FY2018 ANNUAL REPORT

Efficiency Maine is the independent administrator for energy efficiency programs in Maine. Efficiency Maine's mission is to lower the cost and environmental impacts of energy in Maine by promoting cost-effective energy efficiency, conservation, and alternative energy systems. Efficiency Maine does this primarily by delivering rebates on the purchase of high-efficiency equipment to help customers save electricity, natural gas, and unregulated fuels, as well as reduce greenhouse gases. Efficiency Maine is governed by a stakeholder Board of Trustees with oversight from the Maine Public Utilities Commission.

Board of Trustees
David Stapp, Chair
Al Hodsdon, Vice-Chair
Brent Boyles, Treasurer
Herbert Crosby, Secretary
David Barber
Kenneth Fletcher
Donald Lewis
Dan Brennan, Ex Officio
Steven McGrath, Ex Officio

Efficiency Maine Trust, 168 Capitol Street, Suite 1, Augusta, Maine 04330
1-866-376-2463
www.efficiencymaine.com

Last Revised 11.30.2018

Table of Contents

Abbreviations/Acronyms ..... **v**

Introduction **1**

Efficiency Maine Programs **9**
- Commercial and Industrial Custom Program 11
- Commercial and Industrial Prescriptive Program 15
- Small Business Initiative 19
- Consumer Products Program 23
- Home Energy Savings Program 27
- Low-Income Initiatives 29
- Renewable Energy Demonstration Grants Program 33

Strategic Initiatives **35**
- Evaluation, Measurement, and Verification 37
- Innovation 39
- Public Information and Outreach 43

Finance and Administration **45**
- Audit Results 47
- Administration 49

Other Initiatives **50**
- State Energy Initiatives 50
- Regional and National Initiatives 54
- Legislative Recommendations 56

Appendices **57**
- Appendix A: Total Energy Savings and Lifetime Avoided Energy Costs 59
- Appendix B: Program Expenditures 63
- Appendix C: Amended Budget 65
- Appendix D: Public Utilities Commission Assessments and Revenue Collections 67
- Appendix E: Glossary 69

List of Tables

Table 1: Sectors Served by Efficiency Maine Programs 2
Table 2: Program Funding Sources 2
Table 3: Costs and Savings for Electric Programs 6
Table 4: Costs and Savings for Thermal Programs 6
Table 5: FY2018 Payments Made 7
Table 6: C&I Custom Program – Electric Results 12
Table 7: C&I Custom Program – Thermal Results 12
Table 8: C&I Prescriptive Program – Electric Results 16
Table 9: C&I Prescriptive Program – Thermal Results 16
Table 10: Small Business Initiative – Electric Results 20
Table 11: Consumer Products Program – Electric Results 24

Table 12: Consumer Products Program – Thermal Results 24
Table 13: HESP – Electric Results 27
Table 14: HESP – Thermal Results 28
Table 15: Low-Income Initiatives – Electric Results 30
Table 16: Low-Income Initiatives – Thermal Results 31
Table 17: FY2018 EM&V Project Activity 38
Table 18: Statement of Revenues, Expenditures, and Changes in Fund Balance – Governmental Fund 48
Table 19: MaineHousing Weatherization Initiatives 52
Table A-1: FY2018 Program Impacts – Electric Programs 59
Table A-2: FY2018 Program Impacts – Thermal Programs 60
Table A-3: Benefit-to-Cost Ratios – Electric Programs 61
Table A-4: Benefit-to-Cost Ratios – Thermal Programs 61
Table B-1: Electric Program Expenditures 63
Table B-2: Thermal Program Expenditures 63
Table C-1: Efficiency Maine Trust FY2019 Amended Budget as of 11/14/2018 65
Table D-1: Public Utilities Commission Assessments and Revenue Collections 67

List of Figures

Figure 1: Summary of the Trust's FCA Actions 55

Abbreviations/Acronyms

AMP	Arrearage Management Program
BIP	Business Incentive Program
C&I	Commercial and Industrial
CAA	Community Action Agency
CCF	Centum Cubic Feet
CEO	Chief Executive Officer
CHP	Combined Heat and Power
CIMS	Confidential Information Management Systems
CIP	Commercial and Industrial Prescriptive Program
CMP	Central Maine Power
DEP	Maine Department of Environmental Protection
DER	Distributed Energy Resource
DHHS	Department of Health and Human Services
DHP	Ductless Heat Pump
DIY	Do-It-Yourself
DOE	U.S. Department of Energy
EERRF	Energy Efficiency and Renewable Resource Fund
EISA	Energy Independence and Security Act
EM&V	Evaluation, Measurement, and Verification
EVSE	Electric Vehicle Supply Equipment
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
LIHESP	Low-Income Home Energy Savings 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)
NTA	Non-Transmission Alternative
PACT	Program Administrator Cost Test
PON	Program Opportunity Notice
PUC	Public Utilities Commission
QP	Qualified Partner
RFP	Request for Proposals
RFQ	Request for Qualifications
RGGI	Regional Greenhouse Gas Initiative
RTU	Rooftop Unit
SBI	Small Business Initiative
SO	Spillover
T-LED	Tubular light-emitting diode
T&ST	Transmission and Sub-Transmission
TA	Technical Assistance
TRC	Total Resource Cost
TRM	Technical Reference Manual

Introduction

This Annual Report of the Efficiency Maine Trust ("the Trust" or "Efficiency Maine") describes activities during Fiscal Year 2018 (FY2018), which covered the period from July 1, 2017, to June 30, 2018. 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 1.8 billion kWh and more than 4.5 million MMBtu in cost-effective lifetime energy savings for Maine ratepayers. Some noteworthy highlights of the Trust's FY2018 programs include:

- Avoiding more than $189 million in unnecessary lifetime energy costs;
- Matching more than $47.3 million of incremental private investment with $47.1 million of program investment;
- Supporting 7,780 projects to install air sealing, insulation, ductless heat pumps (DHPs), or heating systems through the Home Energy Savings Program (HESP);
- Reaching a milestone of promoting more than 33,900 DHPs installed over the past six years;
- Adding more than 33.8 MW of new peak summer demand reductions to the grid; and
- Avoiding an estimated 89,847 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. During FY2018, trustees Donald Lewis, retired Chief Technology Officer (CTO) and Founder of Nyle Systems, and Al Hodsdon, owner of A.E. Hodsdon Engineers, were reappointed to the Board. Kenneth Fletcher, former Director of the Governor's Energy Office, and David Stapp, Chief Executive Officer (CEO)/CTO of Peregrine Turbine Technologies in Wiscasset, 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. Ex officio positions were filled by the Governor's Energy Office (GEO) Director Steven McGrath and by Dan Brennan, Director of the Maine State Housing Authority (MaineHousing).

[1] 35-A MRS Chapter 97.

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 Program	✓				

Funding

The Trust received funds in FY2018 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 a long-term contract with Maine utilities. 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	Forward Capacity Market	Long-Term Contract	Federal/Other	Energy Efficiency and Renewable Resource Fund
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 Program									✓

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). The Trust typically offsets some of the budget necessary to capture MACE potential through the use of other funding sources.

Maine's largest electric 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 electricity-saving programs to supplement the revenues from the Electric Efficiency Procurement. At the beginning of FY2018, 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 largest natural gas customers, whose usage exceeds 1 million centum cubic feet (CCF) of natural gas annually, did not contribute to and were ineligible for funding from the Natural Gas Efficiency Procurement through FY2017. However, the Maine Legislature amended the Efficiency Maine Trust Act in the spring of 2017, codifying the inclusion of large, non-generator users. The Act did, however, maintain a limited exclusion for very large manufacturers and for very large agricultural and aquaculture businesses. From FY2018 forward, these customers pay the natural gas assessment on their first 1 million CCF of usage and are eligible 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 Efficiency Maine 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 eliminated, for the same period, the requirement that the Trust split the remaining RGGI revenues evenly between residential and C&I programs.

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 FY2018, 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 FY2018, 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.

Long-Term Contract

In October 2014, the PUC approved a long-term contract between the Trust and Maine's two investor-owned transmission and distribution utilities for the purchase and sale of energy efficiency capacity resources. The funds were directed to be awarded through the C&I Custom Program and were required to be committed by June 30, 2015. Per the order approving the long-term contract, the Trust submitted annual reports to the PUC indicating the savings from each individual project funded by the contract. The last payments for projects completed under this contract were made in FY2018.

Federal/Other

Federal funds were received through the American Recovery and Reinvestment Act in 2009 and 2010. These funds were disbursed through grants and through a revolving loan fund. The revolving loan fund continued to operate in FY2018.

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.

Results

In FY2018, 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 FY2018. 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	10,460,117	183,455,141	$3,981,162	$5,177,394	$15,993,318	$0.05	1.75
Commercial and Industrial Prescriptive Program – Electric	57,912,414	708,603,735	$11,622,883	$17,066,552	$62,908,254	$0.04	2.19
Small Business Initiative	1,176,599	16,910,602	$1,685,293	$827,310	$2,571,016	$0.15	1.02
Consumer Products Program	50,805,914	538,027,707	$11,219,090	$10,214,837	$50,024,518	$0.04	2.33
Home Energy Savings Program – Electric	14,181,312	255,263,616	$3,728,907	$1,954,992	$13,648,419	$0.02	2.40
Low-Income Initiatives – Electric	5,136,721	51,423,490	$2,068,419	$1,333,018	$5,510,407	$0.06	1.62
Strategic Initiatives – Electric			$1,084,734				
Administration – Electric			$2,168,043				
Total	**139,673,076**	**1,735,684,291**	**$37,558,531**	**$36,574,102**	**$150,665,932**	**$0.04**	**2.03**

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	2,356	31,976	$87,190	$74,547	$409,833	$5.06	2.53
Commercial and Industrial Custom Program – Unregulated Fuels	35,258	469,862	$504,721	$1,038,457	$5,709,087	$3.28	3.70
Commercial and Industrial Prescriptive Program – Natural Gas	33,598	629,445	$995,173	$450,162	$2,392,677	$2.30	1.66
Commercial and Industrial Prescriptive Program – Unregulated Fuels	36,403	763,584	$943,445	$487,986	$6,034,120	$1.87	4.22
Consumer Products Program – Natural Gas	559	5,589	$30,384	$7,301	$30,507	$6.74	0.81
Consumer Products Program – Unregulated Fuels	6,157	61,574	$88,524	$81,076	$703,350	$2.75	4.15
Low-Income Initiatives – Natural Gas			$33,142				
Low-Income Initiatives – Unregulated Fuels	43,714	754,258	$2,754,675	$2,685,107	$8,939,063	$7.21	1.64
Home Energy Savings Program – Natural Gas	10,001	236,268	$324,148	$771,174	$1,909,238	$4.64	1.74
Home Energy Savings Program – Unregulated Fuels	67,773	1,601,155	$2,361,217	$5,226,137	$12,938,643	$4.74	1.71
Renewable Energy Demonstration Grants Program			$312				
Strategic Initiatives – Thermal			$150,007				
Administration – Thermal			$1,296,382				
Total	**235,818**	**4,553,712**	**$9,569,318**	**$10,821,947**	**$39,066,519**	**$4.48**	**1.92**

As discussed in the "Finance and Administration" section of this report, the Trust invested more than $49 million in FY2018 to fund the programs and cost savings described above. Table 5 provides a summary of the Trust's payments during FY2018.

Table 5: FY2018 Payments Made[4]

Use of Funds	Amount
Programs	**$42,441,364**
Commercial and Industrial Custom Program	$3,908,604
Commercial and Industrial Prescriptive Program	$13,537,019
Small Business Initiative	$1,689,324
Consumer Products Program	$11,344,053
Home Energy Savings Program	$6,800,020
Low-Income Initiatives	$5,162,032
Renewable Energy Demonstration Grants Program	$312
Strategic Initiatives, Public Information, and Administration	**$4,010,109**
Strategic Initiatives	$1,019,318
Public Information	$215,423
Administration	$2,775,368
Other Payments[5]	**$2,829,199**
Total Use of Funds – Efficiency Maine Trust	**$49,280,672**

The following sections of the Annual Report provide short descriptions of each of the programs referenced in Table 3 and Table 4. Each description generally includes 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.

[4] The financial data reported in Table 5 is slightly different from that in Table 3 and Table 4 due to differences in accruals. Generally, Table 3 and Table 4 reflect savings, costs, and benefits based on project completion dates, while Table 5 is based on accrual-basis accounting.

[5] 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.

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
- Long-Term Contract

FY2018 Activities

Following are some program activity highlights for FY2018:

- Increased emphasis on targeting opportunities for natural gas customers, extending outreach efforts to a larger pool of potential customers.[6]
- Suspended measures targeting thermal efficiency projects that reduce the consumption of oil, biomass, and fuels other than natural gas in late FY2017 due to significant RGGI budget constraints. When RGGI revenues rebounded in mid-FY2018, the program resumed its offerings for these unregulated fuels projects.
- Considered five applications for combined heat and power (CHP) projects and awarded two contracts.
- Launched the C&I Custom Program Newsletter in an effort to keep interested parties informed about important program updates, upcoming trainings and events, new project awards, and recently completed projects. Published two issues of the electronic newsletter in FY2018.
- Experimented with expanding eligibility in the program to include advanced lighting control (ALC) measures. After reviewing several ALC projects that failed to pass the program's cost-effectiveness screening, this offer was discontinued.

[6] In late FY2017, the Legislature voted to require previously exempt extremely large consumers (using 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.

FY2018 Results[7]

Table 6: C&I Custom Program – Electric Results

Metric	Value
Total Participants	22
Total Projects	22
Annual kWh Savings	10,460,117
Lifetime kWh Savings	183,455,141
Efficiency Maine Costs	$3,981,162
Participant Costs	$5,177,394
Lifetime Energy Benefit	$15,993,318
Benefit-to-Cost Ratio	1.75

Table 7: C&I Custom Program – Thermal Results

	Value	
Metric	Natural Gas	Unregulated Fuels
Total Participants	2	10
Total Projects	2	10
Annual MMBtu Savings	2,356	35,258
Lifetime MMBtu Savings	31,976	469,862
Efficiency Maine Costs	$87,190	$504,721
Participant Costs	$74,547	$1,038,457
Lifetime Energy Benefit	$409,833	$5,709,087
Benefit-to-Cost Ratio	2.53	3.70

FY2018 Analysis

Maine businesses in the C&I Custom Program relied primarily on outside contractors and vendors to identify energy efficiency opportunities in FY2018. 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 projects. The program also administered technical assistance (TA) grants to support further development of potential projects. Activity from FY2015-FY2017 suggests that, on average, 9% of scoping audits ultimately lead to TA studies and 55% of scoping audits lead directly to project implementation in subsequent fiscal years. The data also shows an average TA-to-project conversion rate of 90%.

The number of projects resulting from scoping audits and TA studies suggests that the program's approach of dedicating resources to those activities is both important and effective. The program involves multi-year project planning and budgeting. In addition to empowering and encouraging customers to move forward with meaningful energy efficiency projects, scoping audits and TA studies

[7] Several custom projects achieved a blend of electric and thermal savings in FY2018. 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 29 distinct participants in FY2018.

can help customers reduce costs. 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.

As highlighted above, the program continued to see a number of CHP project applications in FY2018. Though the Trust did not offer a promotional incentive for CHP projects as it had in FY2017, the prior year's dedicated outreach efforts generated considerable momentum for the technology in the Maine marketplace. FY2018's enhanced natural gas outreach efforts did not have a similar effect; even with the expanded pool of potential customers, the program did not succeed in securing a meaningful number of custom projects to conserve natural gas. Given the continued low price of natural gas, customers were relatively unmotivated to invest in natural gas efficiency measures in FY2018. 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.

FY2019 Plans

- Continue emphasis on targeting natural gas customers.
- 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 extremely large custom project proposals. (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 commercial kitchen appliances, 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

FY2018 Activities

Following are some program activity highlights for FY2018:

- Incentivized 2,387 lighting projects, 450 ductless heat pump systems, and 300 natural gas heating measures.
- Continued to offer midstream incentives—instantaneous discounts delivered through distributors (equipment supply houses)—for a number of lighting products and heating systems.
- Discounted more than 280,000 light-emitting diode (LED) bulbs at distributors over the year. The list of discounted products grew to include tubular LEDs (T-LED) and mogul bulbs.
- Transitioned delivery of incentives for commercial kitchen equipment to midstream discounts in order to better capture more of the equipment replacement market.
- Continued to engage with the Qualified Partner (QP) network and other contractors to connect customers with efficiency incentives.
- Implemented targeted outreach to customers of specific commercial and industrial sectors with particular efficiency opportunities, including offering a bonus for lighting retrofits in K-12 school facilities.
- Targeted potential natural gas customers, contractors, and heating equipment distributors within the Unitil expansion zone in Sanford with information about a one-time bonus incentive on natural gas conservation measures.

FY2018 Results

Table 8: C&I Prescriptive Program – Electric Results

Metric	Value
Total Participants	1,966
Total Projects	2,775
Replacement Lamps	228,479
Annual kWh Savings	57,912,414
Lifetime kWh Savings	708,603,735
Efficiency Maine Costs	$11,622,883
Participant Costs	$17,066,552
Lifetime Energy Benefit	$62,908,254
Benefit-to-Cost Ratio	2.19

Table 9: C&I Prescriptive Program – Thermal Results

	Value	
Metric	Natural Gas	Unregulated Fuels
Total Participants	41	42
Total Projects	81	146
Annual MMBtu Savings	33,598	36,403
Lifetime MMBtu Savings	629,445	763,584
Efficiency Maine Costs	$995,173	$943,445
Participant Costs	$450,162	$487,986
Lifetime Energy Benefit	$2,392,677	$6,034,120
Benefit-to-Cost Ratio	1.66	4.22

FY2018 Analysis

Uptake of natural gas and heating measures was higher than in prior years. This result stems from a concerted effort on the part of the Trust to inform more customers about efficiency opportunities and available incentives. It also reflects the Trust's success in capturing more of the market by providing instantaneous discounts on heating systems at the distributor level rather than providing rebates at retailers or through contractors after the customer has completed the purchase and installation of the project.

There has been a significant shift in the lighting market during the Triennial Plan III period; potential customers, contractors, and distributors increasingly choose LED lamps and fixtures in new construction and replace-on-burnout scenarios, whereas high-efficiency fluorescent fixtures were the default choice at the beginning of the period. With this market shift, the CIP Program is transitioning to a focus on lighting retrofits: at the end of FY2018, the program worked to further prioritize the proactive replacement of inefficient existing fixtures.

FY2019 Plans

- Continue to incentivize a robust mix of energy efficiency solutions with an emphasis on midstream incentives where appropriate.

- Focus program activity on cost-effective lighting retrofit installations in existing buildings.
- Launch performance incentives for energy-saving lighting design.
- Continue to collaborate with participating distributors and QPs to market available incentives and discounts.
- Monitor program uptake and undertake direct marketing to potential customers or customer segments as needed.

Small Business Initiative

Small Business Initiative

Sectors Served

- Small Businesses

Funds Invested

- Electric Efficiency Procurement

The Small Business Initiative (SBI) delivers efficiency retrofits directly to Maine's small businesses. In FY2018, the initiative continued to focus exclusively 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).

FY2018 Activities

Following are some program activity highlights for FY2018:

- Launched the initiative for small businesses in the Berwicks/Sanford area, the Gorham area, and the Windham/Gray-New Gloucester area.
- Completed small business projects launched in FY2017 in the Naples/Bridgton area and the Route 2 corridor from Bethel to Skowhegan.
- Used utility data to identify and prioritize eligible small businesses. In FY2017, the initiative relied on paid mailing lists, help from advertising agencies, and sponsorship of community events to connect with prospective participants. In FY2018, the initiative was able to take advantage of utility data to reach potential customers via direct mail, phone calls, and in-person sales calls.
- Further refined the program's lighting assessment tool to create detailed, site-specific lighting plans and eliminate proposed fixture combinations that would not be cost-effective at a given business. These changes addressed a situation identified in FY2017 where certain combinations of measures and existing lighting fixtures did not prove cost-effective, even though all measures that were promoted through the program passed the initial screening for cost-effectiveness.

FY2018 Results

Table 10: Small Business Initiative – Electric Results

Metric	Value
Total Participants	219
Total Projects	257
Annual kWh Savings	1,176,599
Lifetime kWh Savings	16,910,602
Efficiency Maine Costs	$1,685,293
Participant Costs	$827,310
Lifetime Energy Benefit	$2,571,016
Benefit-to-Cost Ratio	1.02

FY2018 Analysis

The program worked to reduce project wait times and eliminate any fixture combinations that would not be cost-effective at a given site. These changes led to a more streamlined process from assessment through upgrade implementation and incentive payment, and significantly improved project completion times. These changes also improved the cost-effectiveness of the program over the previous program year. While these changes made the contractor–customer interaction more streamlined, the program still experienced project delays due to contractor capacity—participating contractors were frequently juggling other projects outside of the program.

Customer recruitment also went through a significant shift between FY2017 and FY2018: access to the utilities' customer data made program marketing far more efficient than in prior years because it allowed the program to target only those businesses eligible to participate in the program. This targeting included direct mail, phone calls, and in-person sales calls. The program is continuing to review and refine its outreach strategy, and is contemplating more in-person sales rather than mail or phone calls. The program may also return to some of the word-of-mouth strategies employed in the past, including events, local partnerships, and geo-targeted ads.

The program continues to explore how to best address customer barriers to energy-efficient lighting. While the program is designed to overcome some of the barriers experienced by small businesses (e.g., a project size too small to attract contractors, inconvenience of arranging the project, and financial costs), the turnkey approach and enhanced incentives are still not enough for some business owners to move forward with potential projects. The program will continue to find ways to help more small businesses in a given area while keeping administrative and delivery costs as low as possible.

FY2019 Plans

- Target several areas with higher concentrations of small businesses, including the Ellsworth/Bar Harbor area, Old Town area, and the Hallowell/Augusta area.
- Provide on-bill financing for customers in select areas in collaboration with Emera Maine.

- Pilot additional business engagement approaches such as additional in-person sales calls and concentrated outreach to property management associations and commercial real estate building owners.
- Continue to refine the lighting assessment tool and program delivery to make the program more successful and cost effective.
- Continue analysis of typical customers and reasons they do not move forward in order to best target the program where needed.
- Continue to evaluate whether other efficiency opportunities (e.g., heating, ventilation, and air conditioning (HVAC), refrigeration) should be added to the program.

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

FY2018 Activities

Following are some program activity highlights for FY2018:

- Continued to provide the choice of a mail-in rebate or an instant rebate on heat pump water heaters. In FY2018 3,580 instant and 1,959 mail-in rebates were processed.
- Continued to market to customers who are replacing existing equipment and products; marketing activities include targeted online digital advertising for emergency replacement search terms, education of installers and retail store personnel about high-efficiency options and rebates, and in-store information and signage.
- Discounted 1.5 million high-efficiency LED bulbs at retailers, focusing on some of the most common types of bulbs in combination with favorable product placement in the stores. This combination of discounts and placement reduced the impacts of free-ridership and increased the cost-effective energy savings for the program. Discounting beyond these select bulbs was limited by availability of funding.
- Incentivized nearly 8,000 clothes washers and more than 1,000 room air purifiers that are certified by ENERGY STAR®.
- In the fourth quarter of FY2018, the program added a mail-in rebate for smart thermostats to explore customer interest in this energy-saving product. More than 500 were incentivized that quarter.

FY2018 Results

Table 11: Consumer Products Program – Electric Results

Metric	Value
Total Bulbs	1,615,779
Total Appliances	15,280
Annual kWh Savings	50,805,914
Lifetime kWh Savings	538,027,707
Efficiency Maine Costs	$11,219,090
Participant Costs	$10,214,837
Lifetime Energy Benefit	$50,024,518
Benefit-to-Cost Ratio	2.33

Table 12: Consumer Products Program – Thermal Results

Metric	Value	
	Natural Gas	Unregulated Fuels
Total Participants	32	356
Total Projects	32	356
Annual MMBtu Savings	559	6,157
Lifetime MMBtu Savings	5,589	61,574
Efficiency Maine Costs	$30,384	$88,524
Participant Costs	$7,301	$81,076
Lifetime Energy Benefit	$30,507	$703,350
Benefit-to-Cost Ratio	0.81[8]	4.15

FY2018 Analysis

Heat pump water heater (HPWH) rebates were offered as a mail-in rebate and as an instant rebate. The instant rebate enabled the program to capture more of the water heating units installed by plumbers and more of those purchased as emergency replacements. In the first quarter of FY2018, the mail-in and instant rebate amounts were both $750, and there was significant interest in the instant discount. Interest in the instant rebate exceeded the available budget, however, and the program reduced the instant rebate amount to $600 while keeping the mail-in rebate at $750.

Roughly 65% of the HPWHs incentivized by the program went through distributors. The majority of these units were sold when the $750 discount was available, rather than at the $600 discount. Given the choice and the equal incentive amount, the majority of plumbers and customers preferred to take the instant rebate and have lower upfront costs. After the change to the instant rebate, some customers preferred to wait for reimbursement and receive the larger mail-in rebate amount. In addition, the

[8] The Trust offered smart thermostats for the first time in FY2018. These are highly cost-effective with a benefit-to-cost ratio (using measure-level net Total Resource Cost [TRC] test) of 2.21 for natural gas and 4.61 for unregulated fuels. Because it was a new measure, the Trust allocated the delivery cost between natural gas and unregulated fuels based on the anticipated fuel mix for the measure. The actual ratio of unregulated fuels and natural gas projects turned out to be heavily skewed toward unregulated fuels, resulting in the natural gas projects bearing a proportionally higher delivery expenditure rate. Additionally, the program incurred all start-up delivery expenditures in FY2018 while only offering rebates for a short period of time.

number of mail-in rebates redeemed indicates that retail stores and do-it-yourself (DIY) installations still represent a significant portion of the water heater market.

The Trust continued its lighting marketing model, begun in FY2017, of focusing on "off-shelf" placement and 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. By focusing on fewer models with the lowest starting prices, the program stretched funding as far as possible.

Also, early in FY2018, the Trust shifted responsibility for managing and reporting its initiative to discount screw-in LEDs through distributors (also referred to as the Lighting Initiative: Distributor). Whereas the initiative was previously administered through the Consumer Products Program, this responsibility moved to the Commercial and Industrial Prescriptive (CIP) program. This approach streamlined interactions with distributors of electrical equipment, which participate in the broader CIP portfolio of measures.

A rebate for smart thermostats was launched in the last quarter and saw significant interest, exceeding program projections for the new measure. In part because activity was so high, the program will conduct a customer survey to assess the impact of marketing and of the rebate on purchasing decisions.

FY2019 Plans

- Continue to focus on the instant HPWH rebate at distributors to complement the mail-in rebates offered at retail locations.
- Continue to offer rebates that make the price of the high-efficiency HPWH competitive with the baseline electric resistance water heater.
- Continue targeting customers in emergency replacement situations via online digital advertising, education of installers and retail store personnel, and in-store information and signage.
- Continue to offer off-shelf marketing fees to retailers for favorable LED product placement.
- Continue rebates on other high-efficiency appliances, including clothes washers, room air purifiers, and smart thermostats, as funding allows.
- Continue to monitor and adjust incentives to align with changes in market prices, if warranted.

Home Energy Savings Program

The Home Energy Savings Program (HESP) drives market-based home weatherization and efficient heating systems by offering rebates and loans, providing customer education, and developing 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 (<5 units)
- Residential
- Low-Income Households

Funds Invested

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

FY2018 Activities

Following are some program activity highlights for FY2018:

- Presented and exhibited at more than 30 events over the course of the fall, winter, and spring, increasing program awareness among customers and contractors.
- Decreased program complexity in response to feedback from homeowners, contractors, trade associations, and manufacturers.
- Refreshed HESP webpages and brochures to better communicate program details to customers.
- Increased incentives after revised forecasts of RGGI revenue indicated sufficient funding in order to motivate more customers to upgrade their homes. In January incentives on insulation increased from $500 per zone to $700 per zone, and the incentives on selected heating systems (propane, kerosene, oil boilers, and furnaces, as well as wood and pellet stoves) were raised from $300 to $500. In May, insulation incentives were further increased to 30% of project costs up to $1,000.
- Updated eligibility requirements on selected heating systems (propane, kerosene, oil boilers, and furnaces, as well as wood and pellet stoves).

FY2018 Results

Table 13: HESP – Electric Results

Metric	Value
Total Participants	5,133
Total Projects	5,306
Annual kWh Savings	14,181,312
Lifetime kWh Savings	255,263,616
Efficiency Maine Costs	$3,728,907
Participant Costs	$1,954,992
Lifetime Energy Benefit	$13,648,419
Benefit-to-Cost Ratio	2.40

Table 14: HESP – Thermal Results

Metric	Value	
	Natural Gas	Unregulated Fuels
Total Participants	40	1,832
Total Projects	340	2,307
Annual MMBtu Savings	10,001	67,773
Lifetime MMBtu Savings	236,268	1,601,155
Efficiency Maine Costs	$324,148	$2,361,217
Participant Costs	$771,174	$5,226,137
Lifetime Energy Benefit	$1,909,238	$12,938,643
Benefit-to-Cost Ratio	1.74	1.71

FY2018 Analysis

The program got off to a slow start in FY2018, as incentive reductions meant to stretch RGGI funding through the end of FY2017 remained in effect and continued to dampen program activity. Early in FY2018, the states that participate in RGGI extended the program beyond 2020, which spurred an increase in RGGI auction proceeds. Once higher RGGI revenues were established, HESP aggressively streamlined and updated both claim forms and print and web materials to increase the conversion of prospects into participants. In January 2018, the program restored rebates to early-FY2017 levels for weatherization and all heating systems (except heat pumps, which had not been affected by RGGI funding). Nonetheless, program activity remained slower than anticipated. In May, staff further increased the rebate levels for insulation. Over the course of FY2018, the installation requirements for many heating systems were also simplified, eliminating roadblocks that had slowed contractors and customers in the past.

With these changes, the program largely met the investment goals for electric and natural gas dollars that were outlined in the Public Utilities Commission (PUC) Annual Update (March 2018). Given that RGGI revenues increased relatively late in the year, the program was unable to invest all RGGI dollars, leading to a significant amount of carryforward in FY2019. Nevertheless, feedback from contractors, as well as preliminary results from FY2019, indicate that the program changes initiated in FY2018 are gaining traction in the marketplace and accelerating the rate of projects. Staff anticipate fully investing budgeted funds in FY2019.

FY2019 Plans

- Closely monitor the ongoing effects of FY2018 incentive increases and program changes.
- Continue to hone the program eligibility and incentives based on feedback from contractors and other stakeholders.
- Adjust marketing levels as necessary to maintain sufficient budget to meet demand for all rebates during the year.

Low-Income Initiatives

The Trust delivered energy-saving opportunities to low-income customers through a portfolio of initiatives in FY2018. 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 installation* of conservation measures, where the Trust covers up to 100% of the cost of equipment and installation and oversees contractor support; and
- *Direct-mail campaigns*, where customers receive an offer for free, do-it-yourself (DIY) energy-saving devices, along with a postage-paid order form.

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.

FY2018 Activities

Following are some program activity highlights for FY2018:

- Partnered with the 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).
- Continued to provide enhanced incentives for residential energy audits, home weatherization, and heating systems through the Affordable Heat Initiative (formerly referred to as the Low-Income Home Energy Savings Program or LIHESP). Incentivized 664 ductless heat pumps with an enhanced rebate level (80% of project cost up to $2,000.)
- Installed 589 heat pump water heaters (HPWHs) in homes of customers who participated in the Low-Income Heating Assistance Program (LIHEAP) and who had electric resistance water heaters. This direct installation initiative covered 100% of the project costs.
- Explored natural gas direct-install opportunities in multifamily homes, partnering initially with Avesta Housing and the City of Lewiston to identify eligible properties.
- Leveraged AmeriCorps volunteers through the Maine Campus Compact window insert initiative, training them to help participating low-income residents fill out and return postage-paid order forms for free DIY energy-saving measures. Americorps volunteers subsequently installed these measures.

- Continued to support the electric utilities' Arrearage Management Program (AMP),[9] providing participating customers with information and analysis about their energy use, energy-saving options, and a free offer for a DIY electricity-use-reduction kit with energy-saving devices such as LED bulbs, faucet aerators, and showerheads.
- Convened quarterly meetings of the Low-Income Advisory Group (a gathering of stakeholders, including low-income advocates, state and local housing authorities, utilities, Community Action Agencies and more) to collaborate on the Trust's offerings 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 Municipal Association Convention, the United Way of Mid-Coast Maine Heating Conference, and the Maine Council on Aging's Housing Options for Seniors meeting.

FY2018 Results

Table 15: Low-Income Initiatives – Electric Results

Metric	Value
Total Participants[10]	15,022
Total Projects[11]	133,362
Annual kWh Savings	5,136,721
Lifetime kWh Savings	51,423,490
Efficiency Maine Costs	$2,068,419
Participant Costs	$1,333,018
Lifetime Energy Benefit	$5,510,407
Benefit-to-Cost Ratio	1.62

[9] AMP initiatives were required of each electric utility by a Maine law enacted in April 2014. 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.
[10] Includes 4,264 participants in direct-install initiatives, direct mail campaigns, and AMP, plus an estimate of the number of participants in the food pantry initiative based on 12 bulbs/participant.
[11] Includes 129,098 bulbs distributed through food pantries.

Table 16: Low-Income Initiatives – Thermal Results

Metric	Value	
	Natural Gas[12]	Unregulated Fuels
Total Participants	0	1,256
Total Projects	0	1,703
Annual MMBtu Savings	0	43,714
Lifetime MMBtu Savings	0	754,258
Efficiency Maine Costs	$33,142	$2,754,675
Participant Costs	$0	$2,685,107
Lifetime Energy Benefit	$0	$8,939,063
Benefit-to-Cost Ratio	N/A	1.64

FY2018 Analysis

In FY2017, the Trust expanded eligibility criteria for its market-based home weatherization and heating initiative to include customers enrolled in any state or federal income-based program, as well as owners living in mobile homes and those living in homes with assessed property values of $80,000 or less. These changes drove dramatic growth in activity; participation in this initiative rose from 40 homes in FY2016 to 674 homes in FY2017 and 1,256 homes in FY2018. The larger pool of potential customers and simplified criteria made this approach significantly easier for staff, contractors, and community organizations to promote the initiative and for participants to access it. Contractors also became more familiar with the initiative.

Activity in the Trust's direct-install HPWH initiative remained steady in FY2018. In the face of a shrinking pool of eligible customers (LIHEAP-participating homeowners with electric resistance water heaters), the Trust expanded eligibility to renters who acquire landlord permission. The Trust also increased incentives and simplified paperwork for HPWH installers in order to retain their commitment to work on smaller, low-income projects. Neither of these interventions had a significant impact on project uptake.

The Trust continued to face a limited pool of households that are eligible for the direct installation of natural gas measures. Specifically, only approximately 150 households that participate in LIHEAP also own their own homes and pay their own natural gas utility bill. The Trust had already contacted all of these households multiple times in previous years. Accordingly, a significant focus for the Trust in FY2018 was expanding the eligibility of the direct-install initiative to multifamily properties. To that end, the Trust worked with the City of Lewiston to identify potential multifamily properties and conduct outreach to landlords. Through this partnership, the Trust identified 34 potential sites (comprising 158 units) 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. The Trust will work to implement weatherization upgrades and thermostat installations in FY2019. The Trust also collaborated

[12] The Trust did not complete any natural gas projects as part of Low-Income Initiatives in FY2018. The Efficiency Maine Costs noted in Table 16 reflect spending associated with outreach and partnership building for natural gas opportunities in multifamily housing.

with Avesta Housing to identify potential natural gas efficiency opportunities in its properties, though no specific projects have been identified so far.

Collaborating with DHHS to reach low-income households that participate in DHHS programs represented a significant outreach advancement in FY2018. The Trust was previously limited to the LIHEAP list of 38,000 households; there are 175,000 households on the DHHS list. The Trust gained indirect access to these additional customers in the spring of 2018, and is hopeful that improved access will result in expanded participation via the direct-mail channel in FY2019. By targeting a specific group of potential customers while relying exclusively on mail for program outreach and delivery, the Trust is able to keep costs very low in the direct-mail initiative. The result is simple, highly cost-effective energy efficiency investment in low-income homes.

FY2019 Plans

- Continue to prioritize market-based incentive offerings through the Affordable Heat Initiative.
- Expand collaboration with DHHS to market all low-income program offerings (beyond direct mail).
- Issue a Request for Proposals (RFP) for contractor(s) to provide direct-install weatherization and thermostat installation services for the 34 multifamily natural gas properties identified through the partnership with the City of Lewiston.
- Explore additional partnership opportunities to promote natural gas projects in multifamily housing.
- Institute a supplemental mail-in HPWH rebate for low-income participants in the Trust's retail and distributor initiatives to help offset installation costs.
- Explore direct-install HPWH opportunities for AMP participants in good standing.
- Initiate a direct-install program to provide heating assessments and potential weatherization and heating system upgrades to low-income homeowners using significant quantities of electric resistance space heating.

Renewable Energy Demonstration Grants Program

Renewable Energy Demonstration Grants Program

Sectors Served

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

Funds Invested

- Energy Efficiency and Renewable Resource Fund

The Renewable Energy Demonstration Grants Program provides grants to support the promotion, research, design, and demonstration of emerging clean-energy technologies. The program 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 who elect to meet their renewable portfolio standard obligations through alternative compliance payments.[13] 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.[14] Although the Trust is also authorized to offer renewable technology rebates using EERRF, funding levels have so far been insufficient for an ongoing incentive program of this nature. Instead, staff leverage limited funds for periodic projects using the grant award mechanism.

FY2018 Activities

Following are some program activity highlights for FY2018:

- Issued first Request for Proposals (RFP) in three years, targeting projects that utilize cost-effective renewable energy technologies in affordable housing settings and demonstrate models for transferring investment benefits to residents.
- Passed 35% of the EERRF revenues through to the Maine Technology Institute (MTI) to help promote businesses, whether non-profit or for-profit, engaged in research and development of renewables (per statutory requirement).

FY2018 Results

The Trust does not record any savings associated with projects previously awarded through the Renewable Energy Demonstration Grants Program.

[13] See 35-A MRS §10121.

[14] The cost-effectiveness of the Renewable Energy Demonstration Grants Program is determined using the Modified Participant Cost Test (MCPT). This approach contrasts with all other Trust programs that determine cost-effectiveness using the Total Resource Cost (TRC) test.

FY2018 Analysis

For the past three fiscal years, the Trust determined that revenues were insufficient to conduct a meaningful solicitation for new projects. By FY2018, the funds had accumulated to a level that allowed the Trust to issue an RFP.

FY2019 Plans

In early FY2019, the Trust awarded three grants in response to the FY2018 RFP. Winning bidders were the Portland Housing Development Corporation, Dennysville Housing, and the Milbridge Harbor Apartments. Each proposal involved a solar photovoltaic (PV) installation. Those that proposed a benefit transfer to residents did so in the form of free Internet or cable service. Staff will monitor the implementation of these grants and disburse grant payments throughout FY2019, and will assist the grantees as they plan associated community education and outreach activities. Given that the FY2018 solicitation exhausted most of the available funds, the Trust does not plan to conduct a new project solicitation in FY2019. 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.

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.

FY2018 Activities

Following are some activity highlights for FY2018:

- *Request for Qualifications*: The Trust issued an RFQ to establish a group of prequalified research and evaluation contractors, providing a ready source of support for ongoing research and evaluation activities to complement formal program evaluations.
- *Triennial Plan Studies*: As part of the preparation for Triennial Plan IV, the Trust conducted a series of studies to better understand the potential for cost-effective energy savings and the market channels for energy efficiency measures. These studies included the following:
    a. Custom, Refrigeration and Compressed Air Potential Study
    b. State of Commercial and Industrial Lighting in Maine Study
    c. Midstream HVAC Potential Study
    d. Energy Independence and Security Act (EISA) Backstop: Status and Potential Program Impacts
    e. 2018 Low Income Electric Heating and Cooling Analysis
- *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 to improve the accuracy of claimed savings and costs.
- *FCM M&V Compliance Review*: The Trust completed its annual Forward Capacity Market (FCM) Measurement and Verification (M&V) Compliance Review, reaching the finding that peak summer demand savings are estimated at 80% confidence with ±5.23% relative precision at the portfolio level, exceeding the requirement of the Independent System Operator for New England (ISO-NE) that the relative precision of the portfolio be ±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. The surveys captured customer feedback on the purchase decision while the details of the decision remained fresh in the customer's memory.
- *Evaluations*: In FY2018, the Business Incentive Program (BIP) Impact Evaluation was completed. It verified the energy and demand savings of the program, provided updates for measure assumptions, and calculated the cost effectiveness of the program. The evaluation found that BIP had a benefit-to-cost ratio of 1.81.

- *Modeling:* In FY2018, the Trust kicked off a project to develop an enhanced model for ductless heat pump performance and savings estimation. The model is designed to better account for end user behavior and interaction between the central heating system and ductless heat pump. The model will be used to assess cost-effectiveness scenarios and help inform educational and training materials.

Table 17: FY2018 EM&V Project Activity

Type	Expenditures
Evaluation	$419,760
Analysis	$202,417
Market Studies	$337,084
Total	**$959,262**

FY2019 Plans

- Finalize and publish the results of the Home Energy Savings Program (HESP) evaluation and the HPWH evaluation.
- Provide ongoing support and research regarding Triennial Plan IV during the proceedings at the Maine Public Utilities Commission.
- Make periodic updates to the TRMs as new information becomes available.
- Kick off evaluations of the Small Business Initiative and Retail Lighting Initiative.

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 pilot projects to generate findings about cost effectiveness and market demand before making larger investments in incentives and program delivery.

FY2018 Activities

Following are some activity highlights for FY2018:

- Completed the commercial heat pump water heater (HPWH) pilot.
- Continued work on the building tune-up/pay-for-performance pilot in long-term care facilities.
- Launched a new pilot exploring savings opportunity for advanced controls in rooftop units (RTUs).
- Collaborated with Central Maine Power (CMP) on a low-income behavioral pilot.
- Initiated research on ways to optimize ductless heat pump (DHP) utilization through integrated thermostats that control more than one heating system.
- Issued a Request for Proposals (RFP) for pilot projects that demonstrate electric load management technologies and strategies.

FY2018 Analysis

The Trust completed one pilot during FY2018—the commercial HPWH pilot. This project explored whether HPWHs in commercial properties can effectively use available waste heat (from the businesses' existing activities) to help generate hot water, creating a more efficient water heating mechanism than what was previously in place. The Trust installed two commercial HPWHs at two Pratt Abbott facilities, one in a boiler room and one in a laundromat. Results showed that the equipment successfully removed excess heat and transferred that heat into process hot water. Participants were particularly pleased with the fact that the process helped cool a hot work environment, making workers more comfortable. The Trust learned from the pilot that achieving savings cost-effectively from this type of project requires a specific set of existing conditions. This suggests that future pursuit of commercial HPWH measures may be best suited to case-by-case reviews, such as those conducted through the C&I Custom Program.

The Trust continued to work on the long-term care facility pilot in FY2018, testing a strategy for achieving energy savings through two practices: (1) analyzing interval data to identify and verify energy savings from a building tune-up and (2) using performance-based incentives to motivate facility managers to achieve persistent savings over time. The pilot recruited 15 facilities for 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. Participants were educated on the value of interval data for assessing a building's performance and identifying opportunities for a building tune-up.

The Trust then offered financial incentives to encourage the initial tune-up investment and the building management practices required for persistent energy savings. The Trust will report on the savings results of the pilot once a full year of data is available.

The Trust also launched several new innovation pilots in FY2018. The first explored 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. 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 will install approximately 15 controls in various building types and monitor activity over a six-month period. The Trust plans to report on the final results of the pilot in the FY2019 Annual Report.

In another initiative, the Trust collaborated with CMP to issue an RFP to develop and demonstrate an innovative strategy for using CMP's Energy Manager platform. The pilot's purpose was to inform and motivate low-income customers to take steps to reduce their electricity use, lower their electricity bills, and reduce their bad debt. The pilot built on the work that the Trust and CMP did through the Public Utilities Commission's (PUC's) Arrearage Management Program (AMP) stakeholder group, as well as the low-income discussions that occurred in connection with the review and finalization of Triennial Plan III. The Trust will report on the outcome of the pilot when results become available.

The Trust also used the Innovation Program to research ways to optimize DHP use through integrated thermostats that control more than one heating system. The Trust worked with manufacturers and contractors to define and install thermostat solutions that allow DHPs and central heating systems to work in concert with each other to provide cost-effective comfort. The Trust will publish the results of this study in FY2019.

Late in FY2018, the Trust issued an RFP for pilot projects that demonstrate electric load management technologies and strategies. In its Third Triennial Plan, the Trust identified Distributed Energy Resources (DERs) and 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 was also eager to build upon its experience with the Boothbay Non-Transmission Alternative (NTA) Pilot Project through this RFP.

Ultimately, the proposal review team awarded two contracts for pilot projects. The first pilot involves the operation of a fleet of 50-100 dispatchable residential and small commercial DERs (including DHPs, HPWHs, 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 10 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.

FY2019 Plans

- Gather, analyze, and report on results from the building tune-up pilot in long-term care facilities.
- Gather, analyze, and report on results from the advanced RTU controls pilot.
- Gather, analyze, and report on results from DHP integrated thermostat research project.
- Support bidders in marketing opportunities associated with the two load management pilot projects and manage participant uptake progress throughout the year. (The data gathering and analysis phases of the pilots are set to occur primarily in FY2020.)
- Identify ideas for new innovation pilots and issue solicitations, as appropriate.

Public Information and Outreach

The Trust reaches potential 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 considering the installation of energy conservation measures. The Trust seeks to boost 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 occasionally provides training opportunities to promote 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.

FY2018 Activities

Following are some program activity highlights for FY2018:

- Updated the Efficiency Maine website (www.efficiencymaine.com) to increase ease of use and responsive functionality for mobile and tablet visitors; over the course of FY2018 the website averaged about 16,000 visitors a month.
- Added more informational resources to the website, in particular regarding ductless heat pump installation considerations and user tips. The Trust also added case studies, videos, and technology tips to various Efficiency Maine webpages.
- 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 1,100 calls, 1,000 letters, and 600 emails a month. 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.
- Hosted several workshops and webinars for contractors who participate as trade allies. These offerings included workshops and distributor events across the state as well as a Building Operator Certification training for contractors and facility managers.
- 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.
- Convened several advisory groups to help guide program design and implementation in FY2018, including 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.

FY2019 Plans

- 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 educational resources on key technologies and their use, including ductless heat pumps. This may include video case studies and other web-based resources for customers, and/or briefings and webinars for the installer community.
- Support Maine public libraries offering the Electricity Monitor Loaners Program by continuing to offer educational materials and electricity monitors.
- 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 and to accelerate the adoption of advanced efficiency technologies.
- Research and address the energy efficiency training needs of school facility managers.

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, 2018. 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 November 14, 2018.

The report of the audit of the Trust's financial statements delivered an "unmodified opinion" and found "no material weaknesses" 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, 2018, 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.[15]

As reported in the audit, the Trust's FY2018 revenues and expenditures are $49,850,286 and $46,451,473, respectively, plus another $2,829,199 sent to state agencies, resulting in an increase to fund balance of $569,614. The Trust's governmental fund balance as of June 30, 2018, was $48,055,567, of which $27,138,922 is restricted for operations and programs and $20,916,645 is restricted for grant and revolving loan fund activity.

The Trust's revenues, expenditures, and fund balance for the 12 months of FY2018 are summarized in Table 18.[16]

[15] Efficiency Maine Trust, "Annual Financial Report for the Year Ended June 30, 2018," prepared by Runyon, Kersteen, Ouellette, Inc., October 3, 2018, at 2.
[16] Ibid., Statement 4, at 16.

Table 18: Statement of Revenues, Expenditures, and Changes in Fund Balance – Governmental Fund

	Special Revenue Fund
Revenues	
Intergovernmental:	
System Benefit Charges	$ 2,383,408
Alternative Compliance Mechanism	$ 939
Interest Income:	
Investments	$ 185,057
Loans	$ 654,808
Other Income	$ 520
Electric Procurement	$ 22,527,249
Renewable Resource	$ 54,533
Long-Term Contracts	$ 117,645
Maine Power Reliability Program settlement proceeds	$ 1,500,003
Forward Capacity Market credits	$ 12,878,652
Regional Greenhouse Gas Initiative proceeds	$ 9,518,667
Change in allowance for loan losses	$ 28,805
Total Revenues	**$ 49,850,286**
Expenditures	
Low-Income Initiatives	$ 5,162,032
Consumer Products Program	$ 11,344,053
Home Energy Savings Program	$ 6,800,020
Commercial and Industrial Prescriptive Program	$ 13,491,867
Commercial and Industrial Custom Program	$ 3,908,604
Commercial Small Business	$ 1,689,324
Commercial New Construction	$ 45,152
Renewables	$ 312
Administration and Strategic Initiatives	$ 4,010,109
Total Expenditures	**$ 46,451,473**
Excess of Revenues over Expenditures	$ 3,398,813
Other Financing Uses	
Intra-Entity Grants – State Agencies	$ (2,829,199)
Net change in Fund Balance	**$ 569,614**
Fund Balance, beginning of year	**$ 47,485,953**
Fund Balance, End of year	**$ 48,055,567**

Administration

In FY2018, Governor LePage reappointed two members to the Trust's Board of Trustees for three-year terms: Donald Lewis, retired CTO and Founder of Nyle Systems, and Al Hodsdon, owner of A.E. Hodsdon Engineers. These nominations were recommended for approval by the Maine State Legislature's Energy, Utilities and Technology Committee and confirmed by the Senate. Finally, the Board elected the following officers toward the end of FY2018:

- David Stapp, Chair
- Al Hodsdon, Vice-Chair
- Brent Boyles, Treasurer
- Herbert Crosby, Secretary

The Trust also updated its Confidential Information Management Systems (CIMS) Policy in FY2018 to incorporate the 2017 statutory changes to the definition of confidential information found in Title 35-A MRS §10106. The update also added clarity and focus to the duties of Trust employees and contractors, included trustees in the list of covered parties, expanded language on the return of confidential information, and clarified procedures for archiving data.

Other Initiatives

In FY2018, 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 FY2018, 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."[17] 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 257 – An Act to Enable Municipalities to Establish Microgrids;
- LD 260 – An Act to Create the Maine Energy Office;
- LD 822 – An Act to Ensure Fairness among Large Consumers of Natural Gas;
- LD 1471 – Resolve, Establishing the Commission to Study the Economic, Environmental and Energy Benefits of Energy Storage to the Maine Electricity Industry;
- LD 1487 – An Act to Control Electricity Transmission Costs through the Development of Nontransmission Alternatives;
- LD 1657 – An Act to Update the Allowance Budget for RGGI;
- LD 1700 – An Act to Protect Maine Residents and Businesses from Rising Electricity Costs;
- LD 1701 – An Act to Improve the Energy Efficiency of Group Homes in the North;
- LD 1745 – An Act Regarding a Biomass-generated Energy Purchase and Sale Agreement and Payments to Contractors;
- LD 1799 – Resolve – Review of PUC Rule on Standards of Conduct for Utilities;
- LD 1848 – An Act to Extend the Arrearage Management Program (AMP); and
- LD 1896 – An Act to Improve Efficiency through Electric Rate Design and Advanced Technology.

[17] 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). This plan is due to be submitted to the Legislature every two years to identify opportunities and recommend actions to lower the total cost of energy to consumers. The plan is required to include a section that must specify the State's progress in meeting the Oil Dependence Reduction Targets and recommendations, if needed, for actions to meet the reduction targets to:

a. reduce the use of oil across the state economy to achieve the targets of reducing oil consumption in Maine from 2007 levels by at least 30% by 2030 and by at least 50% by 2050;
b. focus on near-term policies and infrastructure changes that set the State on a reasonable trajectory to meet the targets;
c. prioritize the improvement of energy efficiency and the transition to the use of alternative energy sources for heating and transportation.[18]

In FY2018, 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 CHIP initiatives. As it does every year, in FY2018 MaineHousing briefed the Trust's Board, at a public meeting, on the elements of the coming year's weatherization plans. The Trust was given 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.[19]

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

[18] 2 MRS §9(5)(A).
[19] 35-A MRS §10104(5)(B)(4).

Table 19: MaineHousing Weatherization Initiatives

MaineHousing Maine State Housing Authority	GRANT YEAR/PERIOD		PRODUCTION BUDGET	PRODUCTION EXPENSES	UNITS	COMMENTS
LIHEAP 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.	2014	10-01-13/11-30-14	$3,965,811	$3,383,916	436	Production Complete Contract extended to 11/30/2014
	2015	10-01-14/03-31-18	$5,362,383	$5,139,987	716 Completed	Production Closed Contract period ended 03/31/2018
	2016	10-01-15/03-31-19	$5,335,728	$4,689,064	639 Projected	Production in Process Contract extended to 03/31/2019
	2017	10-01-16/03-31-20	$5,955,239	$1,420,836	658 Projected	Production in Process Contract extended to 03/31/2019
	2018	10-01-17/03-31-20	$5,063,069	$77,967	TBD	Production in Process Contract extended to 03/31/2020
	2019	10-01-18/03-31-20	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 $800 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 $7,212.	2013/2014	04-01-13/03-31-15	$2,637,114	$1,344,984	200	Production Complete Grant for 2013 and 2014 combined by DOE $1.3 million in funding carried over to PY 2015
	2015	04-01-15/03-31-16	$3,462,618	$2,777,390	367	Production Complete
	2016	04-01-16/10-31-17	$3,306,487	$3,221,259	368 Completed	Production Closed Contract period ended 10/31/2017
	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
WEATHERIZATION SUPPLEMENTAL						
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 $6,769.	2013	01-01-13/12-31-13	$909,117	$870,875	172	Production Complete Funded by MaineHousing
	2014	01-01-14/12-31-14	$1,174,186	$1,062,803	175	Production Complete Funded by MaineHousing

Prepared by gls/MH 09-17-2018

Public Utilities Commission

The Trust staff was also very active in proceedings at the Maine Public Utilities Commission (PUC) in FY2018. 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, Annual Updates (to the Triennial Plan), and related dockets. A selection of the key dockets that were active in FY2018 included:

- Docket No. 2015-00175 – Request for Approval of Third Triennial Plan Pertaining to Efficiency Maine Trust (including the FY2018 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. 2017-00145 – Solicitation for Applications for 2017 Disbursement of 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. 2016-00049 – Investigation into the Designation of a Non-Transmission Alternative (NTA) Coordinator;
- 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 FY2018, 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. The DEP is Maine's administrative liaison to RGGI Inc., the non-profit entity that manages the Regional Greenhouse Gas Initiative. In FY 2018, 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. In FY2018, the Trust also discussed with DEP how the Trust's program designs might be used to reduce emissions from biomass combustion and mitigate the risk of leaking fuel tanks.

Workforce Development

In FY2018, the Trust monitored workforce capacity and skillsets as part of its planning and implementation of conservation programs. During FY2018, 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.

Electric Vehicles

In 2018, the Trust began work with the Maine Department of Transportation, the DEP, and the GEO to develop a strategic plan to develop electric vehicle infrastructure in Maine. The resulting Electric Vehicle Supply Equipment (EVSE) Initiative is using funds from the settlement of legal claims against the car manufacturer, Volkswagen, to reduce NOx and carbon emissions from light-duty vehicles. Looking forward, the Trust will continue to administer the implementation of this Initiative pursuant to the terms of its Memorandum of Agreement with the Department of Transportation. At the urging of the Board, the Trust staff will also continue to pursue additional funding opportunities to complement and/or expand on the EVSE Initiative to promote greater market penetration and use of electric vehicles.

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…"[20]

Independent System Operator for New England

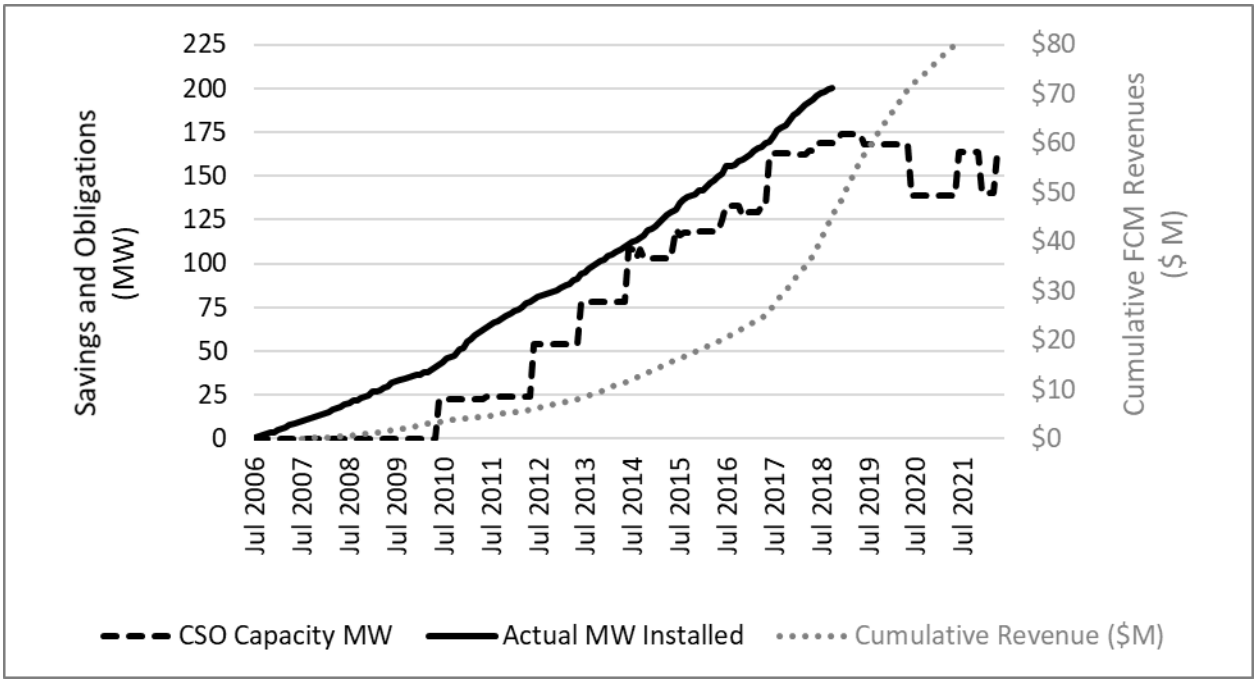
The Independent System Operator for New England (ISO-NE) operates markets that serve New England's electricity customers. Among these is the Forward Capacity Market (FCM) into which electricity generators, efficiency program administrators, and others may bid to supply qualifying "capacity" to serve 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 FY2018 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 FY2018, the Trust participated in the 12th Forward Capacity Auction (FCA). In the auction, the Trust took on an obligation to supply 17.284 MW of summer peak demand savings, for which it will be paid a price of $4.631 per kW per month. The Trust also prepared for the 13th FCA, which will be held in February 2019. To date, the Trust has delivered a total of 200 MW of summer peak demand savings. Figure 1 summarizes the Trust's delivered savings and future obligations.

[20] 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 Regional Greenhouse Gas Initiative (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 $10.7 million of RGGI funds in FY2017. The RGGI funds expended in that year are projected to result in annual savings of 517,496 kWh, 357,423 MMBtu, and 29,044 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 Strategic Electrification Initiative. Among other deliverables, this initiative prepared an Action Plan that analyzed the amount of heating and transportation needed in 2050 in order for the northeastern states to meet certain carbon reduction goals. It further modeled the impact on the electric grid of various scenarios of increased electrification of the heating and mobility sectors. Drawing from its experience administering nationally recognized heat pump programs, in FY2018 the Trust provided data and analysis to the plan's authors.

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."[21]

In FY2018 as in the last several years, the Trust collected remittances from the electric utilities of a small amount of voluntary contributions that are made each year by Maine ratepayers to be used for renewable energy demonstration projects. The directive for the utilities to collect these voluntary contributions and remit them to the Trust is found in 35-A MRS §10121. In recent years, the amount of contributions has shrunk to slightly more than $50,000 annually. The Trust is keen to retain the legislative authority provided in §10121 to conduct renewable demonstration projects and/or rebate programs for renewable energy systems, when funding permits it. However, the Trust also feels that the time has come for the Legislature to revisit, and reconsider, the desirability of retaining the provisions that authorize and direct the collection of voluntary contributions from electricity ratepayers given the administrative costs of doing so, the relatively low annual revenues that result, and the advancements in commercialization of renewables since 2009 when this provision was adopted.

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

Appendices

Appendix A: Total Energy Savings and Lifetime Avoided Energy Costs

Tables A-1 and A-2 illustrate the total energy savings[22] and lifetime avoided energy costs associated with each of the programs administered by the Trust in FY2018. 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	10,460,117	183,455,141	$3,981,162	$5,177,394	$15,993,318	$0.05	1.75
Commercial and Industrial Prescriptive Program – Electric	57,912,414	708,603,735	$11,622,883	$17,066,552	$62,908,254	$0.04	2.19
Small Business Initiative	1,176,599	16,910,602	$1,685,293	$827,310	$2,571,016	$0.15	1.02
Consumer Products Program	50,805,914	538,027,707	$11,219,090	$10,214,837	$50,024,518	$0.04	2.33
Home Energy Savings Program – Electric	14,181,312	255,263,616	$3,728,907	$1,954,992	$13,648,419	$0.02	2.40
Low-Income Initiatives – Electric	5,136,721	51,423,490	$2,068,419	$1,333,018	$5,510,407	$0.06	1.62
Strategic Initiatives – Electric			$1,084,734				
Administration – Electric			$2,168,043				
Total	**139,673,076**	**1,735,684,291**	**$37,558,531**	**$36,574,102**	**$150,665,932**	**$0.04**	**2.03**

[22] 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	2,356	31,976	$87,190	$74,547	$409,833	$5.06	2.53
Commercial and Industrial Custom Program – Unregulated Fuels	35,258	469,862	$504,721	$1,038,457	$5,709,087	$3.28	3.70
Commercial and Industrial Prescriptive Program – Natural Gas	33,598	629,445	$995,173	$450,162	$2,392,677	$2.30	1.66
Commercial and Industrial Prescriptive Program – Unregulated Fuels	36,403	763,584	$943,445	$487,986	$6,034,120	$1.87	4.22
Consumer Products Program – Natural Gas	559	5,589	$30,384	$7,301	$30,507	$6.74	0.81
Consumer Products Program – Unregulated Fuels	6,157	61,574	$88,524	$81,076	$703,350	$2.75	4.15
Low-Income Initiatives – Natural Gas			$33,142				
Low-Income Initiatives – Unregulated Fuels	43,714	754,258	$2,754,675	$2,685,107	$8,939,063	$7.21	1.64
Home Energy Savings Program – Natural Gas	10,001	236,268	$324,148	$771,174	$1,909,238	$4.64	1.74
Home Energy Savings Program – Unregulated Fuels	67,773	1,601,155	$2,361,217	$5,226,137	$12,938,643	$4.74	1.71
Renewable Energy Demonstration Grants Program			$312				
Strategic Initiatives – Thermal			$150,007				
Administration – Thermal			$1,296,382				
Total	**235,818**	**4,553,712**	**$9,569,318**	**$10,821,947**	**$39,066,519**	**$4.48**	**1.92**

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[23]:

- *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.

[23] 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	1.75	4.02	2017	87%	1.61	3.48
Commercial and Industrial Prescriptive Program – Electric	2.19	5.41	2017	72%	1.86	3.90
Small Business Initiative	1.02	1.53	Note 4	79%	1.00	1.21
Consumer Products Program	2.33	4.46	2017, Note 2	71%	1.94	3.19
Home Energy Savings Program – Electric	2.40	3.66	2017, Note 2	75%	1.97	2.75
Low-Income Initiatives – Electric	1.62	2.66	2014, Note 3	100%	1.62	2.66
Total	**2.03**	**4.01**		**75%**	**2.03**	**4.01**

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	2.53	4.70	Note 3	93%	2.43	4.35
Commercial and Industrial Custom Program – Unregulated Fuels	3.70	11.31	2017	93%	3.60	10.46
Commercial and Industrial Prescriptive Program – Natural Gas	1.66	2.40	2017	62%	1.18	1.48
Commercial and Industrial Prescriptive Program – Unregulated Fuels	4.22	6.40	2017	56%	2.85	3.58
Consumer Products Program – Natural Gas	0.81	1.00	Note 1	75%	0.64	0.75
Consumer Products Program – Unregulated Fuels	4.15	7.95	Note 1	75%	3.53	5.96
Low-Income Initiatives – Natural Gas			2014, Note 3			
Low-Income Initiatives – Unregulated Fuels	1.64	3.25	Note 4	100%	1.64	3.25
Home Energy Savings Program – Natural Gas	1.74	5.89	2011, Note 2	75%	1.59	4.42
Home Energy Savings Program – Unregulated Fuels	1.71	5.48	2011, Note 2	75%	1.55	4.11
Total	**1.92**	**4.08**		**80%**	**1.70**	**3.25**

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 FY2019.

Appendix B: Program Expenditures

Table B-1: Electric Program Expenditures

Program	Incentive	Delivery	Total
Commercial and Industrial Custom Program – Electric	$3,146,231	$834,930	$3,981,162
Commercial and Industrial Prescriptive Program – Electric	$10,622,533	$1,000,351	$11,622,883
Small Business Initiative	$1,482,169	$203,124	$1,685,293
Consumer Products Program	$8,718,782	$2,500,308	$11,219,090
Home Energy Savings Program – Electric	$3,128,000	$600,907	$3,728,907
Low-Income Initiatives – Electric	$1,339,612	$728,807	$2,068,419
Strategic Initiatives – Electric			$1,073,297
Administration – Electric			$2,179,481
Total	**$28,437,327**	**$6,941,724**	**$37,558,531**

Table B-2: Thermal Program Expenditures

Program	Incentive	Delivery	Total
Commercial and Industrial Custom Program – Natural Gas	$26,161	$61,029	$87,190
Commercial and Industrial Custom Program – Unregulated Fuels	$423,236	$81,485	$504,721
Commercial and Industrial Prescriptive Program – Natural Gas	$816,193	$178,980	$995,173
Commercial and Industrial Prescriptive Program – Unregulated Fuels	$1,996,457	$364,760	$2,361,217
Consumer Products Program – Natural Gas	$4,900	$25,484	$30,384
Consumer Products Program – Unregulated Fuels	$53,633	$34,892	$88,524
Low-Income Initiatives – Natural Gas	$0	$33,142	$33,142
Low-Income Initiatives – Unregulated Fuels	$2,539,878	$214,798	$2,754,675
Home Energy Savings Program – Natural Gas	$294,599	$29,549	$324,148
Home Energy Savings Program – Unregulated Fuels	$1,996,457	$364,760	$2,361,217
Renewable Energy Demonstration Grants Program			$312
Strategic Initiatives – Thermal			$150,007
Administration – Thermal			$1,296,382
Total	**$6,982,877**	**$1,289,747**	**$9,569,318**

Appendix C: Amended Budget

Table C-1: Efficiency Maine Trust FY2019 Amended Budget as of 11/14/2018

	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 2019 TOTAL BUDGET
TOTAL REVENUES AND USE OF FUND BALANCE	**3,205,078**	**14,810,857**	**33,521,992**	**2,133,179**	**24,360,741**	**3,689,421**	**311,948**	**1,000,000**	**701,500**	**83,734,716**
C&I CUSTOM PROGRAM	**-**	**3,766,765**	**3,135,322**	**959,787**	**6,316,000**	**686,917**	**-**	**-**	**-**	**14,864,791**
C&I PRESCRIPTIVE PROGRAM	**-**	**2,176,842**	**5,228,362**	**264,129**	**6,865,338**	**1,939,639**	**-**	**-**	**-**	**16,474,310**
COMMERCIAL NEW CONSTRUCTION/MAB	**-**	**127,213**	**589,841**	**-**	**-**	**-**	**-**	**-**	**-**	**717,054**
SMALL BUSINESS INITIATIVE	**-**	**-**	**3,549,449**	**6,920**	**-**	**-**	**-**	**-**	**1,000**	**3,557,369**
Commercial Small Business	-	-	**3,549,449**	**6,920**	-	-	-	-	-	**3,556,369**
Commercial Loan Support	-	-	-	-	-	-	-	-	**1,000**	**1,000**
CONSUMER PRODUCTS	**-**	**131,375**	**7,750,260**	**282,104**	**5,831,865**	**-**	**-**	**-**	**-**	**13,995,604**
HOME ENERGY SAVINGS PROGRAM	**-**	**2,679,200**	**4,414,538**	**-**	**2,132,164**	**477,761**	**-**	**-**	**602,500**	**10,306,163**
Home Energy Savings Program	-	**2,679,200**	**4,414,538**	-	**2,132,164**	**477,761**	-	-	-	**9,703,663**
Revolving Loan Support	-	-	-	-	-	-	-	-	**352,500**	**352,500**
Loan Loss Reserve	-	-	-	-	-	-	-	-	**250,000**	**250,000**
LOW-INCOME INITIATIVES	**-**	**1,908,505**	**5,964,585**	**370,090**	**511,527**	**310,544**	**-**	**-**	**-**	**9,065,251**
RENEWABLES	**-**	**-**	**-**	**-**	**-**	**-**	**293,948**	**-**	**-**	**293,948**
ELECTRIC VEHICLE SUPPLY EQUIPMENT	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**950,000**	**-**	**950,000**
INNOVATION	**-**	**113,688**	**786,158**	**45,000**	**492,180**	**22,880**	**-**	**-**	**-**	**1,459,906**
PUBLIC INFORMATION	**-**	**47,952**	**122,243**	**10,567**	**106,601**	**11,440**	**-**	**-**	**-**	**298,803**
EM&V	**-**	**237,913**	**831,216**	**106,334**	**592,557**	**57,200**	**-**	**-**	**-**	**1,825,220**
ADMINISTRATION	**3,175,078**	**307,639**	**1,413,597**	**105,000**	**1,330,000**	**160,160**	**-**	**50,000**	**72,219**	**6,613,693**
INTER-AGENCY TRANSFERS	**30,000**	**2,759,000**	**201,943**	**15,000**	**190,000**	**22,880**	**18,000**	**-**	**-**	**3,236,823**
Public Utilities Commission	-	**74,000**	**201,943**	**15,000**	**190,000**	**22,880**	-	-	-	**503,823**
RGGI Rate Relief	-	**2,500,000**	-	-	-	-	-	-	-	**2,500,000**
RGGI Inc Operating Costs	-	**85,000**	-	-	-	-	-	-	-	**85,000**
Department of Environmental Protection	-	**100,000**	-	-	-	-	-	-	-	**100,000**
Governor's Energy Office	**30,000**	-	-	-	-	-	-	-	-	**30,000**
DECD (Maine Technology Institute)	-	-	-	-	-	-	**18,000**	-	-	**18,000**
TOTAL EXPENDITURES	**3,205,078**	**14,256,092**	**33,987,514**	**2,164,931**	**24,368,232**	**3,689,421**	**311,948**	**1,000,000**	**675,719**	**83,658,935**
RESERVED FUND BALANCE	**202,738**	**315,824**	**1,040,000**	**-**	**1,260,000**	**-**	**-**	**-**	**-**	**2,818,562**

Appendix D: Public Utilities Commission Assessments and Revenue Collections

Table D-1: Public Utilities Commission Assessments and Revenue Collections

PUC Assessments and Revenue Collections - FY 2018

Electric Efficiency Procurement

Procurement Quarter:	Jul-Sep 2017	Oct-Dec 2017	Jan-Mar 2018	Apr-Jun 2018	Total - FY 2018
Billing Date:	5-Jul-17	1-Oct-17	1-Jan-18	1-Apr-18	
Name					
Central Maine Power Co	$ 4,430,734	$ 4,430,734	$ 4,430,734	$ 4,430,734	$ 17,722,938
Eastern Maine Electric Coop	$ 53,324	$ 53,324	$ 53,324	$ 53,324	$ 213,298
Emera (Bangor Hydro/MPS)	$ 1,014,929	$ 1,014,929	$ 1,014,929	$ 1,014,929	$ 4,059,714
Fox Island Electric Coop	$ 5,801	$ 5,801	$ 5,801	$ 5,801	$ 23,203
Houlton Water Co	$ 40,079	$ 40,079	$ 40,079	$ 40,079	$ 160,315
Kennebunk Light & Power	$ 63,523	$ 63,523	$ 63,523	$ 63,523	$ 254,091
Madison Electric Works	$ 15,240	$ 15,240	$ 15,240	$ 15,240	$ 60,958
Van Buren Light & Power Co	$ 8,183	$ 8,183	$ 8,183	$ 8,183	$ 32,732
Totals	**$ 5,631,812**	**$ 5,631,812**	**$ 5,631,812**	**$ 5,631,812**	**$ 22,527,249**

Revenue Forecast	FY 2019
Central Maine Power Co	$ 18,899,572
Eastern Maine Electric Coop	$ 222,454
Emera	$ 4,204,482
Fox Island Electric Coop	$ 24,910
Houlton Water Co	$ 168,514
Kennebunk Light & Power	$ 263,894
Madison Electric Works	$ 60,336
Swan's Island Electric	$ -
Van Buren Light & Power Co	$ 33,349
Total	**$ 23,877,511**

Natural Gas Efficiency Procurement

	Total - FY 2018	Revenue Forecast - FY 2019
Name		
Northern Utilities - Unitil		
Bangor Natural Gas	*Confidential*	*Confidential*
Maine Natural Gas		
Summit Natural Gas		
Totals	**$ 2,383,407**	**$ 179,153**

Alternative Compliance Mechanism (ACM)

Assessment Timeframe:	Jul '17-Jun '18	Total - FY 20178
Billing Date:	18-Jul-17	
Name		Total - FY 2018
Gulf Oil Limited Partnership	$ 939	$ 939
Totals	**$ 939**	**$ 939**

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 16 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 21, 2016, in Docket No. 2016-00143.

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 Agency (CAA): Nonprofit 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.