FY2019 ANNUAL REPORT

The Trust is the independent administrator for programs to improve the efficiency of energy use and reduce greenhouse gases in Maine. The Trust does this primarily by delivering financial incentives on the purchase of high-efficiency equipment or changes to operations that help customers save electricity, natural gas and other fuels throughout the Maine economy. The Trust is a quasi-state agency governed by a Board of Trustees with oversight from the Maine Public Utilities Commission.

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Abbreviations/Acronyms

ACEEE	American Council for an Energy-Efficient Economy
AHI	Affordable Heat Initiative
AMP	Arrearage Management Program
C&I	Commercial and Industrial
CAA	Community Action Agency
CCF	Centum Cubic Feet
CEO	Chief Executive Officer
CHIP	Central Heating Improvement Program
CHP	Combined Heat and Power
CIP	Commercial and Industrial Prescriptive Program
CLIC	Cost-effective Lighting Investment Calculator
CMP	Central Maine Power
CTO	Chief Technology Officer
DEP	Maine Department of Environmental Protection
DER	Distributed Energy Resource
DHHS	Department of Health and Human Services
DIY	Do-It-Yourself
DOE	U.S. Department of Energy
ECM	Electronically Commutated Motor
EERRF	Energy Efficiency and Renewable Resource Fund
EISA	Energy Independence and Security Act
EM&V	Evaluation, Measurement, and Verification
EV	Electric Vehicle
FCA	Forward Capacity Auction
FCM	Forward Capacity Market
FR	Free-Ridership
FY	Fiscal Year
GEO	Governor's Energy Office
GHG	Greenhouse Gas
HESP	Home Energy Savings Program
HPWH	Heat Pump Water Heater
ISO-NE	Independent System Operator for New England
kW	Kilowatt(s)
kWh	Kilowatt-Hour(s)
LD	Legislative Document
LED	Light-Emitting Diode
LIHEAP	Low-Income Home Energy Assistance Program
MACE	Maximum Achievable Cost-Effective
MaineHousing	Maine State Housing Authority

MMBtu	Million British Thermal Unit(s)
MTI	Maine Technology Institute
MPCT	Modified Participant Cost Test
MPRP	Maine Power Reliability Program
MRS	Maine Revised Statutes
MW	Megawatt(s)
NEEP	Northeast Energy Efficiency Partnerships
NTA	Non-Transmission Alternative
NTG	Net-to-Gross
PACE	Property Assessed Clean Energy
PACT	Program Administrator Cost Test
PUC	Public Utilities Commission
QP	Qualified Partner
RFP	Request for Proposals
RGGI	Regional Greenhouse Gas Initiative
RTU	Rooftop Unit
SBI	Small Business Initiative
SLIC	Small Business Cost-effective Lighting Investment Calculator
SO	Spillover
T&D	Transmission and Distribution
T&ST	Transmission and Sub-Transmission
TA	Technical Assistance
TRC	Total Resource Cost
TRM	Technical Reference Manual
WAP	Weatherization Assistance Program

Introduction

This Annual Report of the Efficiency Maine Trust ("the Trust" or "Efficiency Maine") describes activities during Fiscal Year 2019 (FY2019), which covered the period from July 1, 2018, to June 30, 2019. The report includes the budgets, activities, and results for all programs and related activities administered by the Trust. In total, these programs will generate more than 2.0 billion kWh and more than 6.9 million MMBtu in cost-effective lifetime energy savings for Maine ratepayers. Some noteworthy highlights of the Trust's FY2019 programs include:

- Avoiding more than $209 million in unnecessary lifetime energy costs;
- Prompting more than $51 million of incremental private investment with $48 million of program investment;
- Supporting 11,262 projects to install air sealing, insulation, high performance heat pumps, or heating systems through the Home Energy Savings Program (HESP);
- Reaching a milestone of promoting more than 46,000 high-performance heat pumps installed over the past seven years;
- Adding more than 27.3 MW of new peak summer demand reductions to the grid; and
- Avoiding an estimated 105,274 tons of annual greenhouse gas (GHG) emissions.

The Trust was created by state statute in 2009.[1] The purposes of the Trust include:

- Consolidating under one roof the funds for Maine's consumer-focused efficiency and alternative energy programs for all fuel types, including electric, natural gas, and unregulated fuels;
- Procuring energy resources (efficiency and alternative energy) that cost less than traditional energy supply to help individuals and businesses meet their energy needs at the lowest cost; and
- Helping transform the energy market in Maine so that energy-efficient products, alternative energy equipment, and related energy services are more accessible and affordable to end-use customers.

The Trust is governed by a nine-member Board of Trustees. David Stapp, Chief Executive Officer (CEO)/Chief Technology Officer (CTO) of Peregrine Turbine Technologies in Wiscasset, and Al Hodsdon, owner of A.E. Hodsdon Engineers, served as Chair and Vice-Chair, respectively. Brent Boyles, former CEO of Maine Public Service, served as Treasurer, and Herbert Crosby, Professor Emeritus of Mechanical Engineering Technology at the University of Maine in Orono, served as Secretary. The ex officio position for the Governor's Energy Office (GEO) was filled at the beginning of the year by Director Steven McGrath, and later Director Angela Monroe. The Maine State Housing Authority (MaineHousing) ex officio position was filled by Director Dan Brennan. Kenneth Fletcher, former GEO Director; David Barber, Senior Consultant and former President of Barber Foods; and Donald Lewis, retired CTO and Founder of Nyle Systems, also served. At the end of FY2019, the following trustees were appointed to the Board: James Boyle, owner of Boyle Associates Environmental Consultants; Suzanne MacDonald,

[1] 35-A MRS Chapter 97.

Chief Community Development Officer at the Island Institute; Glenn Poole, former Energy Manager at Verso Corporation; and Joan Welsh, former member of the Maine House of Representatives.

Sectors Served

The Trust's programs and initiatives serve multiple sectors. Table 1 illustrates the sectors served by each Trust program.

Table 1: Sectors Served by Efficiency Maine Programs

Program	Commercial and Industrial	Small Businesses	Multifamily	Residential	Low-Income Households
Commercial and Industrial Custom Program	✓				
Commercial and Industrial Prescriptive Program	✓	✓	✓		
Small Business Initiative		✓			
Consumer Products Program	✓	✓	✓	✓	✓
Home Energy Savings Program			✓	✓	✓
Low-Income Initiatives			✓	✓	✓
Renewable Energy Demonstration Grants	✓				✓
Electric Vehicle Initiatives	✓	✓	✓	✓	✓

Funding

The Trust received funds in FY2019 from a variety of sources, including Maine's electricity and natural gas utility ratepayers, the Regional Greenhouse Gas Initiative (RGGI), the Maine Power Reliability Program (MPRP) Settlement, the Forward Capacity Market (FCM) from the New England grid, and the federal Volkswagen (VW) Settlement. The Trust is directed by Maine statute to invest these funds to promote more efficient and affordable use of energy and customer-sited alternative energy systems. Table 2 depicts the funding sources for each program. The table is followed by brief descriptions of the funding sources and how they are invested through Efficiency Maine programs.

Table 2: Program Funding Sources

Program	Electric Efficiency Procurement	Maine Yankee Settlement	Natural Gas Efficiency Procurement	Regional Greenhouse Gas Initiative	Maine Power Reliability Program Settlement	Forward Capacity Market	Federal/Other	Energy Efficiency and Renewable Resource Fund	Volkswagen Settlement Funds
Commercial and Industrial Custom Program	✓	✓	✓	✓	✓	✓			
Commercial and Industrial Prescriptive Program	✓	✓	✓	✓	✓	✓			
Small Business Initiative	✓				✓		✓		
Consumer Products Program	✓			✓	✓	✓			
Home Energy Savings Program	✓		✓	✓		✓	✓		
Low-Income Initiatives	✓		✓	✓	✓	✓			
Renewable Energy Demonstration Grants								✓	
Electric Vehicle Initiatives									✓

Electric Efficiency Procurement

Electric Efficiency Procurement funds come from payments that utilities make directly to the Trust for the procurement of cost-effective electrical energy efficiency. The amount of funding the Trust receives is determined by the budget needed to capture the maximum achievable cost-effective (MACE) energy efficiency potential approved by the Maine Public Utilities Commission (PUC). Where available, the Trust will allocate some amount of other funding sources to offset a portion of the utility procurement necessary to capture MACE potential.

Maine's electricity customers who take service at the transmission and sub-transmission (T&ST) level do not contribute to and are ineligible for funding from the Electric Efficiency Procurement.

Maine Yankee Settlement

Maine Yankee Settlement funds stem from a settlement with the federal government for the storage of spent nuclear fuel. In previous years, a portion of these funds were directed by state law to fund electricity-saving programs to defray the amount of payment needed from the Electric Efficiency Procurement. At the beginning of FY2019, a small portion of these revenues from prior years remained unspent. They were distributed through a blend of the Trust's programs targeted at electric efficiency measures.

Natural Gas Efficiency Procurement

Natural Gas Efficiency Procurement funds come from natural gas distribution utilities. Similar to the standard used to establish the appropriate level of funding for electric efficiency, the amount of the procurement set for natural gas efficiency programs is based on the amount needed to capture all the natural gas energy efficiency that is cost-effective, achievable, and reliable.

Maine's very large manufacturers and very large agricultural and aquaculture businesses, whose usage exceeds 1 million centum cubic feet (CCF) of natural gas annually, are limited to paying the assessment for the Natural Gas Efficiency Procurement on their first 1 million CCF of usage. This limitation does not impact their eligibility for the Trust's natural gas efficiency programs.

Regional Greenhouse Gas Initiative

RGGI is a nine-state regional initiative to limit carbon emissions from electricity generators. Maine joined RGGI in 2009 when it was established. Under RGGI, large generators are required to purchase "carbon allowances" in an amount equal to their annual carbon emissions. Allowances are sold at quarterly auctions for this purpose. In Maine, proceeds from the auctions are transferred to and managed by the Trust.

The Trust may use RGGI funds for energy conservation programs that reliably reduce electricity consumption or GHG emissions. In the spring of 2016, the Maine Legislature amended the Efficiency Maine Trust Act to provide new direction on the allocation of RGGI investments. Beginning in FY2017, the amended law required the Trust to allocate $3 million annually to the PUC to be disbursed to a select group of energy-intensive manufacturers, known as "affected customers." In accordance with the statutory directive, the Trust allocated 50% of the remaining funds to the residential sector and 50% to the commercial and industrial (C&I) sector.

In light of declining RGGI revenues over a period of several quarters, the Maine Legislature instituted further amendments to the statute in the spring of 2017. First, it reduced the $3 million annual affected customer transfer to $2.5 million in FY2018 and $2.5 million in FY2019, and added a $1.0 million payment in FY2020. Second, it suspended, for the same period, the statutory requirement that the Trust split the remaining RGGI revenues evenly between residential and C&I programs. In FY2019, the statute was amended once again, eliminating the allocation requirement entirely.

Maine Power Reliability Program Settlement

The funds that the Trust received from the MPRP Settlement are governed by a May 7, 2010, stipulation approved by the PUC. In FY2019, the Trust received $300,000 through the MPRP Settlement for the weatherization of low-income homes, $500,000 for efficiency projects for T&ST customers, and $700,000 to be allocated for other electrical efficiency programs at the Trust's discretion. In FY2019, the Trust allocated the largest portion of its discretionary funds equally to the C&I Prescriptive Program and the Consumer Products Program.

Forward Capacity Market

FCM funds are proceeds from the Trust's capacity resources, which are bid into the Independent System Operator for New England (ISO-NE) markets. The compensation the Trust receives from the FCM is for the reduction of demand delivered through qualifying efficiency projects that are tracked and reported by the Trust.

Federal/Other

The Trust received federal funds through the American Recovery and Reinvestment Act in 2009 and 2010. These funds were disbursed through grants and also through a revolving loan fund. The revolving loan fund continued to operate in FY2019.

Energy Efficiency and Renewable Resource Fund

The Energy Efficiency and Renewable Resource Fund (EERRF) is composed of voluntary contributions from ratepayers, as well as alternative compliance payments from entities that do not meet Maine's renewable portfolio standard requirement. Maine law stipulates that 35% of these revenues be directed to the Maine Technology Institute (MTI) to help promote research and development of renewables. The Trust may use the remainder of these revenues to fund demonstration projects or to provide rebates for customer-sited, commercialized renewable energy equipment, as funds allow.

Volkswagen Settlement Funds

In 2016 and 2017, Volkswagen (VW) agreed to settle allegations that it violated the federal Clean Air Act by installing "defeat devices" on certain diesel vehicles. Under consent decrees reflecting one settlement agreement, Maine (through the Maine Department of Transportation) received settlement funds from VW. Through a Memorandum of Understanding, the State contracted with the Trust to administer approximately $3.15 million to promote electric vehicle charging infrastructure to help reduce greenhouse gases and improve the energy efficiency of transportation in the state. Separately, VW settlements funds also were awarded to the Office of the Attorney General for the State of Maine. Of these funds, $5.1 million were transferred to the Trust for the purpose of running a program to reduce carbon and nitrogen oxide (NOx) emissions through the promotion and increased use of electric vehicles.

Results

In FY2019, the programs administered by the Trust played a critical role in helping Maine businesses and homes take advantage of energy efficiency, educating consumers about products that save energy, and helping them connect with vendors and contractors. The Trust's programs provided financial incentives that spurred consumers to choose energy-efficient options over lower-priced, less-efficient options—a choice that will reduce energy bills over the long term and put the Maine economy on a stronger footing.

Tables 3 and 4 illustrate the total energy savings and lifetime avoided energy costs associated with each program administered by the Trust in FY2019. Savings values reported in the program summary tables here, and in the individual program tables throughout this report, are "adjusted gross savings" unless otherwise indicated. Adjusted gross savings reflect the change in energy consumption and/or demand

that results directly from program-related actions taken by participants in an Efficiency Maine program, regardless of why they participated, adjusted by factors developed through program evaluations.[2]

In addition to energy savings, the tables show the sum of Efficiency Maine's costs. These costs reflect the financial incentives paid by the program, as well as the costs to manage the programs, provide public information and outreach, hold training sessions, provide technical support, and conduct quality assurance for each program. The tables also show the program participants' (customers') incremental costs invested in the energy upgrades. The benefit-to-cost ratio indicates the ratio of the financial benefits (from the lifetime avoided energy costs[3]) to the combination of Efficiency Maine costs and participants' incremental cost.

[2] Periodically, the Trust enlists independent third-party contractors to evaluate the savings impacts of major programs. The evaluations help the Trust develop factors to improve the accuracy of gross savings calculations based on installation rates and actual, site-verified savings rates. The evaluations are also used to analyze program attribution, including identifying program participants who would have installed the same or equivalent efficiency measures on their own even if the program had not been offered ("free-ridership" [FR]) and the percentage of efficient equipment installed due to program influences even though no incentive or technical assistance was received ("spillover" [SO]). Factoring in free-ridership and spillover delivers "net savings," which quantifies the savings directly (adjusted gross minus FR) and indirectly (SO) attributable to the program. The Trust publishes the FR and SO factors in the Technical Reference Manuals (TRMs).

[3] The lifetime energy benefit shown in the summary tables, and in the individual program tables throughout this report, is calculated using methodologies and assumptions approved by the PUC as part of the approval process for the Trust's Triennial Plan III. The specific assumptions used to estimate avoided electric energy and capacity costs, avoided natural gas and unregulated fuels costs, and avoided water costs are consistent with the settled agreement to reflect adjustments made in the Commission Staff Bench Analysis - High Case (see Commission Staff, *Bench Analysis,* Docket 2015-00175, February 24, 2016, pp. 15–16), which references forecasts performed for the Commission by London Economics International in June 2015.

Table 3: Costs and Savings for Electric Programs

Program	Annual kWh Savings	Lifetime kWh Savings	Efficiency Maine Costs	Participant Cost	Lifetime Energy Benefit	Cost/kWh (Lifetime)	Benefit-to-Cost Ratio
Commercial and Industrial Custom Program – Electric	5,351,447	77,318,732	$1,931,089	$1,340,180	$5,189,045	$0.042	1.59
Commercial and Industrial Prescriptive Program – Electric	76,224,516	1,092,341,728	$12,235,904	$23,645,571	$85,104,155	$0.033	2.37
Small Business Initiative	3,032,934	41,422,300	$2,248,543	$981,857	$4,390,399	$0.078	1.36
Consumer Products Program – Electric	40,759,994	385,644,008	$9,555,324	$5,423,323	$33,697,616	$0.039	2.25
Home Energy Savings Program – Electric	17,823,444	320,821,992	$4,609,818	$2,481,402	$18,984,626	$0.022	2.68
Low-Income Initiatives – Electric	12,258,794	119,653,816	$2,259,734	$469,750	$10,430,104	$0.023	3.82
Electric Vehicle Initiatives			$12,055				
Strategic Initiatives – Electric			$905,703				
Administration – Electric			$2,302,825				
Total	**155,451,130**	**2,037,202,576**	**$36,060,996**	**$34,342,083**	**$157,795,944**	**$0.035**	**2.24**

Table 4: Costs and Savings for Thermal Programs

Program	Annual MMBtu Savings	Lifetime MMBtu Savings	Efficiency Maine Costs	Participant Cost	Lifetime Energy Benefit	Cost/ MMBtu (Lifetime)	Benefit-to-Cost Ratio
Commercial and Industrial Custom Program – Natural Gas	341	3,410	$55,868	$13,085	$17,186	$20.22	0.25[4]
Commercial and Industrial Custom Program – Unregulated Fuels	94,185	1,780,153	$1,412,726	$2,306,026	$9,354,773	$2.09	2.52
Commercial and Industrial Prescriptive Program – Natural Gas	35,527	687,235	$553,955	$71,289	$2,605,426	$0.91	4.17
Commercial and Industrial Prescriptive Program – Unregulated Fuels	58,435	954,783	$833,313	$616,667	$9,246,773	$1.52	6.38
Consumer Products Program – Unregulated Fuels	6,781	67,811	$114,255	$156,059	$777,061	$3.99	2.87
Home Energy Savings Program – Natural Gas	9,370	234,253	$481,398	$408,932	$960,782	$3.80	1.08
Home Energy Savings Program – Unregulated Fuels	93,091	2,218,370	$4,598,676	$8,768,551	$18,696,867	$6.03	1.40
Low-Income Initiatives – Natural Gas	14,440	348,885	$252,350	$63,404	$1,399,706	$0.91	4.43
Low-Income Initiatives – Unregulated Fuels	39,120	692,316	$2,806,558	$4,486,530	$8,966,553	$10.53	1.23
Renewable Energy Demonstration Grants Program			$98,955				
Strategic Initiatives – Thermal			$81,722				
Administration – Thermal			$599,890				
Total	**351,290**	**6,987,215**	**$11,889,666**	**$16,890,542**	**$52,025,126**	**$4.12**	**1.81**

[4] The Commercial and Industrial (C&I) Custom Program – Natural Gas benefit-to-cost ratio is low due to a number of factors, including cross-program attribution and the disconnect between the timing of project delivery spending and incentive payment. For more detail, see the C&I Custom Program FY2019 Analysis section.

As discussed in the "Finance and Administration" section of this report, the Trust invested more than $51 million in FY2019 to fund the programs and cost savings described above. Table 5 provides a summary of the Trust's payments during FY2019.

Table 5: FY2019 Payments Made[5]

Use of Funds	Amount
Programs	**$44,464,446**
Commercial and Industrial Custom Program	$3,393,401
Commercial and Industrial Prescriptive Program	$13,606,277
Small Business Initiative[6]	$2,240,991
Consumer Products Program	$9,669,280
Home Energy Savings Program[7]	$10,187,947
Low-Income Initiatives[8]	$5,255,539
Renewable Energy Demonstration Grants Program	$98,955
Electric Vehicle Initiatives	$12,056
Strategic Initiatives, Public Information, and Administration	**$3,890,141**
Strategic Initiatives	$987,426
Administration	$2,902,715
Other Payments[9]	**$2,886,490**
Total Use of Funds – Efficiency Maine Trust	**$51,241,077**

The following sections of the Annual Report provide short descriptions of each program referenced in Table 3 and Table 4. The descriptions generally include a statement of the main purpose of the program, a brief explanation of the activities undertaken to implement the program, and a summary of quantifiable results.

[5] Table 3 and Table 4 reflect savings, costs, and benefits based on project completion dates, while Table 5 reflects accrual-basis accounting. This results in some variance in the Program payments made due to timing differences. Specific differences driven by factors other than timing are detailed in the following footnotes.

[6] Small Business Initiatives payments include a loan allowance reduction of $1,000 not reflected in the program tables.

[7] Home Energy Savings Program payments include $500,921 of loan support not reflected in the program tables. This line also includes $47,551 of incentives for low income projects reported under the Low Income Initiatives.

[8] Low Income Initiative payments do not include the $47,551 funded by HESP (see footnote 7).

[9] Includes payments to the PUC for its oversight of the Trust and RGGI reimbursements to "affected customers," payments to MTI for its share of the EERRF, payments to the Maine Department of Environmental Protection (DEP) for its RGGI-related administration costs, payments to RGGI Inc. for administration costs, and payments to GEO for its staff time. These payments are not reflected in the program tables above.

Efficiency Maine Programs

Commercial and Industrial Custom Program

The Commercial and Industrial (C&I) Custom Program incentivizes tailored energy efficiency projects that require site-specific engineering analyses and/or projects with energy conservation measures that are not otherwise covered by prescriptive incentives. The C&I Custom Program is designed to overcome the barriers confronting Maine's larger businesses and institutions when making investments in complex energy efficiency and distributed generation projects. These projects represent important facility improvements that reduce the inefficient use of energy and keep operating costs down for Maine's largest energy users.

Commercial and Industrial Custom Program

Sectors Served

- Commercial and Industrial

Funds Invested

- Electric Efficiency Procurement
- Maine Yankee Settlement
- Natural Gas Efficiency Procurement
- Regional Greenhouse Gas Initiative
- Maine Power Reliability Program
- Forward Capacity Market

FY2019 Activities

Following are some program activity highlights for FY2019:

- Continued to employ an incremental approach to developing projects; staff focused on encouraging customers to complete a single project that fits with their current priorities and/or budget, building a positive foundation for additional program participation and energy efficiency investment in the future.
- Awarded incentives to 15 new customers and 14 past program participants.
- Continued emphasis on targeting opportunities for natural gas customers, extending outreach efforts to a larger pool of potential customers.[10]
- Observed a considerable uptick in program interest from municipal water and wastewater treatment facilities. Received six formal project proposals from these entities (versus zero in FY2018) and several additional inquiries.

[10] In late FY2017, the Legislature voted to require previously exempt large consumers that use more than 1 million CCF of natural gas annually to pay a natural gas assessment, rendering them newly eligible for the Trust's natural gas conservation programs.

FY2019 Results[11]

Table 6: C&I Custom Program – Electric Results

Metric	Value
Total Participants	19
Total Projects	30
Annual kWh Savings	5,351,447
Lifetime kWh Savings	77,318,732
Efficiency Maine Costs	$1,931,089
Participant Costs	$1,340,179
Lifetime Energy Benefit	$5,189,044
Benefit-to-Cost Ratio	1.59

Table 7: C&I Custom Program – Thermal Results

	Value	
Metric	Natural Gas	Unregulated Fuels
Total Participants	1	5
Total Projects	1	6
Annual MMBtu Savings	341	94,185
Lifetime MMBtu Savings	3,410	1,780,153
Efficiency Maine Costs	$55,868	$1,412,726
Participant Costs	$13,085	$2,306,026
Lifetime Energy Benefit	$17,186	$9,354,773
Benefit-to-Cost Ratio	0.25[12]	2.52

FY2019 Analysis

Participants in the C&I Custom Program relied primarily on outside contractors and vendors to identify energy efficiency opportunities in FY2019. These projects typically require site-specific engineering beyond what most energy contractors or vendors are willing to explore on speculation. Accordingly, the program targeted its customer outreach to overcome the lack of site-specific assessment and in-house expertise at customer facilities by providing free scoping audits to identify viable projects. The program also administered technical assistance (TA) grants to support further development of complex projects. Activity from FY2015-FY2018 suggests that, on average, 35% of scoping audits lead directly to project implementation in subsequent fiscal years. The data also shows an average TA-to-project conversion rate of 70%.

The number of projects resulting from scoping audits and TA studies suggests that the program's approach of dedicating resources to those activities is helpful. The program involves multiyear project planning and budgeting. In addition to empowering and encouraging customers to move forward with meaningful energy efficiency projects, scoping audits and TA studies can help customers reduce costs.

[11] Several custom projects achieved a blend of electric and thermal savings in FY2019. The results associated with each fuel type are reported in the corresponding tables. Participant figures are therefore repeated; overall, the C&I Custom Program closed projects with 23 distinct participants in FY2019.

[12] See explanation for the low natural gas benefit-to-cost ratio in the FY2019 Analysis section.

Moreover, the program scrutinizes the work of engineering firms and contractors, reducing the risk that customers will pay for inflated costs or unnecessary add-ons.

Despite FY2019's emphasis on natural gas outreach to an expanded pool of potential customers, the program approved only six projects to conserve natural gas (versus three in FY2018). Given the continued low price of natural gas, customers were relatively unmotivated to invest in natural gas efficiency measures. Furthermore, low avoided costs meant that several of the natural gas project applications that were submitted were ultimately rejected for failing to pass the program's cost-effectiveness screening.

The benefit-to-cost value for the program's FY2019 natural gas projects is low due to a number of factors. First, the disconnect between the timing of project delivery spending and incentive payment (project completion) across fiscal years, which occurs for most custom projects, had a particularly strong effect in this category. The program only closed one natural gas project and therefore the benefits reported this year reflect only the savings from that one completed project. Nonetheless, the program expended considerable funds in reviewing and approving applications for six others that will close in FY2020, and these costs are reflected in the fiscal year in which they were incurred. Second, the program separately completed a natural gas project at a low-income multifamily building, the benefits of which are reflected elsewhere in this report. Though it was fully managed as a custom project, it benefitted low-income tenants. The Trust elected to leverage low-income incentive dollars and assign the project savings to Low-Income Initiatives. The associated program delivery costs, however, remain in the C&I Custom Program. Finally, it should be noted that the program completed a very large natural gas conservation project using a RGGI-funded incentive; the results are largely captured in the C&I Custom Program unregulated fuels category, but some associated delivery costs are reflected in the natural gas category.

As highlighted above, the program saw a noticeable increase in the number of inquiries and applications from municipal water and wastewater treatment facilities in FY2019. This uptick did not correspond with a particular focused outreach initiative; the staff suspects that it had more to do with the fact that the equipment in many of these facilities is coming to the end of its useful life, much of it having been installed in the 1970s.

The program saw a decline in the number of CHP project applications in FY2019. FY2017 saw the highest number of proposals in history, thanks to dedicated outreach efforts and a promotional incentive. The momentum from these efforts carried through to FY2018 to some extent, but scaled back in FY2019.

FY2020 Plans

- Prioritize outreach to water and wastewater treatment facilities to capture efficiency opportunities in the growing number of locations replacing equipment at the end of its useful life.
- Continue emphasis on targeting natural gas customers among likely C&I Custom Program participants.
- Collaborate with the University of Maine-led CHP Technical Assistance Partnership center on CHP project outreach efforts. (In 2017, the U.S. Department of Energy selected the University of Maine

to lead one of eight regional partnerships dedicated to the promotion, technical support, and deployment of CHP TA.)

- Work to accommodate the potential for a small number of custom project proposals from larger industrial customers. In the event that a project shows potential for significant, cost-effective electricity savings but exceeds the program's $1 million incentive limit, the Trust may work with customers to bring a specific funding request to the Public Utilities Commission (PUC) to be considered for funding through a long-term capacity contract.

Commercial and Industrial Prescriptive Program

The Commercial and Industrial Prescriptive (CIP) Program offers fixed-price financial incentives for a predefined list of "off-the-shelf," widely available efficiency measures. Typical measures promoted through this program include lighting fixtures; heating and cooling systems; and sector-specific solutions, such as compressed air equipment and agricultural equipment. These measures have practical applications across the state in commercial, industrial, non-profit, government, and institutional settings.

Commercial and Industrial Prescriptive Program

Sectors Served

- Commercial and Industrial
- Small Businesses
- Multifamily (≥5 units)

Funds Invested

- Electric Efficiency Procurement
- Maine Yankee Settlement
- Natural Gas Efficiency Procurement
- Regional Greenhouse Gas Initiative
- Maine Power Reliability Program
- Forward Capacity Market

FY2019 Activities

Following are some program activity highlights for FY2019:

- Incentivized 2,373 lighting projects, 1,178 heat pumps, and 473 other heating measures.
- Continued to offer instantaneous discounts delivered through distributors (equipment supply houses) for a number of lighting products and heating systems.
- Discounted more than 190,000 LED bulbs at distributors over the year.
- Continued to engage with the Qualified Partner (QP) network and other contractors to connect customers with efficiency incentives.
- Launched the Cost-effective Lighting Investment Calculator (CLIC) tool in January 2019; this tool enables contractors to assess the cost-effectiveness of retrofitting individual lighting fixtures in a given project while on site as well as to prepare all documents to close a project (e.g., scope of work, customer acceptance, bill of materials).
- Implemented targeted outreach to customers of specific C&I sectors with particular efficiency opportunities; participated in workshops and conferences to provide information to vendors on the program.

FY2019 Results

Table 8: C&I Prescriptive Program – Electric Results

Metric	Value
Total Participants	2,024
Total Projects	2,946
Replacement Lamps	192,676
Annual kWh Savings	76,224,516
Lifetime kWh Savings	1,092,341,728
Efficiency Maine Costs	$12,235,904
Participant Costs	$23,645,571
Lifetime Energy Benefit	$85,104,155
Benefit-to-Cost Ratio	2.37

Table 9: C&I Prescriptive Program – Thermal Results

	Value	
Metric	Natural Gas	Unregulated Fuels
Total Participants	29	26
Total Projects	96	124
Annual MMBtu Savings	35,527	58,435
Lifetime MMBtu Savings	687,235	954,783
Efficiency Maine Costs	$553,955	833,313
Participant Costs	$71,289	616,667
Lifetime Energy Benefit	$2,605,426	9,246,773
Benefit-to-Cost Ratio	4.17	6.38

FY2019 Analysis

CIP motivated a significant increase in energy savings in FY2019 compared to the prior year. Those results were due in part to the introduction of the CLIC tool, which allows contractors to screen potential projects at the measure level and account for site-specific conditions (e.g., hours of use). As a result, some projects that might have been ineligible in the past (based on whole-project screening using default hours-of-use assumptions) are now cost-effective. For example, certain seasonal businesses that were previously assumed to not have sufficient operating hours could now qualify for lighting incentives if the measures and operating hours were deemed cost-effective using the CLIC tool and site-specific information.

The CIP program started to see more variable refrigerant flow technology in the marketplace, particularly in new construction and major renovation projects. CIP offered incentives for these systems in FY2019; exploring additional C&I applications in Maine's marketplace that could benefit from the technology will be a priority in FY2020.

Note that incentives for circulator pumps and small- and medium-sized central heating systems that were processed under CIP in FY2019 will be managed under Distributor Initiatives in FY2020.[13]

FY2020 Plans

- Continue to incentivize a broad range of off-the-shelf energy efficiency measures.
- Explore new applications for variable flow technologies beyond new construction and major renovation projects.
- Continue to improve sector-specific solutions for key C&I customers, including municipalities.
- Continue to collaborate with participating distributors and QPs to market available incentives and discounts.
- Continue to focus on lighting retrofits by prioritizing the proactive replacement of inefficient existing fixtures.
- Continue to engage the QP network with monthly newsletters and webinars, frequent website updates, participation in sector conferences, and ongoing distributor events (also known as "counter days").

[13] In an effort to streamline delivery and administration efforts, incentives targeted at the distributor channel will be centralized in a new program entitled "Distributor Initiatives" in the Triennial Plan IV period. Before FY2020, both CIP and the Consumer Products Program worked with distributors to discount efficient products.

Small Business Initiative

Small Business Initiative

Sectors Served

- Small Businesses

Funds Invested

- Electric Efficiency Procurement
- Federal/Other

The Small Business Initiative (SBI) delivers efficiency retrofits directly to Maine's small businesses. In FY2019, the initiative continued to focus on lighting upgrade opportunities at businesses that have a peak demand of 25 kW or less. The initiative combines local marketing, competitive product pricing, and contractor support with streamlined delivery to incentivize customers in targeted geographic areas. This approach is designed to overcome the specific barriers to energy efficiency that small businesses experience. These barriers include the lack of time and in-house expertise to analyze energy options, the relatively low priority that contractors place on assessing and marketing opportunities at very small businesses, and the perceived inconvenience of making arrangements to purchase and install upgraded equipment. This initiative reduces these obstacles by bringing information and technical support to the customer's doorstep, managing the overall project, and providing enhanced financial incentives (compared to the incentives of the Commercial and Industrial Prescriptive Program).

FY2019 Activities

Following are some program activity highlights for FY2019:

- Completed projects that were developed in FY2018 for Region 7 (Sanford/Berwick/Shapleigh) Region 8 (Gorham/Standish/Cornish) and Region 9 (Windham/Gray/New Gloucester).
- Extended the initiative to small businesses in the Ellsworth/Bar Harbor, Orono/Old Town, Gardiner and Hallowell, Newport, and Bangor/Hampden regions.
- Used utility data to identify and prioritize eligible small businesses for targeted outreach (phone calls, in-person sales calls, and business-reply postcards).
- Launched the "Small Business Cost-effective Lighting Investment Calculator" (SLIC) tool in the third quarter of FY2019 to facilitate vendor assessments of business needs as well as the paperwork to close on retrofit projects.

FY2019 Results

Table 10: Small Business Initiative – Electric Results

Metric	Value
Total Participants	233
Total Projects	528
Annual kWh Savings	3,032,934
Lifetime kWh Savings	41,422,300
Efficiency Maine Costs	$2,248,543
Participant Costs	$981,857
Lifetime Energy Benefit	$4,390,399
Benefit-to-Cost Ratio	1.36

FY2019 Analysis

The program had a significant impact in multiple rural regions and relatively small urban areas, supporting 528 small business projects. The SLIC tool allowed contractors to screen small business projects on a measure level rather than as a whole, which gave more confidence that all project elements were cost effective. The tool also gave the flexibility to specify hours of use, allowing more seasonal businesses to participate in the program. The tool is a valuable resource that helps contractors to quickly develop and close on upgrade opportunities, and that provides customers with detailed information on project costs and benefits.

Using customer data from electric utilities to target marketing and outreach strategies continued to be an important element of the program. This data allowed the program to better reach eligible businesses and to send tailored case studies and business reply cards to eligible customers to advertise the program and quickly enroll interested businesses. Outreach strategies included direct mail, phone calls, in-person sales calls, and partnering with local organizations.

The program continues to explore how best to address customer barriers to energy-efficient lighting. While the program is designed to overcome some of the barriers experienced by small businesses, the turnkey approach, enhanced incentives, and significant savings are still not enough for some business owners to move forward with cost-effective projects. The program will continue to explore ways to help more small businesses in a given area, while keeping administrative and delivery costs as low as possible.

FY2020 Plans

- Continue initiatives to emphasize coverage in rural regions (including Calais, Millinocket, and Dover-Foxcroft) and relatively small urban areas.
- Complete all open projects in the Bangor/Hampden region that were started in FY2019. There was a significant level of participation in this region as well as in the Ellsworth/Bar Harbor area.
- Prepare to add ductless mini-split heat pumps to the Small Business Program in FY2021 to help achieve the goal of installing 100,000 heat pumps in Maine by 2025.[14]
- Continue to review and refine the program's outreach strategy with an emphasis on in-person sales calls.

[14] In June 2019, the Maine Legislature enacted *LD 1766: An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives*. The new law establishes a goal of installing 100,000 new high-performance heat pumps in Maine over five years. It directs the Trust to use 100% of FCM revenue towards this initiative.

Consumer Products Program

The Consumer Products Program focuses on energy-saving measures that sell in relatively high volumes and that, on average and through typical usage, achieve predictable energy savings. The program leverages relationships with retailers and distributors of energy-efficient products to discount products on the shelf or to distribute rebate information at the point of purchase. Of all the Trust's programs, the Consumer Products Program reaches the largest number of Maine customers; it also serves all sectors of the economy.

Consumer Products Program

Sectors Served

- Commercial and Industrial
- Small Businesses
- Multifamily
- Residential
- Low-Income Households

Funds Invested

- Electric Efficiency Procurement
- Maine Power Reliability Program
- Forward Capacity Market
- Regional Greenhouse Gas Initiative

FY2019 Activities

Following are some program activity highlights for FY2019:

- Continued to provide the choice of a mail-in rebate (retail channel) or an instant rebate (distributor channel) on heat pump water heaters (HPWHs). In FY2019, 3,214 instant and 2,320 mail-in rebates were processed, which is a record number of HPWH rebates issued by Efficiency Maine in a year.
- Continued to focus marketing on customers who are replacing equipment and products that are at or near the end of their useful life. Marketing activities included targeted online advertising for emergency replacement search terms (e.g., broken water heater), education of installers and retail store personnel about high-efficiency options and rebates, and in-store information (e.g., signage).
- Discounted more than 1.2 million high-efficiency LED bulbs at retailers. The Trust's strategy focused on discounting some of the most common types of bulbs in combination with favorable product placement in stores.
- Incentivized ENERGY STAR® certified models of nearly 7,800 clothes washers, more than 1,300 room air purifiers, and more than 1,000 smart thermostats.

FY2019 Results

Table 11: Consumer Products Program – Electric Results

Metric	Value
Total Bulbs	1,229,565
Total Appliances	15,132
Annual kWh Savings	40,759,994
Lifetime kWh Savings	385,644,008
Efficiency Maine Costs	$9,555,324
Participant Costs	$5,423,323
Lifetime Energy Benefit	$33,697,616
Benefit-to-Cost Ratio	2.25

Table 12: Consumer Products Program – Thermal Results

Metric	Value Unregulated Fuels
Total Participants	706
Total Projects	706
Annual MMBtu Savings	6,781
Lifetime MMBtu Savings	67,811
Efficiency Maine Costs	$114,255
Participant Costs	$156,059
Lifetime Energy Benefit	$777,061
Benefit-to-Cost Ratio	2.87

FY2019 Analysis

HPWH rebates continued to be offered as a mail-in rebate and as an instant rebate. The instant rebate enables the program to target plumbers and water heating units purchased as emergency replacements. Throughout FY2019, the mail-in rebate and the instant rebate amounts were both $750. The Trust also worked with distributors to encourage them to price units as low as $250 after application of the instant rebate. Roughly 42% of the HPWHs incentivized by the program were mail-in rebates, and about 58% went through distributors as an instant rebate.

The Trust continued its lighting marketing model from FY2018, focusing on "off-shelf" placement and the marketing of select LED bulbs. This approach concentrated available rebate and marketing funds on a select group of the most cost-effective and common LED bulb types, ensuring that the program stretched funding as far as possible. In the fourth quarter, pricing was reduced for on-shelf bulbs to bring their prices closer to those of halogen bulbs.

FY2020 Plans

- Split the Consumer Products Program into two separate programs – Distributor Initiatives and Retail Initiatives – to better reflect the different channel targets and streamline delivery and administration efforts.

- Manage all instant rebates through distributors in Distributor Initiatives, and manage mail-in rebates through Retail Initiatives.
- Continue to offer rebates that make the price of HPWHs competitive with the baseline electric resistance water heater.
- Continue rebates on other high-efficiency appliances, including clothes washers and room air purifiers.
- Consider offering a mail-in rebate program for pellet and wood stoves through the retail channel.
- Add instant rebates at participating distributors for electronically commutated motor (ECM) circulator pumps and residential heating systems, including oil and kerosene boilers and furnaces.
- Continue to offer off-shelf marketing incentives to retailers for favorable LED product placement.
- Continue to monitor and adjust incentives to align with changes in market prices.

Home Energy Savings Program

The Home Energy Savings Program (HESP) drives market-based home weatherization and installation of efficient heating systems by offering rebates and loans, providing customer education, and developing and maintaining a vendor network. HESP encourages energy upgrades in single-family homes and multifamily homes with up to four units.

Home Energy Savings Program

Sectors Served

- Multifamily (2-4 units)
- Residential
- Low-Income Households

Funds Invested

- Electric Efficiency Procurement
- Natural Gas Efficiency Procurement
- Regional Greenhouse Gas Initiative
- Forward Capacity Market
- Federal/Other

FY2019 Activities

Following are some program activity highlights for FY2019:

- Increased rebate volume by approximately 45% compared to FY2018.
- Presented and exhibited at 15 events over the course of the fall, winter, and spring, increasing program awareness among customers and contractors.
- Expanded outreach to retailers and distributors of wood stoves, pellet stoves, boilers and furnaces.
- Improved communications with trade allies and other stakeholders through monthly newsletters and tailored surveys.
- Offered loans to all of Efficiency Maine's residential measures.[15]

FY2019 Results

Table 13: HESP – Electric Results

Metric	Value
Total Participants	6,761
Total Projects	6,761
Annual kWh Savings	17,823,444
Lifetime kWh Savings	320,821,992
Efficiency Maine Costs	$4,609,818
Participant Costs	$2,481,402
Lifetime Energy Benefit	$18,984,626
Benefit-to-Cost Ratio	2.68

[15] The Trust offered loans (including Property Assessed Clean Energy (PACE) loans, which are secured by a lien on a property, and unsecured Home Energy Loans) to help residential customers take advantage of energy efficiency opportunities. In FY2019, the Trust loaned out $5,518,494 for 761 projects with low-income and non-low-income customers, compared to 497 projects in FY2018. The increase was driven by a streamlining of the loan application process, historically high rebate volume, and an expansion of the offering to cover all residential measures.

Table 14: HESP – Thermal Results

Metric	Value	
	Natural Gas	Unregulated Fuels
Total Participants	245	4,256
Total Projects	245	4,256
Annual MMBtu Savings	9,370	93,091
Lifetime MMBtu Savings	234,253	2,218,370
Efficiency Maine Costs	$481,398	$4,598,676
Participant Costs	$408,932	$8,768,551
Lifetime Energy Benefit	$960,782	$18,696,867
Benefit-to-Cost Ratio	1.08	1.40

FY2019 Analysis

FY2019 was a record year for HESP. By making changes to measure eligibility for wood and pellet stoves, as well as boilers and furnaces, the program achieved significant increases in rebate volume. In addition, the program leveraged the experience of the Consumer Products Field Team to help promote efficient stove models at retailers and distributors throughout the state. While rebates on weatherization did not change in FY2019, the rebate increases introduced in FY2018 worked their way through the market. The higher incentives, as well as higher oil prices and other factors, helped drive a record year for insulation rebates and the best year for air sealing since FY2015.

The success of these measures led to a faster-than-expected rate of investment of Regional Greenhouse Gas Initiative (RGGI) funds. To ensure the availability of this funding for weatherization activity, the program suspended rebates using RGGI funding on wood and pellet stoves as well as propane and natural gas boilers and furnaces at the end of December. Rebates on oil and kerosene boilers and furnaces continued through the end of the year. In the spring, RGGI funds were added to the program not only to cover activity in FY2019 but also to support anticipated activity in FY2020.

No significant changes were made to the heat pump measure in FY2019, but the program saw rebate volume growth of 30% over the last fiscal year. One potential factor was the increased customer outreach surrounding heat pump user tips conducted by the Trust's staff. While the outreach was primarily focused on getting users to use their heat pump more effectively, it also led to increased earned media surrounding heat pumps. In January, the heat pump initiative received national recognition as an exemplary program by the American Council for an Energy-Efficient Economy (ACEEE).

The program ended the year with increased rebate activity across all measures. Overall, rebates were up 45% compared to FY2018.

FY2020 Plans

- Continue to revise and hone the program eligibility and incentives based on feedback from contractors and other stakeholders.

- For FY2020, move the promotion and processing of rebates for high-efficiency boilers and furnaces and wood and pellet stoves out of HESP to Distributor Initiatives and Retail Initiatives, respectively.
- Drive heat pump volume to help meet Maine's new statutory goal of installing 100,000 high-performance heat pumps over the next five years.[16]
- Explore options for online rebate processing.

[16] In June 2019, the Maine Legislature enacted *LD 1766: An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives*. The new law establishes a goal of installing 100,000 new high-performance heat pumps in Maine over five years. It directs the Trust to use 100% of FCM revenue towards this goal.

Low-Income Initiatives

The Trust delivered energy-efficiency benefits to low-income customers through a portfolio of initiatives in FY2019. These initiatives targeted energy conservation funding to eligible households through three channels:

- *Market-based initiatives*, where low-income customers receive enhanced incentives for many of the same programs the Trust offers to other residential customers;
- *Direct-mail campaigns*, where eligible customers receive an offer for free, do-it-yourself (DIY) energy-saving devices, along with a postage-paid order form; and
- *Direct installation* of conservation measures, where the Trust covers up to 100% of the cost of equipment and installation and oversees contractor support.

Low-Income Initiatives

Sectors Served

- Low-Income Households

Funds Invested

- Electric Efficiency Procurement
- Natural Gas Efficiency Procurement
- Regional Greenhouse Gas Initiative
- Maine Power Reliability Program
- Forward Capacity Market

The resulting blend of approaches is designed to overcome obstacles to accessing cost-effective energy conservation for low-income Mainers.

FY2019 Activities

Following are some program activity highlights for FY2019:

- Continued to provide enhanced incentives for residential energy audits, home weatherization, and heating systems through the Affordable Heat Initiative (AHI). For a $50 copay, participants accessed a home energy assessment and six hours of basic air sealing. The program incentivized 972 high-performance heat pumps with a rebate level of 80% of the project cost up to $2,000.
- Partnered with the Maine Department of Health and Human Services (DHHS) to reach an expanded universe of eligible participants for low-income initiatives (i.e., households that qualified to receive assistance through *any* state or federal means-tested, low-income program).
- Mailed offers for free DIY energy-saving kits (including LED bulbs, low-flow showerheads, and faucet aerators) to the expanded contact list, resulting in significant uptake. Received and fulfilled 37,501 kit requests, up from 3,610 in FY2018.
- Installed 451 heat pump water heaters (HPWHs) in low-income homes with electric resistance water heaters. Under this direct installation initiative, the program covered 100% of the project costs.
- Launched a direct installation initiative to provide heating assessments and potential weatherization and heating system upgrades, targeting low-income homeowners with significantly high electricity use (greater than 13,000 kWh per year). Established contracts with

two Community Action Agencies to audit 60 homes, referring 14 to the existing HPWH initiative and a further 17 to a pilot initiative that installs weatherization and a heat pump.

- Partnered with the City of Lewiston to identify direct-install natural gas project opportunities in low-income multifamily housing and conduct outreach to landlords. Implemented weatherization upgrades at 34 sites comprising 158 residential units.
- Leveraged AmeriCorps volunteers through a joint initiative with Maine Campus Compact. This initiative subsidizes the cost of window inserts, LEDs and low-flow devices and trains volunteers to install them.
- Continued to support the electric utilities' Arrearage Management Program (AMP),[17] providing eligible customers with information and analysis about their energy use, energy-saving tips, offers for free DIY electricity-use-reduction kits, and outreach material for the Trust's other low-income program offerings. Staff prioritized direct-install HPWH projects and other electricity-saving measures for these customers.
- Convened quarterly meetings of the Low-Income Advisory Group (a gathering of stakeholders including the Office of the Public Advocate, the Public Utilities Commission, low-income advocates, state and local housing authorities, utilities, Community Action Agencies and more) to collaborate on the Trust's offerings and coordinate with other low-income programs and resources across the state, provide status reports on implementation, and gain valuable insights on program design and implementation.
- Raised awareness about the Trust's low-income incentive offerings at various events, including the Maine Affordable Housing Conference, the MaineHousing Landlord Partner Forum, the United Way of Mid-Coast Maine Heating Conference, and a meeting of the Maine Council on Aging's Housing Options for Seniors.

FY2019 Results

Table 15: Low-Income Initiatives – Electric Results

Metric	Value
Total Participants	37,959
Total Projects	37,959
Annual kWh Savings	12,258,794
Lifetime kWh Savings	119,653,816
Efficiency Maine Costs	$2,259,734
Participant Costs	$469,750
Lifetime Energy Benefit	$10,430,104
Benefit-to-Cost Ratio	3.82

[17] A Maine law enacted in April 2014 requires each electric utility to offer AMP initiatives. The AMP legislation was intended to help reduce the number of low-income customers in arrears on their electric bills and, therefore, lower the "bad debt" burden to ratepayers that is associated with customers who fail to pay their utility bills.

Table 16: Low-Income Initiatives – Thermal Results

Metric	Value	
	Natural Gas[18]	Unregulated Fuels
Total Participants	34	1,880
Total Projects	34	1,880
Annual MMBtu Savings	14,440	39,120
Lifetime MMBtu Savings	348,885	692,316
Efficiency Maine Costs	$252,350	$2,806,558
Participant Costs	$63,404	$4,486,530
Lifetime Energy Benefit	$1,399,706	$8,966,553
Benefit-to-Cost Ratio	4.43	1.23

FY2019 Analysis

As in FY2018, enhanced incentives in AHI for high-performance heat pumps drove considerable activity. By requiring that participants pair these projects with basic home weatherization, AHI helped entice low-income customers to participate more broadly with additional energy-efficiency upgrades. The initiative was so popular that it exhausted the available budget four months into FY2019 and the Trust suspended AHI for the remainder of the fiscal year.

Collaborating with DHHS to reach low-income households that participate in any state and federal low-income programs represented a significant outreach advancement in FY2019. The Trust previously was relying on the Low-Income Home Energy Assistance Program (LIHEAP) list of 38,000 households, which is maintained by MaineHousing; there are 175,000 households on the DHHS list. The Trust gained indirect access to these additional customers in the spring of 2018, resulting in expanded participation via the direct-mail channel in FY2019. Indeed, as mentioned above, participation rose significantly from the prior year. By targeting a specific group of potential customers through direct mail, the Trust is able to keep delivery costs low and provide cost-effective energy efficiency to low-income homes.

Activity in the Trust's HPWH direct-install initiative remained steady throughout most of FY2019. Contrary to expectations, the initiative did not see increased project uptake resulting from outreach to a wider pool of potential participants from the DHHS list. The Trust therefore refocused its efforts on encouraging the group of preapproved installers to commit to work on smaller, low-income projects. When the Trust increased installation incentives late in the year, it had the desired effect; weekly installations rose from an average of 6 to 12.

The Trust continued to face a limited pool of single-family households that are eligible for natural gas measures. Therefore, as in FY2018, the Trust focused its efforts on exploring direct-install opportunities in multifamily properties. The Trust's successful collaboration with the City of Lewiston in identifying

[18] Includes the results associated with a custom project at a low-income multifamily building. Though the project was managed through the C&I Custom Program, the $29,715 incentive came out of the Low-Income Initiatives budget and associated savings are included in this table. The delivery costs associated with the project are captured in the C&I Custom Program Thermal Results.

potential sites and conducting landlord outreach has set the stage for similar partnerships in other towns and natural gas territories in the future. Staff began looking for additional opportunities in multifamily buildings that meet the following criteria: (1) the building uses utility-supplied natural gas as the primary heating fuel; (2) at least 66% of the residents participate in a federal or state low-income program; and (3) the building contains minimal insulation in the basement, walls, and/or attic. Staff will continue this effort in FY2020.

FY2020 Plans

- Coordinate with MaineHousing, design and implement program changes and expansion to help meet Maine's new statutory goal of installing 100,000 high-performance heat pumps over the next five years.[19]
- Work with DHHS to reach the expanded list of low-income households and offer energy efficiency opportunities.[20]
- Explore additional partnership opportunities to promote natural gas projects for low-income households.
- Allocate budget to the Retail Initiatives and Distributor Initiatives to capture the portion of HPWH purchases through these channels that is attributable to low-income homes.[21]

[19] In June 2019, the Maine Legislature enacted *LD 1766: An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives*. The new law establishes a goal of installing 100,000 new high-performance heat pumps in Maine over five years. It directs the Trust to use 100% of FCM revenue towards this initiative.

[20] The Trust did not have direct access to the DHHS list in FY2019. Instead, DHHS sent outreach mailings on behalf of the Trust. A recent clarification to the Efficiency Maine Trust Act (30-A MRSA §4706, sub-§2, ¶F) in June 2019 may allow for even more direct information sharing in FY2020.

[21] The Trust's 2019 survey of customers who purchased HPWHs through the retail channel indicated that 7.5% of participants were low-income. A similar survey of participants in the distributor channel is ongoing. The Trust has therefore included 7.5% low-income allocation for both the Retail Initiatives and Distributor Initiatives in the Triennial Plan IV period until new information becomes available (Per Significant Change 2, filed at the PUC 9/10/2019).

Renewable Energy Demonstration Grants

Renewable Energy Demonstration Grants

Sectors Served

- Commercial and Industrial (non-profits and municipalities only)

Funds Invested

- Energy Efficiency and Renewable Resource Fund

The Renewable Energy Demonstration Grants support the promotion, research, design, and demonstration of emerging clean-energy technologies. The initiative is funded by the Energy Efficiency and Renewable Resource Fund (EERRF), a revenue stream composed of voluntary contributions from electric ratepayers, as well as funds from electricity suppliers that elect to meet their renewable portfolio standard obligations through alternative compliance payments.[22] Past projects have included photovoltaic installations, solar hot-air systems, biomass boilers, and district heating. Projects are selected through a competitive bidding process; grant awards are provided for applications of renewable energy technologies that demonstrate uses for renewable technologies and that support community facilities.[23] Although the Trust is also authorized to offer renewable technology rebates using EERRF, funding levels in FY2019 were insufficient for an ongoing incentive program of this nature. Instead, the staff leverages limited funds for periodic projects using the grant award mechanism.

FY2019 Activities

Following are some activity highlights for FY2019:

- Reviewed five submissions in response to a request for proposals (RFP) issued in late FY2018 targeting projects that utilize cost-effective renewable energy technologies in affordable housing settings and demonstrate models for transferring investment benefits to residents.
- Awarded three grants in response to the FY2018 RFP (see Table 17).
- As required by statute, passed through 35% of the EERRF revenues received during the year to the Maine Technology Institute (MTI) to help promote businesses, whether non-profit or for-profit, engaged in research and development of renewables.

[22] See 35-A MRS §10121.

[23] The cost-effectiveness of the Renewable Energy Demonstration Grants initiative is determined using the Modified Participant Cost Test (MPCT). This approach contrasts with all other Trust programs, which determine cost-effectiveness using participant and program administrator costs.

Table 17: FY2018 RFP Awards

Awardee	Project Description	Grant Amount
Portland Housing Development Corporation *Portland, ME*	• Install 45.4 kW rooftop solar array on the Portland Housing Authority's new 58 Boyd Street development (includes 40 affordable housing units) • Leverage value of energy savings to subsidize internet service for residents	$85,622
Milbridge Harbor Apartments *Milbridge, ME*	• Install 31.9 kW rooftop solar array at a 5-unit apartment complex for residents with a history of homelessness and mental illness	$36,702
Dennysville Housing *Dennysville, ME*	• Install 44.1 kW rooftop solar array at a 17-unit apartment complex for low-income seniors • Leverage value of energy savings to subsidize internet and cable service for residents	$57,264

FY2019 Results

The Trust does not require grantees to report savings associated with projects awarded through Renewable Energy Demonstration Grants.

FY2019 Analysis

Before FY2018, the last time that the Trust issued an RFP for Renewable Energy Demonstration Grants was FY2014. From FY2015 to FY2017, the Trust determined that revenues were insufficient to conduct a meaningful solicitation for new projects. By FY2018, however, the pool of accumulated EERRF funds was substantial enough to support a robust RFP. Having committed the bulk of those funds in FY2019, the Trust will once again allow revenues to accumulate so that it may offer a larger solicitation for proposals in the future.

FY2020 Plans

Staff will continue to monitor the implementation of the FY2018 RFP awards in FY2020, disbursing grant payments and assisting the grantees as they plan associated community education and outreach activities. Given limited EERRF revenues, the Trust does not plan to conduct a new project solicitation in FY2020. As directed by statute, the Trust will continue to pass 35% of annual revenues through to MTI to help promote research and development of renewables.

Electric Vehicle Initiatives

In FY2019, the Trust began the planning and implementation for a suite of new Electric Vehicle (EV) Initiatives. These initiatives—focused on vehicle charging infrastructure and EV adoption—were funded by approximately $8.2 million from settlements of two successful lawsuits against the car manufacturer group headed by Volkswagen (VW) for violation of air pollution and consumer protection laws.

Electric Vehicle Initiatives

Sectors Served

- Commercial and Industrial
- Small Businesses
- Multifamily
- Residential
- Low-Income Households

Funds Invested

- Volkswagen Settlement Funds

The first initiative focuses on EV charging infrastructure (also referred to as EVSE). The Trust developed the charging infrastructure initiative in collaboration with the Maine Department of Transportation, the Maine Department of Environmental Protection, and the Governor's Energy Office. Electric vehicle stakeholders were convened and provided input on the plan to strategically locate and expand the publicly available EV charging infrastructure in Maine.

This effort was initially designed to have three phases to install a foundation of publicly accessible, so-called fast chargers (also called "Level 3" chargers or "DC Fast Chargers") as well as a network of Level 2 chargers in strategic locations across the state.

Also in FY2019, the Trust signed an MOU with the Office of the Attorney General whereby the Trust will manage and administer an initiative to encourage the adoption and use of EVs. This initiative, called the "EV Accelerator," will motivate the purchase of EVs by Maine residents, businesses and institutions, governmental and tribal entities through rebates and educational initiatives.

FY2019 Activities

Following are some activity highlights for FY2019:

Charging:

- Completed a Memorandum of Understanding (MOU) with the Maine Department of Transportation to establish the intended use of the funds for the EVSE Initiative to install EV charging infrastructure.
- Organized a stakeholder process to craft a plan for the implementation of charging infrastructure projects.
- Issued a Request for Proposals seeking a vendor to procure, install and operate Level 3 chargers at seven strategic locations along priority corridors in southern and eastern Maine. The locations are

Kennebunk Turnpike Plaza (Northbound and Southbound), West Gardiner Turnpike Plaza, North Windham on Route 302, Farmington at the intersection of Route 27 and Route 2, Skowhegan at the Intersection of Route 201 and Route 2, and Jackman on Route 201. The RFP specified that there be redundancy at each location by means of installing two Level 3 chargers, and also that Level 2 charging for plug-in hybrids and older model EVs be available.

- The vendor ChargePoint, Inc. was selected as the winning bidder and put under contract to the Trust to install chargers at the seven locations in southern and eastern Maine.
- Issued a Request for Proposals for Level 2 public charging stations at public locations (such as municipal lots, college campuses, general stores, and hotels), workplaces and multifamily dwellings across Maine.

Vehicles:

- Completed an MOU with the Office of the Attorney General for the State of Maine to establish a program promoting EVs with the use of certain VW settlement funds.
- Facilitated a stakeholder process to draft program guidelines for an EV rebate program.
- Conducted outreach to auto dealers and the Maine Auto Dealers' Association on the design for the new rebate program.

FY2020 Plans

- Commission and open the seven fast-charging stations in southern and eastern Maine.
- Issue a second competitive solicitation for publicly accessible fast chargers to complement the locations of the first solicitation, focusing on major routes located north and east of Augusta and around Lewiston/Auburn.
- Award funds for qualifying Level 2 public charging stations as a result of the RFP process begun in FY2019.
- Launch a rebate program for EVs with enhanced rebates for qualified low-income customers, Maine governmental entities, and tribal governments.
- Establish a section of the Efficiency Maine website dedicated to providing comprehensive public information about EVs and guidance about how to access Efficiency Maine rebates.
- Support the adoption of EVs and EV charging infrastructure through the development and dissemination of informational materials, hosting of workshops and events, and other public information and outreach opportunities.

Strategic Initiatives

Evaluation, Measurement, and Verification

The Trust's evaluation, measurement, and verification (EM&V) activities provide research and data-driven analysis to inform program design and delivery strategies, verify program results, and facilitate continuous program and organizational improvement. The Trust carries out these activities using a combination of in-house initiatives and subcontracted, independent third-party reviews performed by firms that specialize in the evaluation of energy efficiency programs.

FY2019 Activities

Following are some activity highlights for FY2019:

- *Triennial Plan Studies* - The Trust finalized the following studies to better understand the potential for cost-effective energy savings and the market channels for energy efficiency measures under Triennial Plan IV:
    a. Custom, Refrigeration and Compressed Air Potential Study
    b. State of Commercial and Industrial Lighting in Maine Study
    c. Midstream HVAC Potential Study
    d. Efficiency Maine Trust's Assessment of the Ductless Heat Pump Market
    e. Energy Independence and Security Act (EISA) Backstop: Status and Potential Program Impacts
    f. 2018 Low Income Electric Heating and Cooling Analysis
- *Triennial Plan Proceedings* - Staff prepared materials for the Trust's filings at the Maine Public Utilities Commission (PUC) related to the Triennial Plan, including scenario development and sensitivities related to cost-effectiveness and budget levels. Staff also served as counsel and expert witnesses, cross-examined other parties' witnesses, and responded to data requests.
- *Technical Reference Manual (TRM) Updates* - The Trust's TRMs document the methods and assumptions used to calculate energy and demand savings. The Trust made quarterly updates to the TRM assumptions as new information became available in order to improve the accuracy of claimed savings.
- *FCM M&V Compliance Review* - The Trust completed its annual Forward Capacity Market (FCM) Measurement and Verification (M&V) Compliance Review. The review found that EMT's methods and assumptions for calculating peak summer demand savings are estimated at 80% confidence with ±3.97% relative precision at the portfolio level, exceeding the requirement of the Independent System Operator for New England (ISO-NE). The ISO-NE standard is that the relative precision of the portfolio not exceed ±10% with 80% confidence.
- *Customer Surveys* - Trust staff conducted a series of online surveys with customers who had received heat pump water heater (HPWH) rebates or participated in the Small Business Initiative (SBI). The surveys captured customer feedback on the purchase decision while the details remained fresh in the customer's memory.
- *Program Evaluations* - The Trust supported ongoing independent evaluations of the Home Energy Savings Program (HESP) and HPWHs. Two additional case

studies were added to the HESP evaluation: the first investigated homes that appeared to have high use of ductless heat pumps, and the second looked at controls that integrate the central heating system with a heat pump. In addition, the Trust kicked off evaluations that cover Retail Lighting, Distributor Lighting, and SBI.

- *Modeling* - In FY2019, the Trust finalized the development of an enhanced model to estimate ductless heat pump performance and energy savings. The model is designed to better account for end user behavior and interaction between the central heating system and the ductless heat pump. The model incorporated the evaluated performance of heat pumps from the ongoing HESP evaluation. The model is being used to assess cost-effectiveness scenarios and help inform educational and training materials.
- *Energy Savings Calculator Development* - Trust staff helped develop an Excel-based spreadsheet tool that can calculate the cost-effectiveness of lighting projects – the Cost-effective Lighting Investment Calculator (CLIC) tool. Contractors used this tool to submit projects for the Commercial and Industrial Prescriptive Program (CIP). A similar tool named SLIC was deployed for the Small Business Initiative (SBI).
- *Studies* - The Trust kicked off a study of residential Level 2 electric vehicle charging behavior. The findings of this study will support Electric Vehicle Initiatives and the Innovation Program.

FY2020 Plans

Following are some activities planned for FY2020:

- Finalize and publish the results of the Home Energy Savings Program (HESP) evaluation and the HPWH evaluation.
- Publish periodic updates to the TRMs as new information becomes available.
- Conduct studies in support of, and in response to, new legislation including Public Law Ch. 476, which established the Maine Climate Council and requires development of a climate action plan by December 2020, and Public Law Ch. 365, which requires the Trust to prepare a report for the Legislature on barriers and opportunities to increased electrification of fossil-based heating, industrial processes, and transportation in Maine.
- Conduct studies in support of Triennial Plan IV and in preparation for Triennial Plan V.
- Roll out real-time, ongoing customer surveys on other programs.
- Conduct a study to determine statewide marginal avoided costs for transmission and distribution (T&D).

Innovation

The Trust's Innovation Program provides funding to conduct pilot projects that demonstrate new types of energy efficiency, conservation, or alternative energy measures, or new strategies for promoting such measures. The program focuses on measures that show significant potential to be cost-effective and to provide energy savings or greenhouse gas savings but are not yet well understood or established in the marketplace. The measures piloted may or may not prove to be cost-effective or popular in the Maine marketplace. Part of the purpose of the Innovation Program is to use smaller projects to generate findings about cost-effectiveness and market demand before making larger commitments of resources that a full-scale program entails.

FY2019 Activities

Following are some Innovation Program activity highlights for FY2019:

- Continued work on a building tune-up pilot at long-term care facilities.
- Completed equipment installations for a pilot exploring the savings opportunity for advanced controls in rooftop units (RTUs).
- Monitored progress on a behavioral pilot to assist low-income electricity consumers in coordination with Central Maine Power (CMP).
- Launched two pilot projects that demonstrate electric load management technologies and strategies.
- Issued a second Request for Proposals (RFP) for additional pilot projects that demonstrate electric load management technologies and strategies.

FY2019 Analysis

The Trust continued work on a building tune-up pilot in long-term care facilities in FY2019. The pilot has three primary objectives: 1) use a meter-based software platform to identify operational and controls-package savings potential at a sample of facilities; 2) implement operational and controls upgrades at facilities showing good savings opportunities; and 3) measure and verify performance using the software platform. In FY2017, the pilot recruited 15 facilities at which to perform a detailed baseline energy-use study with help from the Maine Health Care Association. Survey results and interval data analytics were used to select 10 participants for the pilot. The Trust then offered financial incentives to encourage the initial tune-up investment and the building management practices required for persistent energy savings. Two sites accepted, completing the upgrades in FY2018 and FY2019. The Trust will analyze the data in FY2020 and report on the savings results in the next annual report.

The Trust also continued work on a pilot exploring the savings opportunity for using advanced controls with packaged air conditioning and heat pump equipment located on rooftops of Maine's businesses and institutions. Much of the installed base of RTUs is constant air volume equipment. These systems lack effective controls to operate efficiently at partial-load conditions, which represent the vast majority of run-hours in commercial buildings. In FY2018, the Trust issued a Program Opportunity Notice to partner with businesses and contractors to test aftermarket controllers for RTUs. These controllers can

be retrofitted to existing RTUs to improve the operational efficiency through integrated economizing, multispeed fan control, multispeed compressor control, and demand-controlled ventilation. In FY2019, the Trust installed approximately 15 controls in various building types and monitored activity over a six-month period. The Trust plans to report on the final results of the pilot in the FY2020 Annual Report.

The Trust also continued to monitor a behavioral initiative pilot working with low-income electricity consumers. In FY2018, the Trust collaborated with CMP to issue an RFP to develop and demonstrate an innovative strategy for using CMP's Energy Manager platform. Throughout FY2019, the pilot sought to inform and encourage low-income customers to take steps to reduce their electricity use, lower their electricity bills, and reduce any arrearages on their electric bills. The pilot built on the work of the Trust and CMP performed through the Public Utilities Commission's (PUC's) Arrearage Management Program (AMP) stakeholder group, as well as the discussions regarding the low-income sector that occurred during the development of Triennial Plan III. The Trust plans to review the results of the pilot in FY2020.

Late in FY2018, the Trust issued its first RFP ("Phase 1") for pilot projects that demonstrate electric load management technologies and strategies. In its Third Triennial Plan, the Trust identified expanding the development of cost-effective distributed energy resources (DERs) in connection with the "smart grid" as a significant area of opportunity for exploration through the Innovation Program. That plan noted a rising concern about prices, and grid stability and reliability, driven by periods of peak demand. Indeed, Maine's electric utilities are making significant investments in transmission and distribution infrastructure to meet grid reliability needs. The Trust was therefore interested in exploring cost-effective ways to help Maine consumers reduce the inefficient use of the grid by managing load to favorably impact peak demand. The Trust also sought to build upon its experience with the Boothbay Non-Transmission Alternative (NTA) Pilot Project through this RFP.

The proposal review team awarded two contracts for pilot projects under the "Phase 1" RFP. The first pilot involves the operation of a fleet of 50 to 100 dispatchable residential and small commercial DERs (including high-performance heat pumps, heat pump water heaters, electric vehicle chargers, and battery storage systems). The contractor will run a series of demand response use cases using both automated controls and centralized dispatch to demonstrate the ability of DERs to respond to time-of-use pricing, real-time pricing, and discrete dispatch events. Similarly, the second pilot will deploy remote and automated dispatch signals to a small number of commercial solar-powered battery storage installations. The contractor will simulate potential revenue streams from ancillary grid services, measuring potential benefits to the customer and/or electric ratepayers. In FY2019, the Trust supported the contractors in marketing opportunities associated with the two load management pilot projects and managed participant uptake progress throughout the year. The data gathering and analysis phases of the pilots are set to occur primarily in FY2020.

In late FY20219, the Trust issued a second RFP ("Phase 2") for pilot projects that demonstrate electric load management technologies and strategies in an attempt to gain even further insights into this area. This solicitation focused on commercial and industrial facilities deploying interventions that reduce peak load with little to no impact on the facility's normal business operations (i.e., no active dispatch or

interventions on the part of the customer). The Trust will report on the awarded projects and any preliminary findings in the FY2020 Annual Report.

FY2020 Plans

- Analyze and report on results from the building tune-up pilot in long-term care facilities.
- Analyze and report on results from the advanced RTU controls pilot.
- Analyze and report on results from the low-income behavioral pilot.
- Continue to support bidders in marketing opportunities associated with the two load management pilot projects from “Phase 1” and manage participant uptake progress. Initiate data gathering and analysis stages of the pilots.
- Execute contracts and initiate data gathering for the “Phase 2” load management pilots.
- Identify ideas for new innovation pilots and issue solicitations, as appropriate.
- Meter the usage of homes where high-performance heat pumps are installed with integrated controls.

Public Information and Outreach

The Trust reaches customers through tailored marketing and outreach campaigns across its various programs. These efforts are complemented by the Trust's work to provide general energy information and education through its website, events, and other activities to help consumers consider energy conservation options as they purchase lighting, appliances, commercial and industrial equipment, home improvements, or passenger vehicles. The Trust seeks to motivate energy savings by increasing awareness of the benefits of cost-effective, customer-sited energy resources and operating practices. The Trust also provides guidance in how to access its rebates and programs. The Trust also promotes workforce development relevant to energy conservation. Additionally, as Maine's energy efficiency program administrator, the Trust is frequently called on to participate in energy-related events and to provide input on energy policy issues.

FY2019 Activities

Following are some program activity highlights for FY2019:

- Provided educational resources and information via the Efficiency Maine website (www.efficiencymaine.com); over the course of FY2019 the website averaged close to 18,000 visits per month.
- Added informational resources surrounding heat pumps to the website. The Trust's ductless heat pump informational resources received national recognition from the American Council for an Energy-Efficient Economy in *its 4th National Review of Exemplary Energy Efficiency Programs*.[24]
- Hosted Efficiency Maine's Annual Meeting, which included several continuing education workshops for trade allies on ductless heat pump installation best practices, energy efficiency in real estate sales, and new technologies in commercial lighting.
- Conducted several workshops and webinars for contractors who participate as trade allies, including workshops on ductless heat pump best practices for optimizing performance. The Trust also sponsored and helped to organize workshops with E2Tech on ductless heat pumps and electric vehicle charging.
- Addressed several regional and national meetings on ductless heat pumps and beneficial electrification.
- Participated in media interviews on energy efficiency issues, including discussions and stories on the Bangor Daily News, Energy News Network, Greentech Media, Mainebiz, MPBN, the Portland Press Herald, WABI, WCSH, WGME, and more.
- Participated as panelists before a variety of gatherings of Maine businesses and residents. Hosts for these events included Maine professional associations, the Maine Municipal Association, major Maine businesses, and numerous local energy committees.

[24] Seth Nowak, Marty Kushler, and Patti Witte, *The New Leaders of the Pack: ACEEE's Fourth National Review of Exemplary Energy Efficiency Programs*, January 2019, ACEEE, https://aceee.org/research-report/u1901 (accessed August 4, 2019).

- Convened several advisory groups to help guide Triennial Plan IV, as well as program design and implementation in FY2020. These included electric vehicle stakeholders, the Lighting Advisory Group, and the Low-Income Advisory Group.
- Leveraged digital advertising and social media platforms to advertise incentives, drive potential participants to the website, answer customer questions, and promote word-of-mouth information exchange among program participants and vendors.
- Answered customer inquiries related to the Trust's programs through the Trust's call center staffed by customer service agents. The call center receives more than 1,500 calls, 3,800 letters, and 800 emails a month. A portion of the inbound calls involve the verification and enrollment of low-income Mainers in income-eligible programs. In addition to handling these inbound inquiries, the call center conducted outbound calls and surveys in support of evaluation, measurement, and verification (EM&V) activities. Note that the budget for call center services is included with other Administrative costs.

FY2020 Plans

- Continue to develop and provide educational resources on key technologies and their use, including high-performance heat pumps. This may include information kits for new heat pump owners and continuing education resources for heat pump installers.
- Continue to enhance the functionality and ease-of-use of the Efficiency Maine website.
- Continue to answer customer inquiries via phone and email through the call center.
- Provide resources for Mainers interested in learning about electric vehicles and related charging infrastructure.
- Develop additional resources on reducing energy costs and no- and low-cost strategies for reducing energy use.
- Participate in symposiums, conferences, and industry meetings to share program information with efficiency professionals and potential customers.
- Provide industry training for the growing trade ally community to accelerate the adoption of energy efficiency technologies.

Finance and Administration

Audit Results

The independent certified public accountant firm of Runyon, Kersteen, Ouellette, Inc., issued an audit report on the Trust's activities for the year ended June 30, 2019. The report covered the Trust's internal control over financial reporting and compliance with government accounting standards and financial statements. The report was unanimously accepted by the Board of Trustees on October 30, 2019.

The report of the audit of the Trust's financial statements delivered an "unmodified opinion" and found it "free from material misstatement" related to the Trust's internal controls. The auditors wrote:

> In our opinion, the financial statements … present fairly, in all material respects, the respective financial position of the governmental activities, the major fund, and the remaining fund information of Efficiency Maine Trust, as of June 30, 2019, and the respective changes in financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.[25]

As reported in the audit, the Trust's FY2019 revenues and expenditures are $61,883,832 and $48,355,587, respectively, plus another $2,886,490 sent to state agencies, resulting in an increase to fund balance of $10,641,755. The Trust's governmental fund balance as of June 30, 2019, was $58,697,322, of which $37,621,300 is restricted for operations and programs and $21,076,022 is restricted for grant and revolving loan fund activity.

The Trust's revenues and expenditures for the 12 months of FY2019 are summarized in Table 18.[26]

[25] Efficiency Maine Trust, "Annual Financial Report for the Year Ended June 30, 2019," prepared by Runyon, Kersteen, Ouellette, Inc., October 30, 2019, at 2.
[26] Ibid., Statement 4, at 16.

Table 9: Statement of Revenues and Expenditures – Governmental Fund

	Special Revenue Fund
Revenues	
Intergovernmental:	
System Benefit Charges	$ 179,153
Alternative Compliance Mechanism	$ 2,167
Interest income:	
Investments	$ 303,506
Loans	$ 704,693
Other Income	$ 4,113
Change in loan allowance	$ 1,000
Electric Procurement	$ 23,877,511
Renewable Resource	$ 85,612
Maine Power Reliability Program settlement proceeds	$ 1,500,003
VW electric vehicle settlement proceeds	$ 1,000,000
VW attorney general settlement proceeds	$ 5,162,282
Forward Capacity Market credits	$ 18,915,870
Regional Greenhouse Gas Initiative proceeds	$ 10,147,922
Total revenues	**$ 61,883,832**
Expenditures	
Low Income Initiatives	$ 5,255,539
Consumer Products	$ 9,669,280
Home Energy Savings Program	$ 10,187,947
Commercial and Industrial Prescriptive Program	$ 13,224,234
Commercial and Industrial Custom Program	$ 3,393,401
Commercial Small Business	$ 2,241,991
Commercial New Construction	$ 382,043
Electric vehicle charging stations	$ 11,625
Electric vehicle rebates	$ 431
Renewables	$ 98,955
Administration and Strategic Initiatives	$ 3,890,141
Total Expenditures	**$ 48,355,587**
Excess of Revenues over Expenditures	$ 13,528,245
Other Financing Uses:	
Intra-entity grants - state agencies	$ -2,886,490
Fund balance, end of year	**$ 58,697,322**

Administration

In FY2019, Governor Mills appointed four new members to the Trust's Board of Trustees for three-year terms: James Boyle, owner of Boyle Associates Environmental Consultants; Suzanne MacDonald, Chief Community Development Officer at the Island Institute; Glenn Poole, former Energy Manager at Verso Corporation; and Joan Welsh, former member of the Maine House of Representatives. Cycling off of the Board were: Brent Boyles, former CEO of Maine Public Service; Herbert Crosby, Professor Emeritus of Mechanical Engineering Technology at the University of Maine in Orono; David Barber, Senior Consultant and former President of Barber Foods; and Donald Lewis, retired CTO and Founder of Nyle Systems. Dan Burgess, the new Director of the Governor's Energy Office replaced Angela Monroe during FY2019. Dan Brennan, Director of MaineHousing remained on the Board in an ex officio seat. Following are other Board members in the middle of their terms that remained on the Board through FY2019 into FY2020: Al Hodsdon [owner of A.E. Hodsdon Engineers]; Ken Fletcher [former GEO Director] and David Stapp [Chief Executive Officer (CEO)/Chief Technology Officer (CTO) of Peregrine Turbine Technologies].

The Board of Trustees approved several changes to the Trust's Personnel Policy in FY2019 including the definition of part-time employees and their benefits, notice requirements for employees called to jury duty and court appearances, and the addition of longevity and parental leave.

Other Initiatives

In FY2019, the Trust engaged in various state, regional, and national forums and initiatives in addition to administering the programs and strategic initiatives reported elsewhere in this report. A brief description of these forums and initiatives follows.

State Energy Initiatives

Within Maine, the Trust monitors and participates in various forums and initiatives with an eye to maximizing the installation and use of measures that deliver cost-effective energy conservation or greenhouse gas reductions, consistent with the purposes given to the Trust in the Efficiency Maine Trust Act.

Legislature

In FY2019, the Trust participated in public hearings and work sessions of the Maine Legislature to fulfill its duty as "a champion for funding cost-effective energy and energy efficiency programs."[27] The Trust staff provided information, analysis, and testimony on matters directly relating to the Trust and the Trust's programs. Legislative discussions touching on issues of energy conservation, customer-sited alternative energy systems, or reducing greenhouse gas emissions were of interest to the Trust. A sampling of the bills that the Trust monitored or participated in discussing includes:

- LD 398 – An Act To Allow for Greater Flexibility in Addressing Energy Efficiency Needs in the State;
- LD 614 – An Act To Increase Electric Vehicles in Maine;
- LD 912 -- An Act To Establish the Wood Energy Investment Program
- LD 1181 – An Act To Reduce Electricity Costs through Nonwires Alternatives;
- LD 1282 – An Act To Establish a Green New Deal for Maine;
- LD 1464 – An Act To Support Electrification of Certain Technologies for the Benefit of Maine Consumers, Utility Systems and the Environment;
- LD 1614 – Resolve, Establishing the Commission To Study the Economic, Environmental and Energy Benefits of Energy Storage to the Maine Electricity Industry;
- LD 1679 – An Act To Establish the Maine Climate Change Council To Assist Maine To Mitigate, Prepare for and Adapt to Climate Change;
- LD 1757 – An Act To Clarify Certain Standards for the Efficiency Maine Trust's Triennial Plan; and
- LD 1766 – An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives.

[27] 35-A MRS §10104(2)(B).

Governor's Energy Office

The Trust also worked collaboratively with the Governor's Energy Office (GEO) in GEO's development of a comprehensive state energy plan pursuant to 2 MRS §3 (see also §5). In FY2019, the Trust also provided GEO with results from the Trust programs for reporting to the U.S. Department of Energy (DOE), the American Council for an Energy-Efficient Economy (ACEEE), and other national and regional information systems.

MaineHousing

The Trust also conferred with the Maine State Housing Authority (MaineHousing) on developing updates to MaineHousing's annual plan for the DOE Weatherization Assistance Program (WAP) and the LIHEAP Weatherization and Central Heating Improvement Program (CHIP) initiatives. As it does every year, in FY2019 MaineHousing briefed the Trust's Board, at a public meeting, on the elements of the coming year's weatherization plans. The Trust had the opportunity to ask questions and provide input regarding lessons learned, best practices, and opportunities to ensure that similar initiatives are complementary and not duplicative.

The Trust's authorizing statute requires that it include in the Annual Report:

> Total funds received and expended by the State on energy efficiency and weatherization pursuant to the Weatherization Assistance for Low-income Persons Program of the United States Department of Energy and the Low-income Home Energy Assistance Program of the United States Department of Health and Human Services.[28]

The budgets and expenses of these initiatives are summarized in Table 19, which was prepared by MaineHousing.

[28] 35-A MRS §10104(5)(B)(4).

Table 19: MaineHousing Weatherization Initiatives

	GRANT YEAR/PERIOD		PRODUCTION BUDGET	PRODUCTION EXPENSES	UNITS	COMMENTS
HEAP WEATHERIZATION						
Weatherization efforts to maximize energy savings and reduce fuel burden; maximum health/safety per unit of $1,200 and minimal incidental repairs (20% of weatherization costs) to make installation of weatherization materials effective; funds allocated to Community Action Agencies (CAAs), then paid directly to contractor for services; per unit average max of $7,212.	2016	10-01-15/ 03-31-19	$5,347,134	$4,938,201	564 Completed	Production closed
	2017	10-01-16/ 03-31-21	$4,781,062	$3,861,675	372 Completed 497 Projected	Production in process Contract extended to 03/31/2021
	2018	10-01-17/ 03-31-21	$4,845,370	$1,117,592	81 Completed 524 Projected	Production in process Contract extended to 03/31/2021
	2019	10-01-18/ 03-31-21	$2,000,000			Funding not yet finalized; production has not begun
	2020	10-01-19/ 03-31-22	TBD	TBD	TBD	Funding not yet announced
HEAP CENTRAL HEATING IMPROVEMENT						
The Central Heating Improvement Program is designed to repair or replace non-working or ineffective, permanently installed home heating systems to increase efficiency and reduce household fuel burden; per unit average of $5,000.	2016	10-01-15/ 03-31-19	$4,346,744	$4,256,143	1,805 Completed	Production closed
	2017	10-01-16/ 03-31-20	$5,184,582	$5,129,184	1,818 Completed 1,825 Projected	Production in process Contract extended to 03/31/2020
	2018	10-01-17/ 03-31-21	$4,035,627	$2,398,583	662 Completed 1,280 Projected	Production in process Contract extended to 03/31/2021
	2019	10-01-18/ 03-31-21	$2,000,000		TBD	Funding not yet finalized; production has not begun
	2020	10-01-19/ 09-30-22	TBD	TBD	TBD	Funding not yet announced
DEPARTMENT OF ENERGY WEATHERIZATION (DOE/WX)						
Weatherization efforts to maximize energy savings and reduce fuel burden; minimal health/safety per unit of $1,200 and minimal incidental repairs (15% of weatherization costs) to make installation of weatherization materials effective; funds allocated to CAAs and then paid directly to contractor for services; per unit average max $7,261.	2017	04-01-17/ 03-31-18	$2,569,751	$1,975,299	2017 Completed	Production Closed Contract period ended 3/31/2018
	2018	04-01-18/ 03-31-19	$1,590,844	$55,683	2018 Projected	Production in Process Contract period ends 3/31/2019

prepared by gls/MH 08-28-2019

Public Utilities Commission

The Trust staff was also very active in proceedings at the Maine Public Utilities Commission (PUC) in FY2019. The Trust staff filed and presented all necessary testimony, evidence, comments, briefs, and exceptions related to the development, review, and approval of the Trust's Triennial Plan IV, Annual Updates (to Triennial Plan III), and related dockets. A selection of the key dockets that were active in FY2019 included:

- Docket No. 2018-00321 – Request for Approval of Fourth Triennial Plan for Fiscal Years 2020-2022 Pertaining to Efficiency Maine Trust
- Docket No. 2015-00175 – Request for Approval of Third Triennial Plan Pertaining to Efficiency Maine Trust (including the FY2019 Annual Update filing);
- Docket No. 2018-00117 – Consideration of Technical Resource Manuals (TRMs) and the Process for Establishing Avoided Costs Pertaining to Efficiency Maine Trust;
- Docket No. 2015-00015 – Implementation of an Arrearage Management Program; and
- Docket No. 2018-00140 –Solicitation for Applications for Disbursement of 2018 RGGI Funds.

In addition to the Triennial Plan dockets, the Trust staff also engaged in other proceedings at the PUC that have a direct or indirect impact on the Trust's programs. For example, the Trust was an active party in dockets involving "non-wires alternatives" (also called non-transmission alternatives, or NTAs). Cases at the PUC on this topic included:

- Docket No. 2011-00138 – Request for Approval of Non-Transmission Alternative (NTA) Pilot Projects for the Mid-Coast and Portland Areas Pertaining to Central Maine Power Company; and
- Docket No. 2018-00171 – Commission Initiated Investigation into Rate-Setting Mechanisms Regarding Non-Wire Alternatives.

Department of Environmental Protection

In FY2019, the Trust worked with the Maine Department of Environmental Protection (DEP) where there was an intersection of environmental objectives and the kinds of programming and conservation measures or "clean tech" promoted by the Trust. DEP is Maine's administrative liaison to RGGI Inc., the non-profit entity that manages the Regional Greenhouse Gas Initiative (RGGI). In FY2019, the Trust and DEP, together with the PUC, continued their practice of preparing an annual report for the Legislature on the activities and results of RGGI in Maine.

Workforce Development

In FY2019, the Trust monitored workforce capacity and skillsets as part of its planning and implementation of conservation programs. During FY2019, the Trust sponsored trainings for heat pump installers and certification classes for facility managers, hosted webinars for contractors to learn about the latest technology developments, and facilitated continuing education credits for realtors or other trade professionals on issues related to energy conservation.

Regional and National Initiatives

The Efficiency Maine Trust Act provides that: "The trust shall monitor conservation planning and program development activities in the region and around the country…" and also that "The trust may coordinate its efforts under this section with similar efforts in other states in the northeast region…"[29]

Independent System Operator for New England

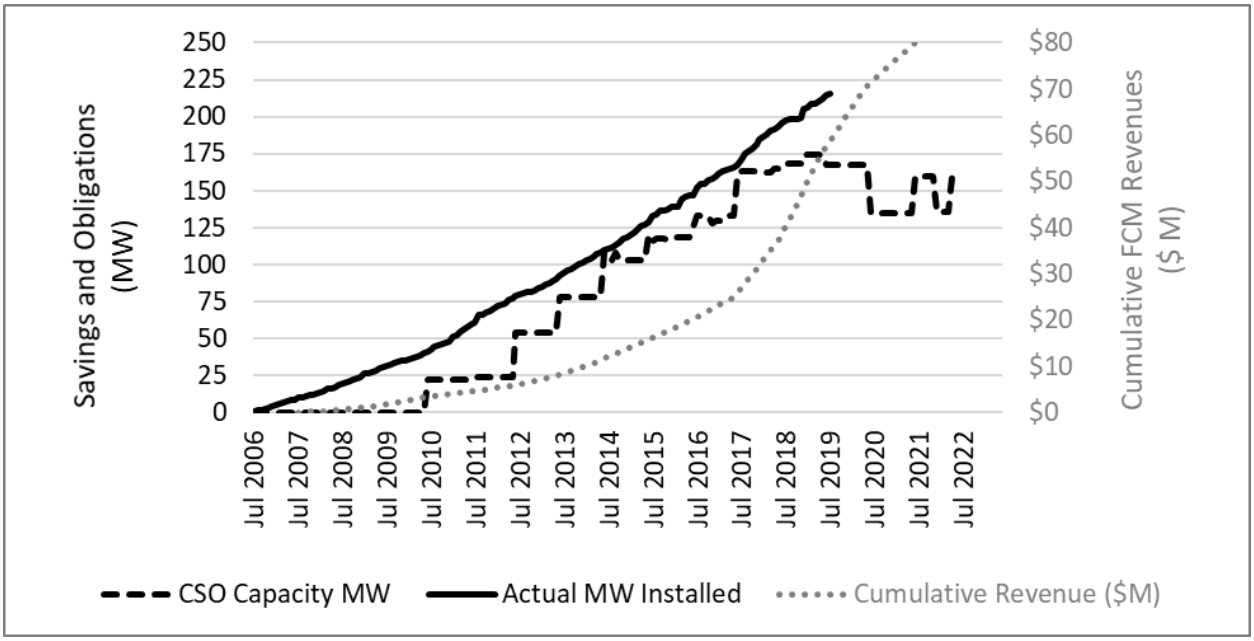
The Independent System Operator for New England (ISO-NE) operates markets that serve New England's electricity customers. Among these is the Forward Capacity Market (FCM) into which electricity generators, efficiency program administrators, and others may bid to supply qualifying "capacity" to serve the New England grid. The Trust is a participant in this market, aggregating the summer-peak electricity savings from the many conservation measures supported through its programs and bidding those savings resources into the FCM auction.

As in prior years, in FY2019 the Trust's participation in the FCM entailed collecting and providing data, making forecasts of future capacity savings, delivering certification of measurement and verification protocols, providing financial assurance, and reporting to ISO-NE as required in the FCM rules. The Trust also occasionally participated in planning and policymaking discussions at ISO.

In FY2019, the Trust participated in the 13th Forward Capacity Auction (FCA). In the auction, the Trust took on an obligation to supply 50.6 MW of summer peak demand savings, for which it will be paid a price of $3.80 per kW per month. The Trust also prepared for the 14th FCA, which will be held in February 2020. By the end of 2019, the Trust delivered a total of 210 MW of summer peak demand savings. Figure 1 summarizes the Trust's delivered savings and future obligations.

[29] 35-A MRS §10110(2)(D) and (I).

Figure 1: Summary of the Trust's FCA Actions



CSO = Capacity Supply Obligation.

Regional Greenhouse Gas Initiative

Each year, the Trust contributes to the RGGI Annual Report. The report is collaboratively prepared by DEP, the PUC, and the Trust. The report is submitted to two legislative committees: the Joint Standing Committee on Environment and Natural Resources and the Joint Standing Committee on Energy, Utilities and Technology.

In the most recent RGGI Annual Report, the Trust described how it invested $9.55 million of RGGI funds in FY2018. The RGGI funds expended in that year are projected to result in annual savings of 2,149,071 kWh, 170,131 MMBtu, and 14,801 tons of carbon dioxide. The report is available on the DEP website.

Other Related Initiatives

The Trust also engaged in occasional initiatives and forums to discuss policies or advance programs relevant to the Trust's purpose and activities. For example, the Northeast Energy Efficiency Partnerships (NEEP) recently launched a residential energy labeling initiative. Among other deliverables, this initiative prepared an action plan that presents steps jurisdictions might take to implement successful home energy labeling programs and policies by addressing the challenges and providing a pathway forward to overcome barriers. In FY2019 the Trust provided data and analysis to the plan's authors. The Trust also participated in NEEP's Air Source Heat Pump and Smart Controls Initiative in FY2019, sharing insights from its experience administering nationally recognized heat pump programs.

Legislative Recommendations

The Trust's authorizing statute provides that the Annual Report should include "[a]ny recommendations for changes to the laws relating to energy conservation."[30] The Trust does not have any such recommendations at this time.

[30] Title 35-A, Maine Revised Statutes, §10104(4).

Appendices

Appendix A: Total Energy Savings and Lifetime Energy Benefit

Tables A-1 and A-2 illustrate the total energy savings[31] and lifetime energy benefit associated with each of the programs administered by the Trust in FY2019. Each table also shows the summary of the Trust's costs. These figures include the financial incentives given to customers ("participants") and the participants' cost-share to install energy upgrades. The costs also include the Trust's efforts to manage the programs; provide public information and outreach; hold training sessions and provide technical support; and conduct quality control, measurement and verification, and evaluation of each program. The benefit-to-cost ratio indicates the ratio of the financial benefits (from the lifetime avoided energy costs) to the combined costs of the Trust and the participants.

Table A-1: FY2018 Program Impacts – Electric Programs

Program	Annual kWh Savings	Lifetime kWh Savings	Efficiency Maine Costs	Participant Cost	Lifetime Energy Benefit	Cost/kWh (Lifetime)	Benefit-to-Cost Ratio
Commercial and Industrial Custom Program – Electric	5,351,447	77,318,732	$1,931,089	$1,340,180	$5,189,045	$0.042	1.59
Commercial and Industrial Prescriptive Program – Electric	76,224,516	1,092,341,728	$12,235,904	$23,645,571	$85,104,155	$0.033	2.37
Small Business Initiative	3,032,934	41,422,300	$2,248,543	$981,857	$4,390,399	$0.078	1.36
Consumer Products Program – Electric	40,759,994	385,644,008	$9,555,324	$5,423,323	$33,697,616	$0.039	2.25
Home Energy Savings Program – Electric	17,823,444	320,821,992	$4,609,818	$2,481,402	$18,984,626	$0.022	2.68
Low-Income Initiatives – Electric	12,258,794	119,653,816	$2,259,734	$469,750	$10,430,104	$0.023	3.82
Electric Vehicle Initiatives			$12,055				
Strategic Initiatives – Electric			$905,703				
Administration – Electric			$2,302,825				
Total	**155,451,130**	**2,037,202,576**	**$36,060,996**	**$34,342,083**	**$157,795,944**	**$0.035**	**2.24**

[31] Savings values reported in the program summary tables are "adjusted gross savings" unless otherwise indicated. Adjusted gross savings reflect the change in energy consumption and/or demand that results directly from program-related actions taken by participants in an Efficiency Maine program, regardless of why they participated, adjusted by factors developed through program evaluations. Periodically, the Trust enlists independent third-party contractors to evaluate the savings impacts of major programs. The evaluations help the Trust develop factors to improve the accuracy of gross savings calculations based on installation rates and actual, site-verified savings rates. The evaluations are also used to analyze program attribution, including identifying program participants who would have installed the same or equivalent efficiency measures on their own even if the program had not been offered ("free-ridership" [FR]) and the percentage of efficient equipment installed due to program influences even though no incentive or technical assistance was received ("spillover" [SO]). Factoring in free-ridership and spillover delivers "net savings," which quantifies the savings directly (adjusted gross minus FR) and indirectly (SO) attributable to the program. The Trust publishes the FR and SO factors in the Technical Reference Manuals (TRMs). The lifetime energy benefit is calculated using methodologies and assumptions approved by the PUC as part of the approval process for the Trust's Triennial Plan III. The specific assumptions used to estimate avoided electric energy and capacity costs, and avoided natural gas costs, are consistent with the settled agreement to reflect adjustments made in the Commission's Staff Bench Analysis - High Case (see Commission Staff, Bench Analysis, Docket 2015-00175, February 24, 2016, pp. 15–16), which references forecasts performed for the Commission by London Economics International in June 2015.

Table A-2: FY2018 Program Impacts – Thermal Programs

Program	Annual MMBtu Savings	Lifetime MMBtu Savings	Efficiency Maine Costs	Participant Cost	Lifetime Energy Benefit	Cost/ MMBtu (Lifetime)	Benefit-to-Cost Ratio
Commercial and Industrial Custom Program – Natural Gas	341	3,410	$55,868	$13,085	$17,186	$20.22	0.25[32]
Commercial and Industrial Custom Program – Unregulated Fuels	94,185	1,780,153	$1,412,726	$2,306,026	$9,354,773	$2.09	2.52
Commercial and Industrial Prescriptive Program – Natural Gas	35,527	687,235	$553,955	$71,289	$2,605,426	$0.91	4.17
Commercial and Industrial Prescriptive Program – Unregulated Fuels	58,435	954,783	$833,313	$616,667	$9,246,773	$1.52	6.38
Consumer Products Program – Unregulated Fuels	6,781	67,811	$114,255	$156,059	$777,061	3,99	2.87
Home Energy Savings Program – Natural Gas	9,370	234,253	$481,398	$408,932	$960,782	$3.80	1.08
Home Energy Savings Program – Unregulated Fuels	93,091	2,218,370	$4,598,676	$8,768551	$18,696,867	$6.03	1.40
Low-Income Initiatives – Natural Gas	14,440	348,885	$252,350	$63,404	$1,399,706	$0.91	4.43
Low-Income Initiatives – Unregulated Fuels	39,120	692,316	$2,806,558	$4,486,530	$8,966,553	$10.53	1.23
Renewable Energy Demonstration Grants Program			$98,955				
Strategic Initiatives – Thermal			$81,722				
Administration – Thermal			$599,890				
Total	**351,290**	**6,987,215**	**$11,889,666**	**$16,890,542**	**$52,025,126**	**$4.12**	**1.81**

Two different cost tests are used to assess a program's cost-effectiveness, one from the perspective of all utility customers (participants and non-participants) (the Total Resource Cost [TRC] test) and one from the perspective of the program administrator (utility, government agency, or third-party implementer) (the Program Administrator Cost Test [PACT]). The criteria for the two cost tests are as follows[33]:

- *TRC test:* The TRC test compares combined program administrator and customer costs to utility resource savings. The TRC test measures the benefits of the energy efficiency program for the region. Costs included in the TRC test are those used to purchase and install energy efficiency measures, including the costs incurred by program participants and the costs of running the energy efficiency program. The benefits included are the avoided costs of energy, demand, and water.
- *PACT:* The PACT compares program administrator costs to supply-side resource savings. A positive PACT (>1) indicates that an energy efficiency program is a lower-cost approach to meeting load growth than a wholesale energy purchase and new generation resources (including delivery and system costs). The PACT includes only costs incurred by the program administrator and not customer contributions.

[32] The Commercial and Industrial (C&I) Custom Program – Natural Gas benefit-to-cost ratio is low due to a number of factors, including cross-program attribution and the disconnect between the timing of project delivery spending and incentive payment. For more detail, see the C&I Custom Program FY2019 Analysis section.

[33] TRC and PACT are defined in accordance with "Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers, A Resource of The National Action Plan for Energy Efficiency," November 2008, https://www.epa.gov/sites/production/files/ 2015-08/documents/cost-effectiveness.pdf, as updated and modified by the CA PUC, "Energy Efficiency Policy Manual V 3.1" in a Memorandum filed Dec. 20, 2007, at Attachment 1.

Table A-3: Benefit-to-Cost Ratios – Electric Programs

Program	Adjusted Gross Benefit-to-Cost Ratio		Last Evaluation	Net-to-Gross Ratio	Net Benefit-to-Cost Ratio	
	TRC	PACT			TRC	PACT
Commercial and Industrial Custom Program – Electric	1.59	2.69	2017	93%	1.51	2.49
Commercial and Industrial Prescriptive Program – Electric	2.37	6.96	2017	73%	2.07	5.11
Small Business Initiative	1.00	1.95	Note 2	93%	0.96	1.81
Consumer Products Program	2.25	3.53	2020	73%	3.90	5.26
Home Energy Savings Program – Electric	2.68	4.12	2019	69%	2.08	2.86
Low-Income Initiatives – Electric	3.82	4.62	2020	100%	3.82	4.61
Total	2.24	4.38		76%	2.24	4.38

Table A-4: Benefit-to-Cost Ratios – Thermal Programs

Program	Adjusted Gross Benefit-to-Cost Ratio		Last Evaluation	Net-to-Gross Ratio	Net Benefit-to-Cost Ratio	
	TRC	PACT			TRC	PACT
Commercial and Industrial Custom Program – Natural Gas[34]	0.25	0.31	Note 3	93%	0.23	0.28
Commercial and Industrial Custom Program – Unregulated Fuels	2.52	6.62	2017	84%	2.32	5.54
Commercial and Industrial Prescriptive Program – Natural Gas	4.17	4.70	2017	69%	3.03	3.24
Commercial and Industrial Prescriptive Program – Unregulated Fuels	6.38	11.10	2017	64%	4.41	7.10
Consumer Products Program – Unregulated Fuels	2.87	6.80	Note 1	75%	2.52	5.10
Low-Income Initiatives – Natural Gas	4.43	5.55	2014, Note 3	N/A	4.45	5.52
Low-Income Initiatives – Unregulated Fuels	1.23	3.19	Note 3	100%	1.23	3.19
Home Energy Savings Program – Natural Gas	1.08	2.00	2019	75%	0.91	1.50
Home Energy Savings Program – Unregulated Fuels	1.40	4.07	2019	74%	1.25	3.05
Total	**1.81**	**4.38**		**79%**	**1.59**	**3.47**

Note 1 New program, not yet evaluated. Program evaluation currently being planned.
Note 2 Currently being evaluated.
Note 3 Evaluation not scheduled.
Note 4 Evaluation to begin in FY2020.

[34] The Commercial and Industrial (C&I) Custom Program – Natural Gas benefit-to-cost ratio is low due to a number of factors, including cross-program attribution and the disconnect between the timing of project delivery spending and incentive payment. For more detail, see the C&I Custom Program FY2019 Analysis section.

Appendix B: Program Expenditures

Table B-1: Electric Program Expenditures

Program	Incentive	Delivery	Total
Commercial and Industrial Custom Program – Electric	$1,168,895	$762,194	$1,931,089
Commercial and Industrial Prescriptive Program – Electric	$11,304,659	$931,245	$12,235,904
Small Business Initiative	$1,873,698	$374,845	$2,248,543
Consumer Products Program	$6,331,703	$3,223,622	$9,555,324
Home Energy Savings Program – Electric	$4,018,250	$591,568	$4,609,818
Low-Income Initiatives – Electric	$1,580,164	$679,570	$2,259,734
Electric Vehicle Initiative	$0	$12,055	$12,055
Strategic Initiatives – Electric	$0	$905,703	$905,703
Administration – Electric	$0	$2,302,825	$2,302,825
Total	**$26,277,369**	**$9,783,628**	**$36,060,996**

Table B-2: Thermal Program Expenditures

Program	Incentive	Delivery	Total
Commercial and Industrial Custom Program – Natural Gas	$8,674	$47,194	$55,868
Commercial and Industrial Custom Program – Unregulated Fuels	$1,179,798	$232,928	$1,412,726
Commercial and Industrial Prescriptive Program – Natural Gas	$457,151	$96,804	$553,955
Commercial and Industrial Prescriptive Program – Unregulated Fuels	$707,505	$125,808	$833,313
Consumer Products Program – Unregulated Fuels	$103,150	$11,106	$114,255
Low-Income Initiatives – Natural Gas	$212,451	$39,899	$252,350
Low-Income Initiatives – Unregulated Fuels	$2,514,466	$292,092	$2,806,558
Home Energy Savings Program – Natural Gas	$422,164	$59,234	$481,398
Home Energy Savings Program – Unregulated Fuels	$3,905,632	$693,044	$4,598,676
Renewable Energy Demonstration Grants Program	$0	$98,955	$98,955
Strategic Initiatives – Thermal	$0	$81,722	$81,722
Administration – Thermal	$0	$599,890	$599,890
Total	**$9,510,991**	**$2,378,676**	**$11,889,666**

Appendix C: Amended Budget

Table C-1: Efficiency Maine Trust FY2020 Amended Budget as filed with the Maine Public Utilities Commission 9/10/2019

	EMT ADMIN FUND	REGIONAL GREENHOUSE GAS INITIATIVE	ELECTRIC EFFICIENCY PROCUREMENT	MAINE POWER RELIABILITY PROGRAM SETTLEMENT	FORWARD CAPACITY MARKET	NATURAL GAS EFFICIENCY PROCUREMENT	ENERGY EFFICIENCY & RENEWABLE RESOURCE FUND	VW SETTLEMENT FUNDS	REVOLVING LOAN FUNDS	FY 2020 TOTAL BUDGET
TOTAL REVENUES AND USE OF FUND BALANCE	**3,393,500**	**14,221,494**	**34,280,434**	**2,631,894**	**24,762,152**	**1,261,334**	**50,000**	**7,968,488**	**701,500**	**89,270,797**
C&I CUSTOM PROGRAM	**-**	**3,268,905**	**1,937,443**	**1,350,755**	**6,031,263**	**854,793**	**-**	**-**	**-**	**13,443,158**
C&I PRESCRIPTIVE PROGRAM	**-**	**935,943**	**9,472,911**	**218,215**	**6,052,932**	**175,280**	**-**	**-**	**-**	**16,855,280**
SMALL BUSINESS INITIATIVE	**-**	**-**	**2,671,267**	**45,920**	**725,000**	**-**	**-**	**-**	**1,000**	**3,443,187**
Commercial Small Business	-	-	2,671,267	45,920	725,000	-	-	-	-	3,442,187
Commercial Loan Support	-	-	-	-	-	-	-	-	1,000	1,000
DISTRIBUTOR INITIATIVES	**-**	**1,257,916**	**3,277,833**	**133,000**	**2,446,000**	**122,448**	**-**	**-**	**-**	**7,237,197**
CONSUMER PRODUCTS	**-**	**820,027**	**4,810,305**	**185,093**	**3,653,524**	**8,916**	**-**	**-**	**-**	**9,477,866**
HOME ENERGY SAVINGS PROGRAM	**-**	**4,375,224**	**3,679,011**	**72,000**	**1,648,387**	**18,851**	**-**	**-**	**602,500**	**10,395,973**
Home Energy Savings Program	-	4,375,224	3,679,011	72,000	1,648,387	18,851	-	-	-	9,793,473
Revolving Loan Support	-	-	-	-	-	-	-	-	352,500	352,500
Loan Loss Reserve	-	-	-	-	-	-	-	-	250,000	250,000
LOW-INCOME INITIATIVES	**-**	**856,609**	**5,299,116**	**300,000**	**1,635,000**	**35,123**	**-**	**-**	**-**	**8,125,848**
RENEWABLES	**-**	**-**	**-**	**-**	**-**	**-**	**32,500**	**-**	**-**	**32,500**
ELECTRIC VEHICLE SUPPLY EQUIPMENT	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3,050,000**	**-**	**3,050,000**
ELECTRIC VEHICLE ACCELERATOR PROGRAM	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**4,700,000**	**-**	**4,700,000**
INNOVATION	**-**	**145,310**	**441,761**	**53,000**	**538,864**	**2,000**	**-**	**-**	**-**	**1,180,935**
PUBLIC INFORMATION	**-**	**60,440**	**121,132**	**11,400**	**104,233**	**4,624**	**-**	**57,479**	**-**	**359,309**
EM&V	**-**	**428,620**	**696,657**	**143,510**	**828,949**	**10,300**	**-**	**-**	**-**	**2,108,036**
ADMINISTRATION	**3,363,500**	**798,500**	**1,639,000**	**105,000**	**973,000**	**23,000**	**-**	**161,009**	**76,146**	**7,139,155**
INTER-AGENCY TRANSFERS	**30,000**	**1,274,000**	**234,000**	**14,000**	**125,000**	**6,000**	**17,500**	**-**	**-**	**1,700,500**
Public Utilities Commission	-	99,000	234,000	14,000	125,000	6,000	-	-	-	478,000
RGGI Rate Relief	-	1,000,000	-	-	-	-	-	-	-	1,000,000
RGGI Inc Operating Costs	-	85,000	-	-	-	-	-	-	-	85,000
Department of Environmental Protection	-	90,000	-	-	-	-	-	-	-	90,000
Governor's Energy Office	30,000	-	-	-	-	-	-	-	-	30,000
DECD (Maine Technology Institute)	-	-	-	-	-	-	17,500	-	-	17,500
TOTAL EXPENDITURES	**3,393,500**	**14,221,494**	**34,280,436**	**2,631,893**	**24,762,152**	**1,261,334**	**50,000**	**7,968,488**	**679,646**	**89,248,944**
RESERVED FUND BALANCE	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**301,753**	**-**	**301,753**

Appendix D: Public Utilities Commission Assessments and Revenue Collections

Table D-1: Public Utilities Commission Assessments and Revenue Collections as filed with the Maine Public Utilities Commission as of 9/10/2019

PUC Assessments and Revenue Collections - FY 2019					
Electric Efficiency Procurement					
Procurement Quarter:	**Jul-Sep 2018**	**Oct-Dec 2018**	**Jan-Mar 2019**	**Apr-Jun 2019**	**Total - FY 2019**
Billing Date:	**2-Jul-18**	**1-Oct-18**	**1-Jan-19**	**1-Apr-19**	
Name					
Central Maine Power Co	$ 4,724,893	$ 4,724,893	$ 4,724,893	$ 4,724,893	$ 18,899,572
Eastern Maine Electric Coop	$ 55,613	$ 55,613	$ 55,613	$ 55,613	$ 222,454
Emera (Bangor Hydro/MPS)	$ 1,051,120	$ 1,051,120	$ 1,051,120	$ 1,051,120	$ 4,204,482
Fox Island Electric Coop	$ 6,228	$ 6,228	$ 6,228	$ 6,228	$ 24,910
Houlton Water Co	$ 42,128	$ 42,128	$ 42,128	$ 42,128	$ 168,514
Kennebunk Light & Power	$ 65,973	$ 65,973	$ 65,973	$ 65,973	$ 263,894
Madison Electric Works	$ 15,084	$ 15,084	$ 15,084	$ 15,084	$ 60,336
Van Buren Light & Power Co	$ 8,337	$ 8,337	$ 8,337	$ 8,337	$ 33,349
Totals	**$ 5,969,378**	**$ 5,969,378**	**$ 5,969,378**	**$ 5,969,378**	**$ 23,877,511**

Revenue Forecast	**FY 2020**
Central Maine Power Co	$ 15,413,500
Eastern Maine Electric Coop	$ 180,829
Emera	$ 3,387,008
Fox Island Electric Coop	$ 19,683
Houlton Water Co	$ 138,722
Kennebunk Light & Power	$ 182,686
Madison Electric Works	$ 50,426
Van Buren Light & Power Co	$ 26,989
Total	**$ 19,399,844**

Natural Gas Efficiency Procurement		
	Total - FY 2019	**Revenue Forecast - FY 2020**
Name		
Northern Utilities - Unitil		
Bangor Natural Gas	*Confidential*	*Confidential*
Maine Natural Gas		
Summit Natural Gas		
Totals	**$ 179,153**	**$ 365,570**

Alternative Compliance Mechanism (ACM)		
Assessment Timeframe:	**Jul '18-Jun '18**	**Total - FY 2019**
Billing Date:	**3-Aug-18**	
Name		**Total - FY 2019**
Mint Energy, LLC	$ 2,167	$ 2,167
Totals	**$ 2,167**	**$ 2,167**

Appendix E: Glossary

Adjusted Gross Savings: The change in energy consumption and/or demand that results directly from program-related actions taken by participants in an Efficiency Maine program, regardless of why they participated, adjusted for installation rates and savings rates verified through program evaluations.

Affected Customer: One of the 13 energy-intensive manufacturers in Maine that receive a portion of the state's Regional Greenhouse Gas Initiative (RGGI) revenues in the form of a disbursement. These businesses were identified by the Maine Public Utilities Commission (PUC) in an Order issued on October 5, 2018, in Docket No. 2018-00140.

Arrearage: Unpaid debt or overdue payments.

Avoided Energy Costs: Costs that would have been incurred had a utility and/or energy supplier otherwise been required to supply the power that was avoided through the installation of an energy efficiency or distributed generation project. The avoided costs include the wholesale cost of energy and capacity, the costs of complying with renewable energy and climate policies, plus the marginal costs of adding future transmission and distribution (but not the retail cost of transmission and distribution).

Benefit-to-Cost Ratio: The ratio of the net present value of the quantifiable financial benefits (from the lifetime avoided energy costs) to the costs of an efficiency measure. The benefits and costs included in the calculation are dependent on the test used. See glossary entries of Program Administrator Cost Test (PACT) and Total Resource Cost (TRC) test.

Community Action Agencies (CAAs): Non-profit private and public organizations established under the U.S. Economic Opportunity Act of 1964 to reduce poverty. CAAs deliver emergency services, education, training, housing, weatherization services, and more.

Free-Rider: A program participant who, in the determination of third-party evaluators, would have installed equivalent efficiency measures independent of the Trust's program or its incentives.

Lifetime Energy Benefit: The net present value of the avoided energy supply cost of energy and demand savings over the measure life.

Maximum Achievable Cost-Effective (MACE): An energy efficiency industry term that refers to the full universe of potential cost-effective energy efficiency projects that could realistically be installed given technical and economic constraints and assumed adoption rates based on offered incentives.

Measure Life: The length of time that a measure is expected to be functional. Measure life is a function of: (1) *equipment life*, the number of years that a measure is installed and operates until failure, and (2) *measure persistence*, which takes into account business turnover, early retirement of installed equipment, and other reasons that measures might be removed or discontinued. Measure life is sometimes referred to as expected useful life.

Midstream: Incentive programs for energy-efficient products are characterized as midstream, upstream, or downstream depending on who receives the incentives. Upstream programs provide incentives for

manufacturers to make more efficient products, and downstream programs provide rebates for consumers, encouraging them to purchase more efficient products. A midstream program provides incentives at the retailer or distributor level, encouraging them to stock and sell more high-efficiency equipment models.

Modified Participant Cost Test (MPCT): This cost-effectiveness test, applied by the Trust only to certain renewable energy projects, compares a participant's costs after application of any rebate or tax incentives to the lifetime electricity/fuel savings based on the retail prices in place at the time of project commencement. A positive MPCT (>1) indicates that lifetime benefit achieved by a renewable energy project is lower than the funds invested by the customer.

Net Savings: An estimate of the amount of adjusted gross savings that can be directly and indirectly attributed to a program based on program participants' motivation. Participants who, in the determination of the evaluators, would have installed equivalent efficiency measures independent of the program and its incentives are considered "free-riders." To calculate net savings, the impacts of savings attributed to free-riders are excluded. By contrast, savings realized by program participants through the installation of *additional* efficiency measures due to program influences, even though no incentive or technical assistance (TA) was received (called "spillover"), are added.

Net-to-Gross (NTG) Ratio: The ratio of net savings to adjusted gross savings. The NTG ratio is defined as 1 minus the free-ridership (FR) rate plus the spillover (SO) rate (NTG ratio = 1 − FR + SO).

Program Administrator Cost Test (PACT): This cost-effectiveness test compares Efficiency Maine Trust's costs to supply-side resource savings. A positive PACT (>1) indicates that an energy efficiency program is a lower-cost approach to meeting load growth than a wholesale energy purchase and new generation resources (including delivery and system costs). The PACT includes only costs incurred by the program administrator and not customer contributions.

Qualified Partner: A term used to describe the network of contractors and vendors working with Efficiency Maine's Commercial & Industrial Prescriptive Program (CIP).

Spillover: Savings realized by program participants through the installation of *additional* efficiency measures due to program influences, even though no incentive or technical assistance (TA) was received.

Total Resource Cost (TRC) Test: This cost-effectiveness test captures the perspective of all utility customers—both participants and nonparticipants. It is the comparison of program administrator and customer costs to utility resource savings. The TRC test measures the benefits of the energy efficiency program for the region as a whole. Costs included in the TRC test are those used to purchase and install the energy efficiency measure, including the costs incurred by program participants and the costs of running the energy efficiency program. The benefits included are the avoided energy supply cost.