIFY:_____]**)
13. (Other **[SPECIFY:_____]**)
99. (Don't know)
88. (Refused)

B4. *I'm going to read you a short list. Please tell me who, if anyone, was involved in helping you initiate your energy efficiency project. **[READ LIST AND MARK 1=YES, 2=NO, 99=DON'T KNOW; 88 REFUSED FOR EACH]**

1. Your contractor or vendor
2. Focus on Energy staff
3. Your utility account manager

B5. *How would you describe your experience in learning about whether your project or equipment qualified for a Focus on Energy incentive? Would you say that project eligibility information was…

1. Very clear
2. Mostly clear
3. A mix of clear and not clear,
4. Mostly not clear, or
5. Not clear at all?
99. (Don't know)
88. (Refused)

B6. ***[IF B3≠11 READ:]** Prior to any projects completed in the past year, had you worked with Focus on Energy in previous years? **[IF B3=11 READ]:** You mentioned you had previously participated in a Focus on on Energy offering. Is that correct?

1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

B7. ***[IF B6=1 AND B3=1 OR B4=2]** You mentioned that you learned about the incentives through a Focus on Energy representative or Energy Advisor or worked with one to complete your project. For this year's project, did you work with the same contact you had worked with previously?

1. (Yes)
2. (No)
3. (Other: _____)
99. (Don't know)
88. (Refused)

B8. ***[IF B6=1]** Overall, how would you say your experience with Focus on Energy was for this project compared to prior years? Would you say it was….

1. About the same
2. More positive, or
3. Less positive?
99. (Don't know)
88. (Refused)

B9. ***[IF B8=2 OR 3]** Why do you say that? **[OPEN END]**

B10. *Did you receive an incentive check in the mail for the upgrades you recently completed, or did your contractor provide a discount on the cost of the project?

1. (Incentive check in the mail)
2. (Contractor discount)
99. (Don't know)
88. (Refused)

B11. *Who took the lead role in completing the application for the financial incentive? Was it… **[RANDOMIZE]** **[READ OPTIONS, ALLOW ONLY ONE RESPONSE]**

1. You (i.e., respondent)
2. Someone at your organization
3. The contractor and/or vendor
4. A Focus on Energy representative
5. Someone else **[SPECIFY:_____]**
99. (Don't know)
88. (Refused)

B12. **[ASK IF B11=1]** *How easy would you say this paperwork was to complete? Would you say: **[READ LIST]**

1. Very easy,
2. Mostly easy,
3. A mix of easy and challenging,
4. Mostly challenging, or
5. Very challenging?
99. (Don't know)
88. (Refused)

B13. **[ASK IF B12= 3, 4 OR 5]** *Why do you say that? **[OPEN END]**

B14. **[IF B4.2=1]** *Overall, how satisfied were you with the project support you received from your Focus on Energy Energy Advisor? Would you say: **[READ LIST]**

1. Very satisfied,
2. Somewhat satisfied,
3. Neither satisfied nor dissatisfied,
4. Somewhat dissatisfied, or
5. Very dissatisfied?
99. (Don't know)
88. (Refused)

B15. **[IF B14=2-5]** *Why do you say that? **[OPEN END]**

B16. *What could Focus on Energy have done to improve your overall experience, if anything? **[DO NOT READ THE LIST, RECORD ALL THAT APPLY]**

1. (Better/more communication **[SPECIFY: WHO WOULD YOU LIKE MORE COMMUNICATION FROM?_____]**)
2. (Quicker response time **[SPECIFY: WHO WOULD YOU LIKE A QUICKER RESPONSE TIME FROM?__]**)

3. (Larger selection of eligible equipment **[ASK: WHAT ENERGY-EFFICIENT EQUIPMENT SHOULD FOCUS ON ENERGY OFFER INCENTIVES FOR?_____]**)
4. (Increasing the incentive amount)
5. (Simplify the application process **[ASK: IN WHAT WAY SHOULD IT BE SIMPLIFIED?_____?]**)
6. (Allow me to fill out the applications online)
7. (Simplify the website **[ASK: IN WHAT WAY?_____]**)
8. (Provide quicker approval on applications)
9. (Send incentive check out faster)
10. (Simplify the incentive catalogue **[ASK IN WHAT WAY]**)
11. (Other **[SPECIFY:_____]**)
12. (No, nothing)
99. (Don't know)
88. (Refused)

C. Decision Making

Now I'd like to understand more about how your property made decisions about your specific energy efficiency project.

C1. *What factor was most important to your company's decision to make the energy-efficient upgrades for which you received an incentive**?** **[DO NOT READ LIST; SINGLE RESPONSE]**

1. (To save money on energy bills/ reduce energy costs)
2. (To reduce energy consumption or energy demand / be more efficient / company conservation or environmental targets)
3. (To obtain a Focus on Energy or bonus incentive)
4. (To obtain a tax credit)
5. (To replace old (but still functioning) equipment)
6. (To replace broken equipment)
7. (To enhance performance or asthetics of our equipment/system(s))
8. (To improve comfort)
9. (Tenant satisfaction/retention)
10. (To reduce maintenance or other non-energy operating costs)
11. (Other **[SPECIFY_____]**)
99. (Don't know)
88. (Refused)

C2. *Have you or anyone else within your organization attended an in-person or web-based training delivered by Focus on Energy in the past two years?

1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

C3. ***[IF C2= 1]** 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? Was the training… **[READ LIST]**

1. Very important
2. Somewhat important
3. Neutral,
4. Not too important, or
5. Not at all important?
99. (Don't know)
88. (Refused)

D. Barriers

The next questions are to understand the barriers your organization may face when implementing an energy efficiency project.

D1. *If you had to choose just one, what would you say is the largest challenge in implementing energy efficiency projects and upgrades at your organization? Would you say: **[READ LIST; RECORD ONLY ONE]**

1. Cost
2. Time
3. Technical questions or technical issues, or
4. Your organization's own internal decisionmaking or budgeting process
99. (Don't know)
88. (Refused)

D2. *What could be done to help your company overcome challenges with energy efficiency improvements? **[DO NOT READ LIST, ALLOW MULTIPLE RESPONSES]**

1. (Nothing)
2. (Higher incentives)
3. (Provide immediate or upfront discounts/incentives)
4. (Offer low-interest loans)
5. (Simplify the paperwork) **[ASK HOW:_____]**)
6. (Provide better/more information about the offering **[SPECIFY WHAT TYPE OF INFORMATION THEY NEED:_____]**)
7. (Provide an energy audit)
8. (Technical support for proposed equipment)
9. (Technical support for understanding project payback period/ROI)
10. (Other **[RECORD VERBATIM ANSWER_____]**)
99. (Don't know)
88. (Refused)

E. Small Business Assessment and Energy Efficiency Pack

E1. **[SKIP IF SMALL BUSINESS=TRUE]** Do you or Focus on Energy consider your organization to be a small business? **(IF NEEDED, FOCUS ON ENERGY DEFINES SMALL BUSINESSES AS THOSE WITH AN AVERAGE CONSUMPTION OF 40,000 KWH OR LESS DURING THE MONTHS OF JULY AND AUGUST OF THE MOST RECENT YEAR)**

1. Yes

2. No **[SKIP TO SECTION F]**
99. (Don't know) **[SKIP TO SECTION F]**
88. (Refused) **[SKIP TO SECTION F]**

E2. **[ASK IF E1=1; OR IF SMALL BUSINESS=TRUE AND RESTAURANT/TAVERN PACK=FALSE AND OFFICE PACK=FALSE AND RETAIL PACK=FALSE]** Are you aware that Focus on Energy offers small businesses an online portal to create a customized energy assessment of your facility and provide access to energy-saving products at no charge? **(IF ASKED FOR MORE INFORMATION, REFER RESPONDENT TO FOCUSONENERGY.COM/SMALLBUSINESS)**

1. Yes
2. No
99. (Don't know)
88. (Refused)

E3. **[ASK IF E2=2]** How likely are you to look into using the online portal to create an energy assessment, now that you know it is available? Are you… **[READ LIST] (IF ASKED FOR MORE INFORMATION, REFER RESPONDENT TO FOCUSONENERGY.COM/SMALLBUSINESS)**

1. Very likely,
2. Somewhat likely,
3. Neither likely nor unlikely,
4. Somewhat unlikely, or
5. Very unlikely?
99. (Don't know)
88. (Refused)

E4. **[ASK IF E3= 3 OR 4]** What's the best way for Focus on Energy to help small businesses like yours learn more about energy savings opportunities within your building or facility? **[DO NOT READ LIST, MARK ALL THAT APPLY]**

1. (In person visits or calls from an Energy Advisor/Focus Rep)
2. (Information from my contractor/Trade Ally)
3. (Free physical assessment of my space/facility (not online))
4. (I know all/don't need help identifying the opportunities)
5. (Other [RECORD VERBATIM ANSWER_____])
99. (Don't know)
88. (Refused)

E5. **[ASK IF RESTAURANT/TAVERN PACK=TRUE OR OFFICE PACK=TRUE OR RETAIL PACK=TRUE]** Our records show your organization received an energy efficiency pack from Focus on Energy containing energy efficient products. How helpful was the online energy assessment you took before receiving the energy efficiency pack from Focus on Energy? Was the assessment… **[READ LIST]**

1. Very helpful,
2. Mostly helpful,
3. A mix of helpful and not helpful,
4. Not too helpful, or
5. Not at all helpful?
99. (Don't know)
88. (Refused)

E6. **[ASK IF RESTAURANT/TAVERN PACK=TRUE OR OFFICE PACK=TRUE OR RETAIL PACK=TRUE]** Thinking about the online energy assessment action plan, did your business use the information in the action plan to make decisions about the project we're discussing today?

1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

E7. **[ASK IF RESTAURANT/TAVERN PACK=TRUE OR OFFICE PACK=TRUE OR RETAIL PACK=TRUE]** Overall, how satisfied are you with the products you received in the energy efficiency pack? Are you…**[READ LIST]**

1. Very satisfied,
2. Somewhat satisfied,
3. Neither satisfied nor dissatisfied,
4. Somewhat dissatisfied, or
5. Very dissatisfied?

3.
99. (DON'T KNOW)
88. (REFUSED)

E8. **[ASK IF RESTAURANT/TAVERN PACK=TRUE OR OFFICE PACK=TRUE OR RETAIL PACK=TRUE]** Please tell me why you give that rating. **[OPEN END]**

F. Freeridership

IF B4.1=1 AND B10 = 2 SKIP TO SECTION G OTHERWISE ASK THIS SECTION - CONTRACTOR DID NOT PROVIDE A DISCOUNT]

[IF SERVICE=0, READ] Now I'd like to talk with you a bit more about your decisions to purchase the new **[MEASURE CATEGORY1 OR C_MEASURE1].** Even though you may have received incentives for other energy saving equipment and services, these questions are just about the **[MEASURE CATEGORY1 OR C_MEASURE1]** that was purchased. **[IF SERVICE=1, READ]** Now I'd like to talk with you a bit more about your decisions to purchase the **[MEASURE CATEGORY1 OR C_MEASURE1]** services. Even though you may have received incentives for other energy saving equipment and services, these questions are just about the **[MEASURE CATEGORY1 OR C_MEASURE1]** that was purchased.

[INTERVIEWER NOTE ABOUT THIS SECTION (DON'T READ TO RESPONDENT): THIS SECTION IS BASED ON HYPOTHETICAL BEHAVIOR SO WE ARE ASKING SIMILAR QUESTIONS TO VERIFY THAT WE ARE GATHERING THE CORRECT RESPONSES.]

F1. **[IF SERVICE=0, READ]** First, did your organization have specific plans to install the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option before learning about the Focus on Energy incentive? **[IF SERVICE=1, READ]** First, did your organization have specific plans to have the **[MEASURE CATEGORY1 OR C_MEASURE1]** performed before learning about the Focus on Energy incentive?

1. (Yes) **[ASK F2]**
2. (No) **[SKIP TO F4]**
99. (DON'T KNOW) **[SKIP TO F4]**
88. (REFUSED) **[SKIP TO F4]**

F2. **[IF SERVICE=0, READ]** Prior to learning about the incentive, was the purchase of the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] included in your organizations's capital budget? **[IF SERVICE=1, READ]** Prior to learning about the incentive, was the purchase of **[MEASURE CATEGORY1 OR C_MEASURE1]** services included in your property's capital budget?

1. (Yes)
2. (No) **[SKIP TO F4]**
99. (DON'T KNOW) **[SKIP TO F4]**
88. (REFUSED) **[SKIP TO F4]**

F3. **[IF SERVICE=0, READ]** Had your organization ***ALREADY*** ordered or purchased the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] ***BEFORE*** your organziation heard about the Focus on Energy incentive? **[IF SERVICE=1, READ]** Had your organization ***ALREADY*** ordered or purchased the **[MEASURE CATEGORY1 OR C_MEASURE1]** services ***BEFORE*** your property heard about the Focus on Energy incentive?

1. (Yes)
2. (No)
99. (DON'T KNOW)
88. (REFUSED)

F4. **[IF SERVICE=0, READ]** Would you have purchased and installed the same energy efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the incentive and information or education from Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased the same **[MEASURE CATEGORY1 OR C_MEASURE1]** services without the incentive and information or education from Focus on Energy?

1. (Yes) **[SKIP TO F7]**
2. (No) **[SKIP TO F9]**
99. (DON'T KNOW) **[ASK F5]**
88. (REFUSED) **[ASK F5]**

F5. **[IF SERVICE=0, READ]** Would you have installed **something** without the incentive and information or education from Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased **some services** without the incentive and information or education from Focus on Energy? **[DO NOT READ LIST UNLESS NECESSARY]**

1. (Yes, would have installed something / purchase some service) **[ASK F6]**
2. (No, would NOT have installed anything / not purchased any services)) **[SKIP TO F13]**
99. (DON'T KNOW) **[SKIP TO F13]**
88. (REFUSED) **[SKIP TO E13]**

F6. **[IF SERVICE=0, READ]** When you say you **would have installed** something, would you have installed something that was just as energy efficient as the **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** When you say you **would have had services performed**, would you

have purchased services that produced as much energy efficiency as the **[MEASURE CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK F7 / IF SERVICE=1 SKIP TO F8]**
2. (No) **[IF SERVICE=0 ASK F7 / IF SERVICE=1 SKIP TO F8]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK F7 / IF SERVICE=1 SKIP TO F8]**
88. (REFUSED) **[IF SERVICE=0 ASK F7 / IF SERVICE=1 SKIP TO F8]**

F7. **[ASK IF SERVICE=0]** And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK F8]**
2. (No, would have installed less) **[ASK F8]**
3. (No, would have installed more) **[ASK F8]**
99. (DON'T KNOW) **[ASK F8]**
88. (REFUSED) **[ASK F8]**

F8. **[IF SERVICE=0, READ]** Without the incentive for the **[MEASURE CATEGORY1 OR C_MEASURE1]** and information or education from Focus on Energy, would you have installed the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]… **[IF SERVICE=1, READ]** Without the incentive for the **[MEASURE CATEGORY1 OR C_MEASURE1]** and information or education from Focus on Energy, would you have had the **[MEASURE CATEGORY1 OR C_MEASURE1]** performed… **[READ LIST AND RECORD ONE RESPONSE]**

1. Within the same year? **[SKIP TOF13]**
2. Within one to two years? **[SKIP TO F13]**
3. Within three to five years? **[SKIP TO F13]**
4. In more than five years? **[SKIP TO F13]**
99. (DON'T KNOW) **[SKIP TO F13]**
88. (REFUSED) **[SKIP TO F13]**

F9. **[ASK F9 TO F12 IF F4 =2]** **[IF SERVICE=0, READ]** When you say **you would not have installed** the same energy-efficient**[MEASURE CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all? **[IF SERVICE=1, READ]** When you say **you would not have purchased** the same **[MEASURE CATEGORY1 OR C_MEASURE1]** services without the incentive and information or education from Focus on Energy, would you have purchased any services at all?

1. (Yes, would have installed something / purchased some service) **[ASK F10]**
2. (No, would not have installed anything at all / not purchased any services) **[SKIP TO F13]**
99. (DON'T KNOW) **[ASK F10]**
88. (REFUSED) **[ASK F10]**

F10. **[ASK F9 TO F12 IF F4 =2]** **[IF SERVICE=0, READ]** Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy efficient as the **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** Without the incentive and information or education from Focus on Energy, would you have purchased services that produced as much energy efficiency as the **[MEASURE CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK F11 / IF SERVICE=1 SKIP TO F12]**

2. (No) **[IF SERVICE=0 ASK F11 / IF SERVICE=1 SKIP TO F12]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK F11 / IF SERVICE=1 SKIP TO F12]**
88. (REFUSED) **[IF SERVICE=0 ASK F11 / IF SERVICE=1 SKIP TO F12]**

F11. **[ASK IF SERVICE=0] [ASK F9 TO F12 IF F4 =2/ ASK FOR MEASURE CATEGORY1 WITH QUANTITY GREATER THAN 1]** Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK F12]**
2. (No, would have installed less) **[ASK F12]**
3. (No, would have installed more) **[ASK F12]**
99. (DON'T KNOW) **[ASK F12]**
88. (REFUSED) **[ASK F12]**

F12. **[ASK F9 TO F12 IF F4 =2[IF SERVICE=0, READ]** And, would you have installed the same energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]. . . **[IF SERVICE=1, READ]** And, would you have had the same **[MEASURE CATEGORY1 OR C_MEASURE1]** services performed. . . **[READ LIST AND RECORD ONE RESPONSE]**

1. In the same year?
2. In one to two years?
3. In three to five years?
4. More than five years out?
99. (DON'T KNOW)
88. (REFUSED)

F13. **[ASK EVERYONE] [IF SERVICE=0, READ]** We would like to know more about the factors that contributed to your purchase of the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]. **[IF SERVICE=1, READ]** We would like to know more about the factors that contributed to your purchase of the **[MEASURE CATEGORY1 OR C_MEASURE1]** services. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the **[MEASURE CATEGORY1 OR C_MEASURE1]** services. **[1 TO 6 - RANDOMIZE LIST]**

1. **[RESPONSE FROM C1 IF C1≠3, 99 OR 88]**
2. The Focus on Energy incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a contractor or vendor
6. Previous participation in a Focus on Energy energy efficiency program or offering
99. (DON'T KNOW)
88. (REFUSED)

G. Freeridership- Contractor

[ASK EITHER SECTION F OR SECTION G- NOT BOTH]
[ASK IF B4B4.1=1 AND B10=2 – CONTRACTOR HELPED IN THE DECISION MAKING AND PROVIDED A DISCOUNT]

[IF SERVICE=0, READ] Now I'd like to talk with you about the new energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**. Even though your contractor may have performed other services or installed other energy efficient equipment, these questions are just about the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**. **[IF SERVICE=1, READ]** Now I'd like to talk with you about the **[MEASURE CATEGORY1 OR C_MEASURE1]** services. Even though your contractor may have performed other services or installed energy efficient equipment, these questions are just about the **[MEASURE CATEGORY1 OR C_MEASURE1]** service.

[INTERVIEWER NOTE ABOUT THIS SECTION (DON'T READ TO RESPONDENT): THIS SECTION IS BASED ON HYPOTHETICAL BEHAVIOR SO WE ARE ASKING SIMILAR QUESTIONS TO VERIFY THAT WE ARE GATHERING THE CORRECT RESPONSES.]

G1. At the time that you first started working with your contractor on this project, had you…? **[READ LIST AND RECORD ONE FOR EACH: 1=YES OR 2=NO OR 99=DON'T KNOW OR 88=REFUSED]**

1. **[IF SERVICE=0, READ]** Already been thinking about purchasing the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already been thinking about purchasing the **[MEASURE CATEGORY1 OR C_MEASURE1]** services?
2. **[IF SERVICE=0, READ]** Already begun collecting information about energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already begun collecting information about **[MEASURE CATEGORY1 OR C_MEASURE1]** services?
3. **[IF SERVICE=0, READ]** Already selected the particular energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]** and were going to purchase it? **[IF SERVICE=1, READ]** Already selected the particular **[MEASURE CATEGORY1 OR C_MEASURE1]** services and were going to purchase them?
4. **[IF SERVICE=0, READ]** Already purchased the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already purchased the **[MEASURE CATEGORY1 OR C_MEASURE1]** services?
5. **[IF SERVICE=0, READ]** Already installed the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already purchased the **[MEASURE CATEGORY1 OR C_MEASURE1]** services?
6. **[ASK ALL]** Already heard about Focus on Energy?

99. (DON'T KNOW)
88. (REFUSED)

G2. **[IF SERVICE=0, READ]** Just to make sure I understand, did your property have specific plans to install the energy efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option before you began working with your contractor? **[IF SERVICE=1, READ]** Just to make sure I understand, did your property have specific plans to purchase **[MEASURE CATEGORY1 OR C_MEASURE1]** services before you began working with your contractor?

1. (Yes) **[ASK G3]**
2. (No) **[SKIP TO G4]**

99. (DON'T KNOW) **[SKIP TO G4]**
88. (REFUSED) **[SKIP TO G4]**

G3. **[IF SERVICE=0, READ]** Before you began working with your contractor, was the purchase of the energy-efficient [**MEASURE CATEGORY1 OR C_MEASURE1**][s] included in your organization's capital budget? **[IF SERVICE=1, READ]** Before you began working with your contractor, was the purchase of the [**MEASURE CATEGORY1 OR C_MEASURE1**] services included in your organization's capital budget?

1. (Yes)
2. (No) **[SKIP TO G5]**
99. (DON'T KNOW) **[SKIP TO G5]**
88. (REFUSED) **[SKIP TO G5]**

G4. **[IF SERVICE=0, READ]** Did your contractor help your organization make the decision to include the purchase of the energy efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] in your property's capital budget? **[IF SERVICE=1, READ]** Did your contractor help your organization make the decision to include the purchase of the **[MEASURE CATEGORY1 OR C_MEASURE1]** services in your property's capital budget?

1. (Yes) **[ASK G5]**
2. (No) **[ASK G5]**
99. (DON'T KNOW) **[ASK G5]**
88. (REFUSED) **[ASK G5]**

G5. **[IF SERVICE=0, READ]** Would you have purchased and installed the same energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the assistance from your contractor and Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased the same **[MEASURE CATEGORY1 OR C_MEASURE1]** services without the assistance from your contractor and Focus on Energy?

1. (Yes) **[SKIP TO G8]**
2. (No) **[SKIP TO G10]**
99. (DON'T KNOW) **[ASK G6]**
88. (REFUSED) **[ASK G6]**

G6. **[IF SERVICE=0, READ]** Would you have installed **something** without the assistance of your contractor and Focus on Energy? **[IF SERVICE=1, READ]** Would you had **some services performed** without the assistance of your contractor and Focus on Energy? **[DO NOT READ LIST UNLESS NECESSARY]**

1. (Yes, would have installed something / performed some service) **[ASK G7]**
2. (No, would NOT have installed anything / not performed any service) **[SKIP TO G16]**
99. (DON'T KNOW) **[SKIP TO G16]**
88. (REFUSED) **[SKIP TO G16]**

G7. **[IF SERVICE=0, READ]** When you say you **would have installed** something, would you have installed something that was just as energy efficient as the [**MEASURE CATEGORY1 OR C_MEASURE1**][s] you installed? **[IF SERVICE=1, READ]** When you say you **would have had services performed**, would you

have purchased services that produced as much energy efficiency as the **[MEASURE CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK G8 / IF SERVICE=1 SKIP TO G9]**
2. (No) **[IF SERVICE=0 ASK G8 / IF SERVICE=1 SKIP TO G9]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK G8 / IF SERVICE=1 SKIP TO G9]**
88. (REFUSED) **[IF SERVICE=0 ASK G8 / IF SERVICE=1 SKIP TO G9]**

G8. **[ASK IF SERVICE=0 FOR MEASURE CATEGORY1_QUANTITY GREATER THAN 1]** And without the involvement of your contractor and Focus on Energy would you have installed the same number of energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK G9]**
2. (No, would have installed less) **[ASK G9]**
3. (No, would have installed more) **[ASK G9]**
99. (DON'T KNOW) **[ASK G9]**
88. (REFUSED) **[ASK G9]**

G9. **[IF SERVICE=0, READ]** Without the assistance from your contractor and Focus on Energy, would you have installed the **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]… **[IF SERVICE=1, READ]** Without the assistance from your contractor and Focus on Energy, would you have had the **[MEASURE CATEGORY1 OR C_MEASURE1]** services performed… **[READ LIST AND RECORD ONE RESPONSE]**

1. Within the same year? **[SKIP TO G16]**
2. Within one to two years? **[SKIP TO G16]**
3. Within three to five years? **[SKIP TO G16]**
4. In more than five years? **[SKIP TO G16]**
99. (DON'T KNOW) **[SKIP TO G16]**
88. (REFUSED) **[SKIP TO G16]**

G10. **[ASK G10 TO G14 IF G5=2] [IF SERVICE=0, READ]** When you say **you would not have installed** the same **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] over a less efficient without the assistance from your contractor and Focus on Energy, would you have installed anything at all? **[IF SERVICE=1, READ]** When you say **you would not have performed** the same **[MEASURE CATEGORY1 OR C_MEASURE1]** services without the assistance from your contractor and Focus on Energy, would you have had any energy-saving services performed at all?

1. (Yes) **[ASK G11]**
2. (No) **[SKIP TO G16]**
99. (DON'T KNOW) **[ASK G11]**
88. (REFUSED) **[ASK G11]**

G11. **[ASK G10 TO G14 IF G5=2] [IF SERVICE=0, READ]** Without the assistance from your contractor and Focus on Energy, **would you have installed** something that was just as energy efficient as the **[MEASURE CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** Without the assistance from your contractor and Focus on Energy, **would you have purchased services** that produced as much energy efficiency as the **[MEASURE CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK G12 / IF SERVICE=1 SKIP TO G13]**
2. (No) **[IF SERVICE=0 ASK G12 / IF SERVICE=1 SKIP TO G13]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK G12 / IF SERVICE=1 SKIP TO G13]**

88. (REFUSED) **[IF SERVICE=0 ASK G12 / IF SERVICE=1 SKIP TO G13]**

G12. **[ASK G10 TO G14 IF G5=2 AND SERVICE=0]** Without the assistance from your contractor and Focus on Energy, would you have installed the same amount of energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK G13]**
2. (No, would have installed less) **[ASK G13]**
3. (No, would have installed more)**[ASK G13]**
99. (DON'T KNOW) **[ASK G13]**
88. (REFUSED) **[ASK G13]**

G13. **[ASK G10 TO G14 IF G5=2] [IF SERVICE=0, READ]** And, would you have installed the same energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]. . . **[IF SERVICE=0, READ]** And, would you have purchased the same **[MEASURE CATEGORY1 OR C_MEASURE1]** services. . . **[READ LIST AND RECORD ONE RESPONSE]**

1. In the same year? **[ASK G14]**
2. In one to two years? **[ASK G14]**
3. In three to five years? **[ASK G14]**
4. More than five years out? **[ASK G14]**
99. (DON'T KNOW) **[ASK G14]**
88. (REFUSED) **[ASK G14]**

G14. **[ASK G10 TO G14 IF G5=2]** If the assistance or information from your contractor had not been available, would you have done anything differently on this project?

1. (Yes) **[ASK G15]**
2. (No) **[SKIP TO G16]**
99. (DON'T KNOW) **[SKIP TO G16]**
88. (REFUSED) **[SKIP TO G16]**

G15. What would you have done differently? **[RECORD OPEN ENDED RESPONSE]**

G16. **[IF SERVICE=0, READ]** We would like to know more about the factors that contributed to your purchase of the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the energy-efficient **[MEASURE CATEGORY1 OR C_MEASURE1]**[s]. **[IF SERVICE=1, READ]** We would like to know more about the factors that contributed to your purchase of the **[MEASURE CATEGORY1 OR C_MEASURE1]** services. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the **[MEASURE CATEGORY1 OR C_MEASURE1]** services. **[RANDOMIZE LIST]**

1. **[RESPONSE FROM C1 IF C1≠3, 99 OR 88]**
2. The Focus on Energy incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities

5. Recommendation from a contractor or vendor
6. Previous participation in a Focus on Energy energy efficiency program or offering
99. (DON'T KNOW)
88. (REFUSED)

H. Spillover

[ASK EVERYONE SECTION H]

H1. Since making these energy-efficiency upgrades has your company installed any other energy-efficient products in your facility that you did ***NOT*** receive a Focus on Energy incentive for or did ***NOT*** receive for free? **[IF NEEDED: BY ENERGY-EFFICIENT PRODUCTS, I MEAN HIGH EFFICIENCY HVAC EQUIPMENT, HIGH EFFICIENCY WATER HEATERS, HIGH EFFICIENCY MOTORS, OR ENERGY STAR LIGHTING SUCH AS LED LIGHTBULBS.]**

1. (Yes) **[ASK H2]**
2. (No) **[SKIP TO SECTION I]**
99. (DON'T KNOW) **[SKIP TO SECTION I]**
88. (REFUSED) **[SKIP TO SECTION I]**

H2. What were the other energy-efficient products that you installed without getting an incentive? **[DO NOT READ LIST; MARK ALL THAT APPLY; 99=DON'T KNOW, 88=REFUSED] [IF THE CUSTOMER SAYS THEY BOUGHT SOMETHING BUT HAVE NOT INSTALLED IT, THE EQUIPMENT HAS TO BE INSTALLED AND OPERATING FOR US TO COUNT IT TOWARDS SPILLOVER.]**

1. (LEDs)
2. (Fluorescent tubes (T5s, T8s, etc.))
3. (Efficient lighting controls (occupancy sensors, daylighting, timers))
4. (High efficiency motors)
5. (Air source heat pumps)
6. (Ground source heat pumps)
7. (Central AC)
8. (VSD (variable speed drive))
9. (Water heating equipment)
10. (Boiler)
11. (Compressed air equipment)
12. (Gas furnaces)
13. (Exit signs)
14. (Refrigeration equipment (refrigerators, freezers))
15. Operational improvements **[SPECIFY:_____]**
16. (Other) **[SPECIFY:_____]**
99. (DON'T KNOW) **[SKIP TO SECTION I]**
88. (REFUSED) **[SKIP TO SECTION I]**

[ASK H2.11-H2.13 IF H2=1, 2]

H2.11 **[REPEAT FOR EACH ITEM MENTIONED IN** H2**]** What is the wattage of the lighting? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.12 **[REPEAT FOR EACH ITEM MENTIONED IN** H2**]** In what location was it installed (Wall/Ceiling/Outdoors)? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.13 **[REPEAT FOR EACH ITEM MENTIONED IN** H2**]** What type of equipment was removed or replaced? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK H2.21- H2.22 IF H2=3]

H2.2.1 How many lamps are controlled by the efficient lighting controls installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.2.2 What is the average wattage of the lamps controlled by the efficient lighting controls installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK H2.31-H2.33 IF H2=4]

H2.31 How is the high efficiency motor controlled? (Always on, manual start/stop, VSD / ECM / VFD, Other)? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.33 On what equipment was the high efficiency motor installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.33 What is the horsepower of the high efficiency motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK H2.41 IF H2=5, 6] [ASK H2.42 IF H2=5, 6, 7] [ASK H2.43 IF H2=5, 6, 7]

H2.41 **[REPEAT FOR EACH ITEM MENTIONED IN** H2**]** What is the heating efficiency rating (HSPF) of the **[INSERT ITEM FROM** H2**]**? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.42 **[REPEAT FOR EACH ITEM MENTIONED IN** H2**]** What is the cooling efficiency rating (SEER/EER) of the **[INSERT ITEM FROM** H2**]**? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.43 **[REPEAT FOR EACH ITEM MENTIONED IN** H2**]** What is the capacity of the **[INSERT ITEM FROM** H2**]**? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK H2.51-H2.52 IF H2=8]

H2.51 On what type of equipment was the VSD (variable speed drive) motor installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.52 What is the horsepower of the VSD (variable speed rive) motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK H2.61-H2.64 IF H2=9]

H2.61 What type of water heating equipment was purchased and installed? **[READ LIST]**

1. Water heater with storage
2. Tankless water heater
98. (Don't know)
99. (Refused)

H2.62 What Fuel type is used? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.63 What is the efficiency rating of the water heating equipment? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.64 **[ASK IF H2.61 INDICATES WATER HEATER WITH STORAGE]** What is the capacity of the water heating equipment? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK H2.71-H2.72 IF H2=11]

H2.71 What is the compressed air equipment being used for? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.72 What is the horsepower of the compressor motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK H2.81-H2.82 IF H2=12]

H2.81 What is the efficiency rating of the gas furnace? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
H2.82 What is the output capacity of the gas furnace? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK H2.91 IF H2=14]

H2.91 What type of refrigeration equipment was purchased and installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

H3. **[REPEAT FOR EACH ITEM MENTIONED IN H2]** How many **[INSERT ITEM FROM H2]** did you install? **[RECORD NUMBER_____, 99 FOR DON'T KNOW, 88 FOR REFUSED, AND -96 FOR N/A]]**

H4. **[REPEAT FOR EACH ITEM MENTIONED IN H2]** Please tell me how important [**IF ANY B4.1=1 READ,** "assistance from your contractor and information and education from Focus on Energy" **OTHERWISE READ,** "the Focus on Energy Commercial and Industrial offering"] was in your decision to install **[ANSWER FROM H2]**" Was it…?: **[READ LIST EMPHASIZE EACH ANSWER OPTION AND PAUSE IN BETWEEN EACH OPTION.]**

1. Very important,
2. Somewhat important,
3. Neutral,
4. Not too important, or
5. Not at all important
99. (Don't know)
88. (Refused)

H5. Was **[INSERT EACH ITEM FROM H2]** installed at **[SITE ADDRESS]**?

1. Yes

2. No (**ASK:** What is the address of the location where you installed **[INSERT EACH ITEM FROM H2]**? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
99. (Don't know)
88. (Refused)

I. Closing

I1. *Do you have any other comments about your experience with Focus on Energy that you would like to share?
[RECORD RESPONSE:_____; 99 FOR DON'T KNOW, 88 FOR REFUSED]

I2. *On occasion, Focus on Energy may want to contact a customer to learn more about their participation experience. May we share your responses with a program manager, who may contact you regarding your experience?
1. Yes
2. No
99. (Don't know)
88. (Refused)

Thank you. We appreciate your help with this survey. Have a nice day.

CADMUS

Focus on Energy Nonresidential Solutions
CY 2020 Large Industrial Participant Survey

Researchable Questions		
Key Research Topics	**Areas of Investigation**	**Related Section/ Questions**
Screening	Confirm record of participation	A
Awareness and influential persons	How participants learned about the incentive	B1-B4
Participant Experience/Portfolio Transition topics	Ease of applying and finding information	B5
	Comparison to historical experience (if applicable); energy advisor support; identify opportunities for improvement	B6-B9; B14-B16
	Application ease	B10-B13
Participant Decision-making	Motivations for energy efficient upgrades	Section C
Barriers to EE	Top challenges for making energy efficient improvements and how Focus on Energy can help overcome those challenges	Section D
Program Influence/NTG	Freeridership	Section E-F
	Spillover	Section G

General Instructions

- Interviewer instructions are in green **[LIKE THIS]** (the style is "Survey: Interviewer Instructions").
- CATI programming instructions are in red **[LIKE THIS]** (the style is "Survey: Programming").
- Items that should not be read by the interviewer are in parentheses like this ( ).

Quota= 70 completes

SAMPLE Variables:
[CONTACT_NAME]
[SITE_ADDRESS]
[MEASURE_CATEGORY1]
[MEASURE_CATEGORY2]
[MEASURE_CATEGORY3]
[MEASURE_CATEGORY1_QUANTITY]
[MEASURE_CATEGORY2_QUANTITY]
[MEASURE_CATEGORY3_QUANTITY]
[SERVICE]

A. Introduction

A1. Hello, my name is **[NAME]** and I am calling on behalf of Wisconsin's Focus on Energy. Focus on Energy would like to learn more about your recent energy efficiency project experience for the property at **[SITE_ADDRESS]**.

[IF CONTACT NAME PROVIDED]: May I please speak with **[CONTACT_NAME]**?

[IF NO CONTACT NAME, OR CONTACT NO LONGER WORKS FOR ORG]: May I please speak with the person who was most involved with the energy efficiency project your company recently completed with Focus on Energy?

1. (Yes)
2. (Yes, call transferred) **[START OVER WITH NEW RESPONDENT]**
3. (No, not available) **[SCHEDULE CALLBACK]**
99. (DON'T KNOW) **[ASK TO SPEAK WITH SOMEONE WHO WOULD KNOW AND START AGAIN]**
88. (REFUSED) **[THANK AND TERMINATE]**

Back-up information, not to be programmed:

[If "No – Not available," ask if Respondent would like to arrange a more convenient time for us to call them back or if you can leave a message for that person.]

[IF RESPONDENT ASKS HOW LONG, SAY: "APPROXIMATELY 10 MINUTES."]
[IF NEEDED:] This survey is for research purposes only and this is not a marketing call. Your participation in this study is important so that Focus on Energy can improve its energy efficiency offerings for businesses and other organizations.

[**Only if asked** for a Focus on Energy contact to verify the survey authenticity, offer Mitch Horrie with the Public Service Commission of Wisconsin, 608.267.3206.]

[**Only if respondent says they already did a survey:** Thank you for your responses to that survey. This is another Focus on Energy study that you have been selected for, that asks a few more questions about your experience with the offering and your decision-making. If you have a few more spare minutes, we would greatly appreciate your responses!]

A2. *Our records show that you installed energy efficient equipment including **[MEASURE_CATEGORY1]**, **[MEASURE_CATEGORY2]**, and **[MEASURE_CATEGORY3]** at **[SITE_ADDRESS]**. To ensure our records are correct, can you confirm this information?

1. (Yes)
2. (No, wrong year) **[RECORD CORRECT YEAR, IF POSSIBLE]**
3. (No, wrong address) **[RECORD CORRECT ADDRESS]**
4. (No, wrong measure) **[CORRECT BELOW]**

F3a. (**MEASURE_CATEGORY1** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE1]**

F3a. (**MEASURE_CATEGORY2** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE2]**

F3a. (**MEASURE_CATEGORY3** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE3]**

5. (No, I did not install any measures) **[THANK AND TERMINATE]**
99. (Don't know) **[IS THERE SOMEONE WE COULD SPEAK WITH THAT WOULD KNOW THIS? RECORD NAME AND CONTACT INFORMATION:_____]**
88. (Refused) **[THANK AND TERMINATE]**

[THANK AND TERMINATE TEXT: Those are all of our questions. Thanks for your help. Have a nice day.]

B. Awareness and Customer Experience

B1. How many locations does your organization operate in Wisconsin?

1. [RECORD NUMBER:_____]
99. (Don't know)
88. (Refused)

B2. How many people does your organization employ in Wisconsin (best guess)?

1. [RECORD NUMBER:_____]
99. (Don't know)
88. (Refused)

B3. *How did your organization learn about the Focus on Energy incentives available for this project? **[DO NOT READ LIST] [CHECK ALL THAT APPLY]**
[IF RESPONDENT MENTIONS WEBSITE CLARIFY IF UTILITY OR FOCUS ON ENERGY WEBSITE SO YOU KNOW HOW TO CODE ANSWER ON LIST.]

1. (Contact with Focus on Energy representative through phone or in person)
2. (Focus on Energy email or e-newsletter)
3. (Focus on Energy website)
4. (Focus on Energy sponsored workshop or event)
5. (Focus on Energy printed materials, brochure)
6. (Contact with utility representative)
7. (Utility mailing, newsletter, email, bill insert, or utility website)
8. (Word of mouth: family, friend, or business colleague)
9. (I contacted my contractor/ vendor to ask)
10. (My contractor or vendor let me know about them)
11. (Previously participated in program or offering/received an incentive)
12. (Through a trade association or professional organization **[SPECIFY:_____]**)
13. (Other **[SPECIFY:_____]**)
99. (Don't know)
88. (Refused)

B4. *I'm going to read you a short list. Please tell me who, if anyone, was involved in helping you initiate your energy efficiency project. **[READ LIST AND MARK 1=YES, 2=NO, 99=DON'T KNOW; 88 REFUSED FOR EACH]**

1. Your contractor or vendor
2. A Focus on Energy "Energy Advisor" or representative
3. Your utility account manager

B5. *How would you describe your experience in learning about whether your project or equipment qualified for a Focus on Energy incentive? Would you say that project eligibility information was…

1. Very clear
2. Mostly clear
3. A mix of clear and not clear
4. Mostly not clear, or
5. Not clear at all?
99. (Don't know)
88. (Refused)

B6. ***[IF B3≠11 READ:]** Prior to any projects completed in 2020, had you worked with Focus on Energy in previous years? **[IF B3=11 READ]:** You mentioned you had previously participated in a Focus on Energy offering. Is that correct?

1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

B7. ***[IF B6=1 AND (B3=1 OR B4.2=1)]** You mentioned that you learned about the incentives through a Focus on Energy representative or Energy Advisor or worked with one to complete your project. For this year's project, did you work with the same contact you had worked with previously?

1. (Yes)
2. (No)
3. (Other: _____)
99. (Don't know)
88. (Refused)

B8. ***[IF B6=1]** Overall, how would you say your experience with Focus on Energy was this year compared to prior years? Would you say it was….

1. About the same,
2. More positive, or
3. Less positive?
99. (Don't know)
88. (Refused)

B9. * **[IF B8=2 OR 3]** Why do you say that? **[OPEN END]**

B10. *Did you receive an incentive check in the mail for the upgrades you recently completed, or did your contractor provide a discount on the cost of the project?

1. (Incentive check in the mail)

2. (Contractor discount)
99. (Don't know)
88. (Refused)

B11. *Who took the lead role in completing the application for the financial incentive? Was it… **[RANDOMIZE]** **[READ OPTIONS, ALLOW ONLY ONE RESPONSE]**

1. You (i.e., respondent)
2. Someone at your organization
3. The contractor and/or vendor
4. A Focus on Energy Energy Advisor
5. Someone else **[SPECIFY:_____]**
99. (Don't know)
88. (Refused)

B12. **[ASK IF B11=1]** *How easy would you say this paperwork was to complete? Would you say: **[READ LIST]**

1. Very easy,
2. Mostly easy,
3. A mix of easy and challenging,
4. Mostly challenging, or
5. Very challenging?
99. (Don't know)
88. (Refused)

B13. **[ASK IF B12= 3, 4 OR 5]** *Why do you say that? **[OPEN END]**

B14. **[IF B4.2=1]** *Overall, how satisfied were you with the project support you received from your Focus on Energy Energy Advisor? Would you say: **[READ LIST]**

1. Very satisfied,
2. Somewhat satisfied,
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied, or
5. Very dissatisfied?
99. (Don't know)
88. (Refused)

B15. **[IF B14=2-5]** *Why do you say that? **[OPEN END]**

B16. *What could Focus on Energy have done to improve your overall experience, if anything? **[DO NOT READ THE LIST, RECORD ALL THAT APPLY]**

1. (Better/more communication **[SPECIFY: WHO WOULD YOU LIKE MORE COMMUNICATION FROM?_____]**)
2. (Quicker response time **[SPECIFY: WHO WOULD YOU LIKE A QUICKER RESPONSE TIME FROM?__]**)

3. (Larger selection of eligible equipment **[ASK: WHAT ENERGY-EFFICIENT EQUIPMENT SHOULD FOCUS ON ENERGY OFFER INCENTIVES FOR?_____]**)
4. (Increasing the incentive amount)
5. (Simplify the application process **[ASK: IN WHAT WAY SHOULD IT BE SIMPLIFIED?_____?]**)
6. (Allow me to fill out the applications online)
7. (Simplify the website **[ASK: IN WHAT WAY?_____]**)
8. (Provide quicker approval on applications)
9. (Send incentive check out faster)
10. (Simplify the incentive catalogue **[ASK IN WHAT WAY]**)
11. (Other **[SPECIFY:_____]**)
12. (No, nothing)
99. (Don't know)
88. (Refused)

C. Decision Making

Now I'd like to understand more about how your company made decisions about your specific energy efficiency project.

C1. *What factor was <u>most</u> important to your company's decision to make the energy-efficient upgrades for which you received an incentive? **[DO NOT READ LIST; SINGLE RESPONSE]**

1. (To save money on energy bills / reduce energy costs)
2. (To reduce energy consumption or energy demand / be more efficient / company conservation or environmental targets)
3. (To obtain a program offering or bonus incentive)
4. (To obtain a tax credit)
5. (To replace old (but still functioning) equipment)
6. (To replace broken equipment)
7. (To enhance performance or aesthetics of our equipment/system(s))
8. (To improve comfort)
9. (Tenant satisfaction/retention)
10. (To reduce maintenance or other non-energy operating costs)
11. (Other **[SPECIFY_____]**)
99. (Don't know)
88. (Refused)

C2. *Have you or anyone else within your organization attended an in-person or web-based training delivered by Focus on Energy in the past two years?

1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

C3. ***[IF C2= 1]** 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? Was the training… **[READ LIST]**

1. Very important,
2. Somewhat important,
3. Neutral,
4. Not too important, or
5. Not at all important?
99. (Don't know)
88. (Refused)

C4. How important is energy efficiency to your organization when making capital upgrades or improvements? Is energy efficiency … [READ LIST]

1. Very important,
2. Somewhat important,
3. Neutral,
4. Not too important, or
5. Not at all important?
99. (Don't know)
88. (Refused)

C5. How important is a Focus on Energy incentive or discount to your organization when making capital upgrades or improvements? Is an incentive or discount … [READ LIST]

1. Very important,
2. Somewhat important,
3. Neutral,
4. Not too important, or
5. Not at all important?
99. (Don't know)
88. (Refused)

C6. Do you have an internal payback threshold that projects must meet in order for the project to be approved?

1. (Yes) [WHAT IS THAT THRESHOLD, IN YEARS?_____]
2. (No)
99. (DON'T KNOW)
88. (REFUSED)

D. Barriers

The next questions are to understand the barriers your organization may face when implementing an energy efficiency project.

D1. *If you had to choose just one, what would you say is the largest challenge in implementing energy efficiency projects and upgrades at your organization? Would you say: **[READ LIST; RECORD ONLY ONE]**

1. Cost
2. Time
3. Technical questions or technical issues, or

4. Your organization's own internal decision making or budgeting process
99. (Don't know)
88. (Refused)

D2. *What could be done to help your company overcome challenges with energy efficiency improvements? **[DO NOT READ LIST, ALLOW MULTIPLE RESPONSES]**

1. (Nothing)
2. (Higher incentives)
3. (Provide upfront rewards)
4. (Offer low-interest loans)
5. (Simplify the paperwork) **[ASK HOW:_____]**)
6. (Provide better/more information about the offering **[SPECIFY WHAT TYPE OF INFORMATION THEY NEED:_____]**)
7. (Provide an energy audit)
8. (Technical support for proposed equipment)
9. (Technical support for understanding project payback period/ROI)
10. (Other **[RECORD VERBATIM ANSWER_____]**)
99. (Don't know)
88. (Refused)

E. Freeridership

[IF B10 = 2 AND B4.1= 1 THEN SKIP TO SECTION F, OTHERWISE ASK THIS SECTION - CONTRACTOR DID NOT PROVIDE A DISCOUNT]

[IF SERVICE=0, READ] Now I'd like to talk with you a bit more about your decisions to purchase the new **[MEASURE_CATEGORY1 OR C_MEASURE1].** Even though you may have received incentives for other energy saving equipment and services, these questions are just about the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that was purchased. **[IF SERVICE=1, READ]** Now I'd like to talk with you a bit more about your decisions to purchase the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. Even though you may have received incentives for other energy saving equipment and services, these questions are just about the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that was purchased.

[INTERVIEWER NOTE ABOUT THIS SECTION (DON'T READ TO RESPONDENT): THIS SECTION IS BASED ON HYPOTHETICAL BEHAVIOR SO WE ARE ASKING SIMILAR QUESTIONS TO VERIFY THAT WE ARE GATHERING THE CORRECT RESPONSES.]

E1. **[IF SERVICE=0, READ]** First, did your organization have specific plans to install the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option before learning about the Focus on Energy incentive? **[IF SERVICE=1, READ]** First, did your organization have specific plans to have the **[MEASURE_CATEGORY1 OR C_MEASURE1]** performed before learning about the Focus on Energy incentive?

1. (Yes) **[ASK E2]**
2. (No) **[SKIP TO E4]**
99. (DON'T KNOW) **[SKIP TO E4]**
88. (REFUSED) **[SKIP TO E4]**

E2. **[IF SERVICE=0, READ]** Prior to learning about the incentive, was the purchase of the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] included in your organization's capital budget? **[IF SERVICE=1, READ]** Prior to learning about the incentive, was the purchase of **[MEASURE_CATEGORY1 OR C_MEASURE1]** services included in your organization's capital budget?

1. (Yes)
2. (No) **[SKIP TO E4]**
99. (DON'T KNOW) **[SKIP TO E4]**
88. (REFUSED) **[SKIP TO E4]**

E3. **[IF SERVICE=0, READ]** Had your organization ***ALREADY*** ordered or purchased the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] ***BEFORE*** your organziation heard about the Focus on Energy incentive? **[IF SERVICE=1, READ]** Had your organization ***ALREADY*** ordered or purchased the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services ***BEFORE*** your organization heard about the Focus on Energy incentive?

1. (Yes)
2. (No)
99. (DON'T KNOW)
88. (REFUSED)

E4. **[IF SERVICE=0, READ]** Would you have purchased and installed the same energy efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the incentive and information or education from Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services without the incentive and information or education from Focus on Energy?

1. (Yes) **[SKIP TO E7]**
2. (No) **[SKIP TO E9]**
99. (DON'T KNOW) **[ASK E5]**
88. (REFUSED) **[ASK E5]**

E5. **[IF SERVICE=0, READ]** Would you have installed **something** without the incentive and information or education from Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased **some services** without the incentive and information or education from Focus on Energy? **[DO NOT READ LIST UNLESS NECESSARY]**

1. (Yes, would have installed something / purchase some service) **[ASK E6]**
2. (No, would NOT have installed anything / not purchased any services)) **[SKIP TO E13]**
99. (DON'T KNOW) **[SKIP TO E13]**
88. (REFUSED) **[SKIP TO E13]**

E6. **[IF SERVICE=0, READ]** When you say you **would have installed** something, would you have installed something that was just as energy efficient as the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** When you say you **would have had services performed**, would you have purchased services that produced as much energy efficiency as the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**
2. (No) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**

88. (REFUSED) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**

E7. **[ASK IF SERVICE=0]** And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK E8]**
2. (No, would have installed less) **[ASK E8]**
3. (No, would have installed more) **[ASK E8]**
99. (DON'T KNOW) **[ASK E8]**
88. (REFUSED) **[ASK E8]**

E8. **[IF SERVICE=0, READ]** Without the incentive for the **[MEASURE_CATEGORY1 OR C_MEASURE1]** and information or education from Focus on Energy, would you have installed the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]… **[IF SERVICE=1, READ]** Without the incentive for the **[MEASURE_CATEGORY1 OR C_MEASURE1]** and information or education from Focus on Energy, would you have had the **[MEASURE_CATEGORY1 OR C_MEASURE1]** performed… **[READ LIST AND RECORD ONE RESPONSE]**

1. Within the same year? **[SKIP TOE13]**
2. Within one to two years? **[SKIP TO E13]**
3. Within three to five years? **[SKIP TO E13]**
4. In more than five years? **[SKIP TO E13]**
99. (DON'T KNOW) **[SKIP TO E13]**
88. (REFUSED) **[SKIP TO E13]**

E9. **[ASK E9 TO E12 IF E4 =2]** **[IF SERVICE=0, READ]** When you say **you would not have installed** the same energy-efficient**[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all? **[IF SERVICE=1, READ]** When you say **you would not have purchased** the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services without the incentive and information or education from Focus on Energy, would you have purchased any services at all?

1. (Yes, would have installed something / purchased some service) **[ASK E10]**
2. (No, would not have installed anything at all / not purchased any services) **[SKIP TO E13]**
99. (DON'T KNOW) **[ASK E10]**
88. (REFUSED) **[ASK E10]**

E10. **[ASK E9 TO E12 IF E4 =2]** **[IF SERVICE=0, READ]** Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy efficient as the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** Without the incentive and information or education from Focus on Energy, would you have purchased services that produced as much energy efficiency as the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**
2. (No) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**
88. (REFUSED) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**

E11. **[ASK IF SERVICE=0] [ASK E9 TO E12 IF E4 =2/ ASK FOR MEASURE_CATEGORY1 WITH QUANTITY GREATER THAN 1]** Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK E12]**
2. (No, would have installed less) **[ASK E12]**
3. (No, would have installed more) **[ASK E12]**

99. (DON'T KNOW) **[ASK E12]**
88. (REFUSED) **[ASK E12]**

E12. **[ASK E9 TO E12 IF E4 =2[IF SERVICE=0, READ]** And, would you have installed the same energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. . . **[IF SERVICE=1, READ]** And, would you have had the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services performed. . . **[READ LIST AND RECORD ONE RESPONSE]**

1. In the same year?
2. In one to two years?
3. In three to five years?
4. More than five years out?

99. (DON'T KNOW)
88. (REFUSED)

E13. **[ASK EVERYONE] [IF SERVICE=0, READ]** We would like to know more about the factors that contributed to your purchase of the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. **[IF SERVICE=1, READ]** We would like to know more about the factors that contributed to your purchase of the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. **[1 TO 6 - RANDOMIZE LIST]**

1. **[RESPONSE FROM C1 IF C1≠3, 99 OR 88]**
2. The Focus on Energy incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a contractor or vendor
6. Previous participation in a Focus on Energy energy efficiency program or offering

99. (DON'T KNOW)
(REFUSED)

F. Freeridership- Contractor

[ASK EITHER SECTION E OR SECTION F- NOT BOTH]
[ASK IF B10=2 AND B4.1 = 1 – CONTRACTOR HELPED IN THE DECISION MAKING AND PROVIDED A DISCOUNT]

[IF SERVICE=0, READ] Now I'd like to talk with you about the new energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**. Even though your contractor may have performed other services or installed other energy efficient equipment, these questions are just about the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**. **[IF SERVICE=1, READ]** Now I'd like to talk with you about the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. Even though your contractor may have performed other services or installed energy efficient equipment, these questions are just about the **[MEASURE_CATEGORY1 OR C_MEASURE1]** service.

[INTERVIEWER NOTE ABOUT THIS SECTION (DON'T READ TO RESPONDENT): THIS SECTION IS BASED ON HYPOTHETICAL BEHAVIOR SO WE ARE ASKING SIMILAR QUESTIONS TO VERIFY THAT WE ARE GATHERING THE CORRECT RESPONSES.]

F1. At the time that you first started working with your contractor on this project, had you…? **[READ LIST AND RECORD ONE FOR EACH: 1=YES OR 2=NO OR 99=DON'T KNOW OR 88=REFUSED]**

1. **[IF SERVICE=0, READ]** Already been thinking about purchasing the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already been thinking about purchasing the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services?
2. **[IF SERVICE=0, READ]** Already begun collecting information about energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already begun collecting information about **[MEASURE_CATEGORY1 OR C_MEASURE1]** services?
3. **[IF SERVICE=0, READ]** Already selected the particular energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]** and were going to purchase it? **[IF SERVICE=1, READ]** Already selected the particular **[MEASURE_CATEGORY1 OR C_MEASURE1]** services and were going to purchase them?
4. **[IF SERVICE=0, READ]** Already purchased the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already purchased the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services?
5. **[IF SERVICE=0, READ]** Already installed the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**? **[IF SERVICE=1, READ]** Already performed the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services?
6. **[ASK ALL]** Already heard about Focus on Energy?

99. (DON'T KNOW)
88. (REFUSED)

F2. **[IF SERVICE=0, READ]** Just to make sure I understand, did your organization have specific plans to install the energy efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option before you began working with your contractor? **[IF SERVICE=1, READ]** Just to make sure I understand, did your organization have specific plans to purchase **[MEASURE_CATEGORY1 OR C_MEASURE1]** services before you began working with your contractor?

1. (Yes) **[ASK F3]**
2. (No) **[SKIP TO F4]**

99. (DON'T KNOW) **[SKIP TO F4]**
88. (REFUSED) **[SKIP TO F4]**

F3. **[IF SERVICE=0, READ]** Before you began working with your contractor, was the purchase of the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] included in your organization's

capital budget? **[IF SERVICE=1, READ]** Before you began working with your contractor, was the purchase of the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services included in your organization's capital budget?

1. (Yes)
2. (No) **[SKIP TO F5]**
99. (DON'T KNOW) **[SKIP TO F5]**
88. (REFUSED) **[SKIP TO F5]**

F4. **[IF SERVICE=0, READ]** Did your contractor help your organization make the decision to include the purchase of the energy efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] in your property's capital budget? **[IF SERVICE=1, READ]** Did your contractor help your organization make the decision to include the purchase of the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services in your organization's capital budget?

1. (Yes) **[ASK F5]**
2. (No) **[ASK F5]**
99. (DON'T KNOW) **[ASK F5]**
88. (REFUSED) **[ASK F5]**

F5. **[IF SERVICE=0, READ]** Would you have purchased and installed the same energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the assistance from your contractor and Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services without the assistance from your contractor and Focus on Energy?

1. (Yes) **[SKIP TO F8]**
2. (No) **[SKIP TO F10]**
99. (DON'T KNOW) **[ASK F6]**
88. (REFUSED) **[ASK F6]**

F6. **[IF SERVICE=0, READ]** Would you have installed **something** without the assistance of your contractor and Focus on Energy? **[IF SERVICE=1, READ]** Would you had **some services performed** without the assistance of your contractor and Focus on Energy? **[DO NOT READ LIST UNLESS NECESSARY]**

1. **[IF SERVICE=0]** (Yes, would have installed something **[IF SERVICE=1] (**Yes, would have performed some service) **[ASK F7]**
2. **[IF SERVICE=0]** (No, would not have installed anything / **[IF SERVICE=1]** (No, would not performed any service) **[SKIP TO F16]**
99. (DON'T KNOW) **[SKIP TO F16]**
88. (REFUSED) **[SKIP TO F16]**

F7. **[IF SERVICE=0, READ]** When you say you **would have installed** something, would you have installed something that was just as energy efficient as the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** When you say you **would have had services performed**, would you have purchased services that produced as much energy efficiency as the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK F8 / IF SERVICE=1 SKIP TO F9]**
2. (No) **[IF SERVICE=0 ASK F8 / IF SERVICE=1 SKIP TO F9]**

99. (DON'T KNOW) **[IF SERVICE=0 ASK F8 / IF SERVICE=1 SKIP TO F9]**
88. (REFUSED) **[IF SERVICE=0 ASK F8 / IF SERVICE=1 SKIP TO F9]**

F8. **[ASK IF SERVICE=0 FOR MEASURE_CATEGORY1 WITH QUANTITY GREATER THAN 1]** And without the involvement of your contractor and Focus on Energy would you have installed the same number of energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK F9]**
2. (No, would have installed less) **[ASK F9]**
3. (No, would have installed more) **[ASK F9]**
99. (DON'T KNOW) **[ASK F9]**
88. (REFUSED) **[ASK F9]**

F9. **[IF SERVICE=0, READ]** Without the assistance from your contractor and Focus on Energy, would you have installed the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]… **[IF SERVICE=1, READ]** Without the assistance from your contractor and Focus on Energy, would you have had the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services performed… **[READ LIST AND RECORD ONE RESPONSE]**

1. Within the same year? **[SKIP TO F16]**
2. Within one to two years? **[SKIP TO F16]**
3. Within three to five years? **[SKIP TO F16]**
4. In more than five years? **[SKIP TO F16]**
99. (DON'T KNOW) **[SKIP TO F16]**
88. (REFUSED) **[SKIP TO F16]**

F10. **[ASK F10 TO F14 IF F5=2] [IF SERVICE=0, READ]** When you say **you would not have installed** the same **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the assistance from your contractor and Focus on Energy, would you have installed anything at all? **[IF SERVICE=1, READ]** When you say **you would not have performed** the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services without the assistance from your contractor and Focus on Energy, would you have had any energy-saving services performed at all?

1. (Yes) **[ASK F11]**
2. (No) **[SKIP TO F16]**
99. (DON'T KNOW) **[ASK F11]**
88. (REFUSED) **[ASK F11]**

F11. **[ASK F10 TO F14 IF F5=2] [IF SERVICE=0, READ]** Without the assistance from your contractor and Focus on Energy, **would you have installed** something that was just as energy efficient as the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** Without the assistance from your contractor and Focus on Energy, **would you have purchased services** that produced as much energy efficiency as the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK F12 / IF SERVICE=1 SKIP TO F13]**
2. (No) **[IF SERVICE=0 ASK F12 / IF SERVICE=1 SKIP TO F13]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK F12 / IF SERVICE=1 SKIP TO F13]**
88. (REFUSED) **[IF SERVICE=0 ASK F12 / IF SERVICE=1 SKIP TO F13]**

F12. **[ASK F10 TO F14 IF F5=2 AND SERVICE=0]** Without the assistance from your contractor and Focus on Energy, would you have installed the same amount of energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK F13]**
2. (No, would have installed less) **[ASK F13]**
3. (No, would have installed more)**[ASK F13]**

99. (DON'T KNOW) **[ASK F13]**
88. (REFUSED) **[ASK F13]**

F13. **[ASK F10 TO F14 IF F5=2] [IF SERVICE=0, READ]** And, would you have installed the same energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. . . **[IF SERVICE=0, READ]** And, would you have purchased the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. . . **[READ LIST AND RECORD ONE RESPONSE]**

1. In the same year? **[ASK F14]**
2. In one to two years? **[ASK F14]**
3. In three to five years? **[ASK F14]**
4. More than five years out? **[ASK F14]**

99. (DON'T KNOW) **[ASK F14]**
88. (REFUSED) **[ASK F14]**

F14. **[ASK F10 TO F14 IF F5=2]** If the assistance or information from your contractor had not been available, would you have done anything differently on this project?

1. (Yes) **[ASK F15]**
2. (No) **[SKIP TO F16]**

99. (DON'T KNOW) **[SKIP TO F16]**
88. (REFUSED) **[SKIP TO F16]**

F15. What would you have done differently? **[RECORD OPEN ENDED RESPONSE]**

F16. **[IF SERVICE=0, READ]** We would like to know more about the factors that contributed to your purchase of the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. **[IF SERVICE=1, READ]** We would like to know more about the factors that contributed to your purchase of the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. **[RANDOMIZE LIST]**

1. **[RESPONSE FROM C1 IF C1≠3, 99 OR 88]**
2. The Focus on Energy incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a contractor or vendor
6. Previous participation in a Focus on Energy energy efficiency program or offering

99. (DON'T KNOW)
88. (REFUSED)

G. Spillover

[ASK EVERYONE SECTION G]

G1. Since making these energy-efficiency upgrades has your company installed any other energy-efficient products in your facility that you did ***NOT*** receive a Focus on Energy incentive for? **[IF NEEDED: BY ENERGY-EFFICIENT PRODUCTS, I MEAN HIGH EFFICIENCY HVAC EQUIPMENT, HIGH EFFICIENCY WATER HEATERS, HIGH EFFICIENCY MOTORS, OR ENERGY STAR LIGHTING SUCH AS LED LIGHTBULBS.]**

1. (Yes) **[ASK G2]**
2. (No) **[SKIP TO SECTION H]**
99. (DON'T KNOW) **[SKIP TO SECTION H]**
88. (REFUSED) **[SKIP TO SECTION H]**

G2. What were the other energy-efficient products that you installed without getting an incentive? **[DO NOT READ LIST; MARK ALL THAT APPLY; 99=DON'T KNOW, 88=REFUSED] [IF THE CUSTOMER SAYS THEY BOUGHT SOMETHING BUT HAVE NOT INSTALLED IT, THE EQUIPMENT HAS TO BE INSTALLED AND OPERATING FOR US TO COUNT IT TOWARDS SPILLOVER.]**

1. (LEDs)
2. (Fluorescent tubes (T5s, T8s, etc.))
3. (Efficient lighting controls (occupancy sensors, daylighting, timers))
4. (High efficiency motors)
5. (Air source heat pumps)
6. (Ground source heat pumps)
7. (Central AC)
8. (VSD (variable speed drive))
9. (Water heating equipment)
10. (Boiler)
11. (Compressed air equipment)
12. (Gas furnaces)
13. (Exit signs)
14. (Refrigeration equipment (refrigerators, freezers))
15. Operational improvements **[SPECIFY:_____]**
16. (Other) **[SPECIFY:_____]**
99. (DON'T KNOW) **[SKIP TO SECTION H]**
88. (REFUSED) **[SKIP TO SECTION H]**

[ASK G2.11-G2.13 IF G2=1, 2]

G2.11 [REPEAT FOR EACH ITEM MENTIONED IN G2] What is the wattage of the lighting? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

G2.12 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** In what location was it installed (Wall/Ceiling/Outdoors)? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.13 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What type of equipment was removed or replaced? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.21- G2.22 IF G2=3]

G2.2.1 How many lamps are controlled by the efficient lighting controls installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.2.2 What is the average wattage of the lamps controlled by the efficient lighting controls installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.31-G2.33 IF G2=4]

G2.31 How is the high efficiency motor controlled? (Always on, manual start/stop, VSD / ECM / VFD, Other)? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.33 On what equipment was the high efficiency motor installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.33 What is the horsepower of the high efficiency motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.41 IF G2=5, 6] [ASK G2.42 IF G2=5, 6, 7] [ASK G2.43 IF G2=5, 6, 7]

G2.41 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What is the heating efficiency rating (HSPF) of the **[INSERT ITEM FROM G2]**? **[RECORD NUMERIC RESPONSE: 0.1 TO 20.0 "HSPF Rating", 99=DON'T KNOW, 88=REFUSED]**
G2.42 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What is the cooling efficiency rating (SEER/EER) of the **[INSERT ITEM FROM G2]**? **[RECORD NUMERIC RESPONSE: 0.1 TO 30.0 "SEER/EER Rating", 99=DON'T KNOW, 88=REFUSED]**
G2.43 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What is the output capacity in BTUs of the **[INSERT ITEM FROM G2]**? **[RECORD NUMERIC RESPONSE: 0 TO 1,000,000 "BTUs", 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.51-G2.52 IF G2=8]

G2.51 On what type of equipment was the VSD (variable speed drive) motor installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.52 What is the horsepower of the VSD (variable speed drive) motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.61-G2.64 IF G2=9]

G2.61 What type of water heating equipment was purchased and installed? **[READ LIST]**

1. Water heater with storage
2. Tankless water heater
3. Heat pump water heater
4. Condensing water heater
5. Boiler
98. (Don't know)
99. (Refused)

G2.62 What fuel type is used? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.63 What is the efficiency factor (EF) rating of the water heating equipment? **[RECORD NUMERIC RESPONSE: 0.00 TO 0.99 "Efficiency Factor (EF)", 99=DON'T KNOW, 88=REFUSED]**
G2.64 **[ASK IF G2.61 NOT EQUAL TO "TANKLESS WATER HEATER"]** What is the capacity of the equipment in gallons? **[RECORD NUMERIC RESPONSE: 0 TO 10,000 "Capacity in Gallons", 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.71-G2.72 IF G2=11]

G2.71 What is the compressed air equipment being used for? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.72 What is the horsepower of the compressor motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.81-G2.82 IF G2=12]

G2.81 What is the annual fuel utilization efficiency (AFUE) rating of the gas furnace? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
G2.82 What is the output capacity in BTUsof the gas furnace? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK G2.91 IF G2=14]

G2.91 What type of refrigeration equipment was purchased and installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

G3. **[REPEAT FOR EACH ITEM MENTIONED IN G2]** How many **[INSERT ITEM FROM G2]** did you install? **[RECORD NUMBER_____, 99 FOR DON'T KNOW, 88 FOR REFUSED, AND -96 FOR N/A]]**

G4. **[REPEAT FOR EACH ITEM MENTIONED IN G2]** Please tell me how important [**IF B4.1=1 READ,** "assistance from your contractor and information and education from Focus on Energy" **OTHERWISE READ,** "Focus on Energy incentives and technical support"] was in your decision to install **[ANSWER FROM G2]**" Was it…?: **[READ LIST EMPHASIZE EACH ANSWER OPTION AND PAUSE IN BETWEEN EACH OPTION.]**

1. Very important,
2. Somewhat important,
3. Neutral,
4. Not too important, or

5. Not at all important
99. (Don't know)
88. (Refused)

G5. Was **[INSERT EACH ITEM FROM G2]** installed at **[SITE_ADDRESS]**?
1. Yes
2. No (**ASK:** What is the address of the location where you installed **[INSERT EACH ITEM FROM G2]**? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
99. (Don't know)
88. (Refused)

H. Closing

H1. *Do you have any other comments about your experience with Focus on Energy that you would like to share?
[RECORD RESPONSE:_____; 99 FOR DON'T KNOW, 88 FOR REFUSED]

H2. *On occasion, Focus on Energy may want to contact a customer to learn more about their participation experience. May we share your responses with a program manager, who may contact you regarding your experience?
1. Yes
2. No
99. (Don't know)
88. (Refused)

Thank you. We appreciate your help with this survey. Have a nice day.

CADMUS

Focus on Energy Nonresidential Schools & Government Solution CY 2020 Participant Survey

Researchable Questions		
Key Research Topics	**Areas of Investigation**	**Related Section/ Questions**
Screening	Confirm record of participation	A
Awareness and influential persons	How participants learned about the incentive	B1-B2
Participant Experience/Portfolio Transition topics	Ease of applying and finding information	B3
	Comparison to historical experience (if applicable); energy advisor support; identify opportunities for improvement	B4-B7; B15-B17
	Application ease	B8-B14
Participant Decision-making	Motivations for energy efficient upgrades	Section C
Barriers to EE	Top challenges for making energy efficient improvements and how Focus on Energy can help overcome those challenges	Section D
Program Influence/NTG	Freeridership	Section E-F
	Spillover	Section G

General Instructions

- Interviewer instructions are in green **[LIKE THIS]** (the style is "Survey: Interviewer Instructions").
- CATI programming instructions are in red **[LIKE THIS]** (the style is "Survey: Programming").
- Items that should not be read by the interviewer are in parentheses like this ( ).

Quota= 70 completes

SAMPLE Variables:
[CONTACT_NAME]
[SITE_ADDRESS]
[MEASURE_CATEGORY1]
[MEASURE_CATEGORY2]
[MEASURE_CATEGORY3]
[MEASURE_CATEGORY1_QUANTITY]
[MEASURE_CATEGORY2_QUANTITY]
[MEASURE_CATEGORY3_QUANTITY]
[TYPE]
[SERVICE]

A. Introduction

A1. Hello, my name is **[NAME]** and I am calling on behalf of Wisconsin's Focus on Energy. Focus on Energy would like to learn more about your recent energy efficiency project experience for the property at **[SITE_ADDRESS]**.

[IF NO CONTACT NAME, OR CONTACT NO LONGER WORKS FOR ORG]: May I please speak with the person who was most involved with the energy efficiency project your organization recently completed with Focus on Energy?
[IF CONTACT NAME PROVIDED]: May I please speak with **[CONTACT_NAME]**?

1. (Yes)
2. (Yes, call transferred) **[START OVER WITH NEW RESPONDENT]**
3. (No, not available) **[SCHEDULE CALLBACK]**
99. (DON'T KNOW) **[ASK TO SPEAK WITH SOMEONE WHO WOULD KNOW AND START AGAIN]**
88. (REFUSED) **[THANK AND TERMINATE]**

Back-up information, not to be programmed:

[If "No – Not available," ask if Respondent would like to arrange a more convenient time for us to call them back or if you can leave a message for that person.]

[IF RESPONDENT ASKS HOW LONG, SAY: "APPROXIMATELY 10 MINUTES."]
[IF NEEDED:] This survey is for research purposes only and this is not a marketing call. Your participation in this study is important so that Focus on Energy can improve its energy efficiency offerings for businesses and other organizations.

[**Only if asked** for a Focus on Energy contact to verify the survey authenticity, offer Mitch Horrie with the Public Service Commission of Wisconsin, 608.267.3206
.]

[**Only if respondent says they already did a survey:** Thank you for your responses to that survey. This is another Focus on Energy study that you have been selected for, that asks a few more questions about your experience with the offering and your decision-making. If you have a few more spare minutes, we would greatly appreciate your responses!]

A2. *Our records show that, in 2020, you installed energy efficient equipment or had services performed including **[MEASURE CATEGORY1]**, **[MEASURE_CATEGORY2]**, and **[MEASURE_CATEGORY3]** at **[SITE ADDRESS]**. To ensure our records are correct, can you confirm this information?

1. (Yes)
2. (No, wrong year) **[RECORD CORRECT YEAR, IF POSSIBLE]**
3. (No, wrong address) **[RECORD CORRECT ADDRESS]**
4. (No, wrong measure) **[CORRECT BELOW]**

F3a. (**MEASURE_CATEGORY1** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE1]**

F3a. (**MEASURE_CATEGORY2** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE2]**

F3a. (**MEASURE_CATEGORY3** IS INCORRECT **[CORRECT:_____]**) **[CALL THIS VARIABLE C_MEASURE3]**

5. (No, I did not install any measures) **[THANK AND TERMINATE]**
99. (Don't know) **[IS THERE SOMEONE WE COULD SPEAK WITH THAT WOULD KNOW THIS? RECORD NAME AND CONTACT INFORMATION:_____]**
88. (Refused) **[THANK AND TERMINATE]**

B. Awareness and Customer Experience

B1. *How did your organization learn about the Focus on Energy incentives available for this project? **[DO NOT READ LIST] [CHECK ALL THAT APPLY]**
[IF RESPONDENT MENTIONS WEBSITE CLARIFY IF UTILITY OR FOCUS ON ENERGY WEBSITE SO YOU KNOW HOW TO CODE ANSWER ON LIST.]

1. (Contact with Focus on Energy representative through phone or in person)
2. (Focus on Energy email or e-newsletter)
3. (Focus on Energy website)
4. (Focus on Energy sponsored workshop or event)
5. (Focus on Energy printed materials, brochure)
6. (Contact with utility representative)
7. (Utility mailing, newsletter, email, bill insert, or utility website)
8. (Word of mouth: family, friend, or business colleague)
9. (I contacted my contractor/ vendor to ask)
10. (My contractor or vendor let me know about them)
11. (Previously participated in program or offering/received an incentive)
12. (Through a trade association or professional organization **[SPECIFY:_____]**)
13. (Other **[SPECIFY:_____]**)
99. (Don't know)
88. (Refused)

B2. *I'm going to read you a short list of people that may have assisted you to initiate your project. For each person, please say 'Yes' if they assisted you to initiate your project, or 'No' if they did not. **[READ LIST AND MARK 1=YES, 2=NO, 99=DON'T KNOW; 88 REFUSED FOR EACH]**

1. Your contractor or vendor
2. Focus on Energy staff
3. Your utility account manager
4. Your internal energy or sustainability team

B3. *How would you describe your experience in learning about whether your project or equipment qualified for a Focus on Energy incentive? Would you say that project eligibility information was…

1. Very clear

2. Mostly clear
3. A mix of clear and not clear
4. Mostly not clear, or
5. Not clear at all?
99. (Don't know)
88. (Refused)

B4. *[IF B1≠11 READ:] Prior to receiving any incentives from Focus on Energy in 2020, had you worked with Focus on Energy in previous years? [IF B1=11 READ]: You mentioned you had previously participated in a Focus on Energy offering. Is that correct?

1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

B5. *[IF B4=1 AND (B1=1 OR B2.2=1)] You mentioned that you learned about the incentives through a Focus on Energy representative or Energy Advisor or worked with one to complete your project. For this year's project, did you work with the same contact you had worked with previously?

1. (Yes)
2. (No)
3. (Other: _____)
99. (Don't know)
88. (Refused)

B6. *[IF B4=1] Overall, how would you say your experience with Focus on Energy was this year compared to prior years? Would you say it was….

1. About the same,
2. More positive, or
3. Less positive?
99. (Don't know)
88. (Refused)

B7. * [IF B6=2 OR 3] Why do you say that? [OPEN END]

B8. [IF B4=1 AND TYPE=K-12] Since 2018, has your organization participated in the School Energy Benchmarking offering through Focus on Energy? [IF NEEDED] This program provided your school with ENERGY STAR scores for all its buildings, comparison scores with other schools, and a score that compares usage to energy code.

1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

B9. [IF B8=1] How helpful or unhelpful was benchmarking in giving you a new or better understanding of energy use in your facilities?

1. Very helpful

2. Mostly helpful
3. A mix of helpful and unhelpful
4. Mostly unhelpful
5. Very unhelpful
99. (Don't know)
88. (Refused)

B10. **[ASK IF B9= 3 OR 4 OR 5]** *Why do you say that? **[OPEN END]**

B11. **[IF B8=1]** Did you reference or consider the benchmarking results when deciding to implement the project for which you received an incentive?

1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

88.

B12. *Who took the lead role in completing the application for the financial incentive? Was it… **[RANDOMIZE]** **[READ OPTIONS, ALLOW ONLY ONE RESPONSE]**

1. You (i.e., respondent)
2. Someone at your organization
3. The contractor and/or vendor
4. Focus on Energy staff
5. Someone else **[SPECIFY:_____]**
99. (Don't know)
88. (Refused)

B13. **[ASK IF B12=1]** *How easy would you say this paperwork was to complete? Would you say: **[READ LIST]**

1. Very easy,
2. Mostly easy,
3. A mix of easy and challenging,
4. Mostly challenging, or
5. Very challenging?
99. (Don't know)
88. (Refused)

B14. **[ASK IF B13= 3 OR 4]** *Why do you say that? **[OPEN END]**

B15. **[IF B2.2=1]** *Overall, how satisfied were you with the project support you received from Focus on Energy staff? Would you say: **[READ LIST]**

1. Very satisfied,
2. Somewhat satisfied,
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied, or

5. Very dissatisfied?
99. (Don't know)
88. (Refused)

B16. **[IF B15=2-5]** *Why do you say that? **[OPEN END]**

B17. *What could Focus on Energy have done to improve your overall experience, if anything? **[DO NOT READ THE LIST, RECORD ALL THAT APPLY]**

1. (Better/more communication **[SPECIFY: WHO WOULD YOU LIKE MORE COMMUNICATION FROM?_____]**)
2. (Quicker response time **[SPECIFY: WHO WOULD YOU LIKE A QUICKER RESPONSE TIME FROM?__]**)
3. (Larger selection of eligible equipment **[ASK: WHAT ENERGY-EFFICIENT EQUIPMENT SHOULD FOCUS ON ENERGY OFFER INCENTIVES FOR?_____]**)
4. (Increasing the incentive amount)
5. (Simplify the application process **[ASK: IN WHAT WAY SHOULD IT BE SIMPLIFIED?_____?]**)
6. (Allow me to fill out the applications online)
7. (Simplify the website **[ASK: IN WHAT WAY?_____]**)
8. (Provide quicker approval on applications)
9. (Send incentive check out faster)
10. (Simplify the incentive catalogue **[ASK IN WHAT WAY]**)
11. (Other **[SPECIFY:_____]**)
12. (No, nothing)
99. (Don't know)
88. (Refused)

C. Decision Making

Now I'd like to understand more about how your property made decisions about your specific energy efficiency project.

C1. *What factor was <u>most</u> important to your organization's decision to make the energy-efficient upgrades for which you received an incentive? **[DO NOT READ LIST; SINGLE RESPONSE]**

1. (To save money on energy bills / reduce energy costs)
2. (To reduce energy consumption or energy demand / be more efficient / internal conservation or environmental targets)
3. (To obtain a program offering or bonus incentive)
4. (To obtain a tax credit)
5. (To replace old (but still functioning) equipment)
6. (To replace broken equipment)
7. (To enhance performance or aesthetics of our equipment/system(s))
8. (To improve comfort)
9. (To reduce maintenance or other non-energy operating costs)
10. (Other **[SPECIFY_____]**)

99. (Don't know)
88. (Refused)

C2. *Have you or anyone else within your organization attended an in-person or web-based training delivered by Focus on Energy in the past two years?
1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

C3. *[IF C2= 1] How important was your organization's participation in the training in your decision to move forward with the energy efficient upgrades for which you received an incentive? Was the training… [READ LIST]
1. Very important,
2. Somewhat important,
3. Neutral,
4. Not too important, or
5. Not at all important?
99. (Don't know)
88. (Refused)

C4. How likely would you or someone in your organization be to participate in a Focus on Energy training on practical energy management for facilities? Would you be …[READ LIST]
1. Very likely
2. Somewhat likely
3. Neither likely nor unlikely
4. Somewhat unlikely
5. Very unlikely
99. (Don't know)
88. (Refused)

C5. Was your project part of a larger renovation or equipment replacement project?
1. (Yes)
2. (No)
99. (Don't know)
88. (Refused)

C6. Did you receive other financial assistance for this project, such as a grant fro the State Energy Office or other organization?
1. (Yes) [SPECIFY]
2. (No)
99. (Don't know)
88. (Refused)

C7. Thinking just about the upgrades for which you received a Focus on Energy incentive, how would you characterize the cost of this project relative to typical building or equipment upgrade projects? Was it …**[READ LIST]**

1. Very large, and among the highest building or equipment costs in the past five years
2. Large, and among the highest building or equipment costs in 2019 or 2020
3. Moderate relative to other 2019-2020 building or equipment costs, or
4. Minor relative to other 2019-2020 building or equipment costs
5. Other [SPECIFY]

99. (Don't know)
88. (Refused)

C8. Does your organization have energy conservation or climate change targets, such as reducing energy usage by a specific amount?

1. (Yes)
2. (No)

99. (Don't know)
88. (Refused)

C9. **[IF C8=1]** Did this project assist your organization to meet energy conservation or climate change targets?

1. (Yes)
2. (No)

99. (Don't know)
88. (Refused)

D. Barriers

The next questions are to understand the barriers your organization may face when implementing an energy efficiency project.

D1. *If you had to choose just one, what would you say is normally the largest challenge in implementing energy efficiency projects and upgrades at your organization? This does not take into account the Covid-19 pandemic. Would you say: **[READ LIST; RECORD ONLY ONE]**

1. Cost
2. Time
3. Technical questions or technical issues, or
4. Your organization's own internal decision making or budgeting process

99. (Don't know)
88. (Refused)

D2. *What could be done to help your organization overcome challenges with energy efficiency improvements? **[DO NOT READ LIST, ALLOW MULTIPLE RESPONSES]**

1. (Nothing)
2. (Higher incentives)
3. (Provide immediate or upfront discounts/incentives)

4. (Offer low-interest loans)
5. (Simplify the paperwork) **[ASK HOW:_____]**)
6. (Provide better/more information about the offering **[SPECIFY WHAT TYPE OF INFORMATION THEY NEED:_____]**)
7. (Provide an energy audit)
8. (Technical support for proposed equipment)
9. (Technical support for understanding project payback period/ROI)
10. (Other **[RECORD VERBATIM ANSWER_____]**)
99. (Don't know)
88. (Refused)

E. Freeridership

[ASK EVERYONE]

[IF SERVICE=0, READ] Now I'd like to talk with you a bit more about your decisions to purchase the new **[MEASURE_CATEGORY1 OR C_MEASURE1].** Even though you may have received incentives for other energy saving equipment and services, these questions are just about the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that was purchased. **[IF SERVICE=1, READ]** Now I'd like to talk with you a bit more about your decisions to purchase the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. Even though you may have received incentives for other energy saving equipment and services, these questions are just about the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that was purchased.

[INTERVIEWER NOTE ABOUT THIS SECTION (DON'T READ TO RESPONDENT): THIS SECTION IS BASED ON HYPOTHETICAL BEHAVIOR SO WE ARE ASKING SIMILAR QUESTIONS TO VERIFY THAT WE ARE GATHERING THE CORRECT RESPONSES.]

E1. **[IF SERVICE=0, READ]** First, did your organization have specific plans to install the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option before learning about the Focus on Energy incentive? **[IF SERVICE=1, READ]** First, did your organization have specific plans to have the **[MEASURE_CATEGORY1 OR C_MEASURE1]** performed before learning about the Focus on Energy incentive?

1. (Yes) **[ASK E2]**
2. (No) **[SKIP TO E4]**
99. (DON'T KNOW) **[SKIP TO E4]**
88. (REFUSED) **[SKIP TO E4]**

E2. **[IF SERVICE=0, READ]** Prior to learning about the incentive, was the purchase of the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] included in your organization's capital budget? **[IF SERVICE=1, READ]** Prior to learning about the incentive, was the purchase of **[MEASURE_CATEGORY1 OR C_MEASURE1]** services included in your organization's capital budget?

1. (Yes)
2. (No) **[SKIP TO E4]**
99. (DON'T KNOW) **[SKIP TO E4]**
88. (REFUSED) **[SKIP TO E4]**

E3. **[IF SERVICE=0, READ]** Had your organization ***ALREADY*** ordered or purchased the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] ***BEFORE*** your organization heard about the Focus on Energy incentive? **[IF SERVICE=1, READ]** Had your organization ***ALREADY*** ordered or purchased the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services ***BEFORE*** your organization heard about the Focus on Energy incentive?

1. (Yes)
2. (No)
99. (DON'T KNOW)
88. (REFUSED)

E4. **[IF SERVICE=0, READ]** Would you have purchased and installed the same energy efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the incentive and information or education from Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services without the incentive and information or education from Focus on Energy?

1. (Yes) **[SKIP TO E7]**
2. (No) **[SKIP TO E9]**
99. (DON'T KNOW) **[ASK E5]**
88. (REFUSED) **[ASK E5]**

E5. **[IF SERVICE=0, READ]** Would you have installed **something** without the incentive and information or education from Focus on Energy? **[IF SERVICE=1, READ]** Would you have purchased **some services** without the incentive and information or education from Focus on Energy? **[DO NOT READ LIST UNLESS NECESSARY]**

1. (Yes, would have installed something / purchase some service) **[ASK E6]**
2. (No, would NOT have installed anything / not purchased any services) **[SKIP TO E13]**
99. (DON'T KNOW) **[SKIP TO E13]**
88. (REFUSED) **[SKIP TO E13]**

E6. **[IF SERVICE=0, READ]** When you say you **would have installed** something, would you have installed something that was just as energy efficient as the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** When you say you **would have had services performed**, would you have purchased services that produced as much energy efficiency as the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**
2. (No) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**
99. (DON'T KNOW) **[IF SERVICE=0 ASK E7 / IF SERVICE=1 SKIP TO E8]**
88. (REFUSED) **[IF SERVICE=0 ASK E7/ IF SERVICE=1 SKIP TO E8]**

E7. **[ASK IF SERVICE=0]** And without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK E8]**
2. (No, would have installed less) **[ASK E8]**
3. (No, would have installed more) **[ASK E8]**
99. (DON'T KNOW) **[ASK E8]**
88. (REFUSED) **[ASK E8]**

E8. **[IF SERVICE=0, READ]** Without the incentive for the **[MEASURE_CATEGORY1 OR C_MEASURE1]** and information or education from Focus on Energy, would you have installed the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]… **[IF SERVICE=1, READ]** Without the incentive for the **[MEASURE_CATEGORY1 OR C_MEASURE1]** and information or education from Focus on Energy, would you have had the **[MEASURE_CATEGORY1 OR C_MEASURE1]** performed… **[READ LIST AND RECORD ONE RESPONSE]**

1. Within the same year? **[SKIP TO E13]**
2. Within one to two years? **[SKIP TO E13]**
3. Within three to five years? **[SKIP TO E13]**
4. In more than five years? **[SKIP TO E13]**

99. (DON'T KNOW) **[SKIP TO E13]**
88. (REFUSED) **[SKIP TO E13]**

E9. **[ASK E9 TO E12 IF E4 =2]** **[IF SERVICE=0, READ]** When you say **you would not have installed** the same energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] over a less efficient option without the incentive and information or education from Focus on Energy, would you have installed anything at all? **[IF SERVICE=1, READ]** When you say **you would not have purchased** the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services without the incentive and information or education from Focus on Energy, would you have purchased any services at all?

1. (Yes, would have installed something / purchased some service) **[ASK E10]**
2. (No, would not have installed anything at all / not purchased any services) **[SKIP TO E13]**

99. (DON'T KNOW) **[ASK E10]**
88. (REFUSED) **[ASK E10]**

E10. **[IF SERVICE=0, READ]** **[ASK E9 TO E12 IF E4 =2]** Without the incentive and information or education from Focus on Energy, would you have installed something that was just as energy efficient as the **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s] you installed? **[IF SERVICE=1, READ]** Without the incentive and information or education from Focus on Energy, would you have purchased services that produced as much energy efficiency as the **[MEASURE_CATEGORY1 OR C_MEASURE1]** that you did purchase?

1. (Yes) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**
2. (No) **[IF SERVICE=0 ASK E11/ IF SERVICE=1 SKIP TO E12]**

99. (DON'T KNOW) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**
88. (REFUSED) **[IF SERVICE=0 ASK E11 / IF SERVICE=1 SKIP TO E12]**

E11. **[ASK IF SERVICE=0]** **[ASK E9 TO E12 IF E4 =2 / ASK FOR MEASURE_CATEGORY1 WITH QUANTITY GREATER THAN 1]** Without the incentive and information or education from Focus on Energy, would you have installed the same number of energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]?

1. (Yes, the same number) **[ASK E12]**
2. (No, would have installed less) **[ASK E12]**
3. (No, would have installed more) **[ASK E12]**

99. (DON'T KNOW) **[ASK E12]**
88. (REFUSED) **[ASK E12]**

E12. **[ASK E9 TO E12 IF E4 =2] [IF SERVICE=0, READ]** And, would you have installed the same energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. . . **[IF SERVICE=1, READ]** And, would you have had the same **[MEASURE_CATEGORY1 OR C_MEASURE1]** services performed. . . **[READ LIST AND RECORD ONE RESPONSE]**

1. In the same year?
2. In one to two years?
3. In three to five years?
4. More than five years out?

99. (DON'T KNOW)
88. (REFUSED)

E13. **[ASK EVERYONE] [IF SERVICE=0, READ]** We would like to know more about the factors that contributed to your purchase of the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the energy-efficient **[MEASURE_CATEGORY1 OR C_MEASURE1]**[s]. **[IF SERVICE=1, READ]** We would like to know more about the factors that contributed to your purchase of the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. I'm going to read a list of possible factors that could have contributed to your decision. For each of the factors listed, please rate how important it was in your decision. Use a scale from 1 to 5, with 1 meaning the factor was "not at all important" and 5 meaning the factor was "very important" in your decision to purchase the **[MEASURE_CATEGORY1 OR C_MEASURE1]** services. **[1 TO 6 - RANDOMIZE LIST]**

1. **[RESPONSE FROM C1 IF C1≠3]**
2. The Focus on Energy incentive or discount
3. Recommendation from Focus on Energy Staff
4. Information provided by Focus on Energy on energy savings opportunities
5. Recommendation from a contractor or vendor
6. Previous participation in a Focus on Energy energy efficiency program or offering

99. (DON'T KNOW)
88. (REFUSED)

F. Spillover

[ASK EVERYONE SECTION F]

F1. Since making these energy-efficiency upgrades has your organization installed any other energy-efficient products in your facility that you did ***NOT*** receive a Focus on Energy incentive for? **[IF NEEDED: BY ENERGY-EFFICIENT PRODUCTS, I MEAN HIGH EFFICIENCY HVAC EQUIPMENT, HIGH EFFICIENCY WATER HEATERS, HIGH EFFICIENCY MOTORS, OR ENERGY STAR LIGHTING SUCH AS LED LIGHTBULBS.]**

1. (Yes) **[ASK F2]**
2. (No) **[SKIP TO SECTION G]**

99. (DON'T KNOW) **[SKIP TO SECTION G]**
88. (REFUSED) **[SKIP TO SECTION G]**

F2. What were the other energy-efficient products that you installed without getting an incentive? **[DO NOT READ LIST; MARK ALL THAT APPLY; 99=DON'T KNOW, 88=REFUSED, -96=N/A] [IF THE CUSTOMER SAYS THEY BOUGHT SOMETHING BUT HAVE NOT INSTALLED IT, THE EQUIPMENT HAS TO BE INSTALLED AND OPERATING FOR US TO COUNT IT TOWARDS SPILLOVER.]**

1. (LEDs)
2. (Fluorescent tubes (T5s, T8s, etc.))
3. (Efficient lighting controls (occupancy sensors, daylighting, timers))
4. (High efficiency motors)
5. (Air source heat pumps)
6. (Ground source heat pumps)
7. (Central AC)
8. (VSD (variable speed drive))
9. (Water heating equipment)
10. (Boiler)
11. (Compressed air equipment)
12. (Gas furnaces)
13. (Exit signs)
14. (Refrigeration equipment (refrigerators, freezers))
15. Operational improvements **[SPECIFY:_____]**
16. (Other) **[SPECIFY:_____]**
99. (DON'T KNOW) **[SKIP TO SECTION G]**
88. (REFUSED) **[SKIP TO SECTION G]**

[ASK F2.11-F2.13 IF F2=1, 2]

F2.11 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What is the wattage of the lighting? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
F2.12 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** In what location was it installed (Wall/Ceiling/Outdoors)? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
F2.13 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What type of equipment was removed or replaced? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK F2.21- F2.22 IF G2=3]

F2.2.1 How many lamps are controlled by the efficient lighting controls installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
F2.2.2 What is the average wattage of the lamps controlled by the efficient lighting controls installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK F2.31-F2.33 IF F2=4]

F2.31 How is the high efficiency motor controlled? (Always on, manual start/stop, VSD / ECM / VFD, Other)? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

F2.33 On what equipment was the high efficiency motor installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
F2.33 What is the horsepower of the high efficiency motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK F2.41 IF F2=5, 6] [ASK F2.42 IF F2=5, 6, 7] [ASK F2.43 IF F2=5, 6, 7]

F2.41 [REPEAT FOR EACH ITEM MENTIONED IN G2] What is the heating efficiency rating (HSPF) of the **[INSERT ITEM FROM G2]**? **[RECORD NUMERIC RESPONSE: 0.1 TO 20.0 "HSPF Rating (BTU/watt-hr)", 99=DON'T KNOW, 88=REFUSED]**
F2.42 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What is the cooling efficiency rating (SEER/EER) of the **[INSERT ITEM FROM G2]**? **[RECORD NUMERIC RESPONSE: 0.1 TO 30.0 "SEER/EER RATING", 99=DON'T KNOW, 88=REFUSED]**
F2.43 **[REPEAT FOR EACH ITEM MENTIONED IN G2]** What is the capacity in BTUs of the **[INSERT ITEM FROM G2]**? **[RECORD NUMERIC RESPONSE: 1 TO 1000000 "BTUs", 99=DON'T KNOW, 88=REFUSED]**

[ASK F2.51-F2.52 IF F2=8]

F2.51 On what type of equipment was the VSD (variable speed drive) motor installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
F2.52 What is the horsepower of the VSD (variable speed drive) motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK F2.61-F2.64 IF F2=9]

F2.61 What type of water heating equipment was purchased and installed? **[READ LIST]**

1. Water heater with storage
2. Tankless water heater
3. Heat pump water heater
4. Condensing water heater
5. Boiler

99. (Don't know)
88. (Refused)

F2.62 What Fuel type is used? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**
F2.63 What is the efficiency factor (EF) rating of the water heating equipment? **[RECORD NUMERIC RESPONSE: 0.00 TO 0.99 "Efficiency Factor (EF)", 99=DON'T KNOW, 88=REFUSED]**
F2.64 **[ASK IF F2.61 INDICATES WATER HEATER WITH STORAGE]** What is the capacity of the equipment in gallons? **[RECORD NUMERIC RESPONSE: 0 TO 10000 "Capacity in Gallons", 99=DON'T KNOW, 88=REFUSED]**

[ASK F2.71-F2.72 IF F2=11]

F2.71 What is the compressed air equipment being used for? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

F2.72 What is the horsepower of the compressor motor? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

[ASK F2.81-F2.82 IF F2=12]

F2.81 What is the annual fuel utilization efficiency (AFUE) rating of the gas furnace? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

F2.82 What is the output capacity of the gas furnace in BTUs? **[RECORD NUMERIC RESPONSE: 0 TO 1000000 "BTUs", 99=DON'T KNOW, 88=REFUSED]**

[ASK F2.91 IF F2=14]

F2.91 What type of refrigeration equipment was purchased and installed? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

F3. **[REPEAT FOR EACH ITEM MENTIONED IN F2]** How many **[INSERT ITEM FROM F2]** did you install? **[RECORD NUMBER_____, 99 FOR DON'T KNOW, 88 FOR REFUSED, AND -96 FOR N/A]]**

F4. **[REPEAT FOR EACH ITEM MENTIONED IN F2]** Please tell me how important the Focus on Energy **[SOLUTION]** offering was in your decision to install **[ANSWER FROM F2]**" Was it…?: **[READ LIST EMPHASIZE EACH ANSWER OPTION AND PAUSE IN BETWEEN EACH OPTION.]**

1. Very important,
2. Somewhat important,
3. Neutral,
4. Not too important, or
5. Not at all important

99. (Don't know)
88. (Refused)

F5. Was **[INSERT EACH ITEM FROM F2]** installed at **[SITE ADDRESS]**?

1. Yes
2. No (**ASK:** What is the address of the location where you installed **[INSERT EACH ITEM FROM F2]**? **[RECORD RESPONSE, 99=DON'T KNOW, 88=REFUSED]**

99. (Don't know)
88. (Refused)

G. COVID-19 Impacts

G1. I am almost done – I have just a few questions about COVID-19. Was your project scope or timeline impacted by COVID-19 in any way?

1. Yes, the scope was impacted
2. Yes, the timeline was impacted
3. The scope and the timeline were impacted
4. Neither the scope nor the timeline were impacted.

99. (Don't know)
88. (Refused)

G2. **[IF G1=1,2, OR 3]** Can you tell us a bit more about how your project was impacted? **[RECORD VERBATIM ANSWER_____]**

G3. In 2021, how will your organization's interest in or ability to complete energy efficiency projects like this one be different, as a result of COVID-19? **[SELECT ALL THAT APPLY]**

1. (It will not be different)
2. (Reduced: Less budget available)
3. (Reduced: Other priorities, more competing projects)
4. (Reduced: Staff will have less time to work on this type of project)
5. (Reduced: Will not be able to identify efficient measures because building usage has changed)
6. (Reduced: Will not prioritize improving buildings because future use is uncertain)
7. (Enhanced: More budget available)
8. (Enhanced: More interest in cost-cutting projects like efficiency)
9. (Enhanced: Easier to complete projects when building is not in use)
10. (Other) **[SPECIFY:_____]**

99. (Don't know)
88. (Refused)

H. Closing

H1. *Do you have any other comments about your experience with Focus on Energy that you would like to share?
[RECORD RESPONSE:_____; 99 FOR DON'T KNOW, 88 FOR REFUSED]

H2. *On occasion, Focus on Energy may want to contact a customer to learn more about their participation experience. May we share your responses with a program manager, who may contact you regarding your experience?

1. Yes
2. No

99. (Don't know)
88. (Refused)

Thank you. We appreciate your help with this survey. Have a nice day.