FY2020 ANNUAL REPORT

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

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Last Revised November 18, 2020

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Abbreviations/Acronyms

ACEEE	American Council for an Energy-Efficient Economy
AMP	Arrearage Management Program
BEV	Battery Electric Vehicle
BTM	Behind the Meter
BTU	British thermal unit
C&I	Commercial and Industrial
CAA	Community Action Agency
CCF	Centum Cubic Feet
CEO	Chief Executive Officer
CHIP	Central Heating Improvement Program
CHP	Combined Heat and Power
CIP	Commercial and Industrial Prescriptive Program
CLIC	Cost-effective Lighting Investment Calculator
CMP	Central Maine Power
CSO	Capacity Supply Obligation
CTO	Chief Technology Officer
DC	Direct Current
DEP	Maine Department of Environmental Protection
DER	Distributed Energy Resource
DHHS	Department of Health and Human Services
DIY	Do-It-Yourself
DOE	U.S. Department of Energy
ECM	Electronically Commutated Motor
EERRF	Energy Efficiency and Renewable Resource Fund
EM&V	Evaluation, Measurement, and Verification
EV	Electric Vehicle
EVSE	Electric Vehicle Supply Equipment
FCA	Forward Capacity Auction
FCM	Forward Capacity Market
FON	Funding Opportunity Notice
FR	Free-Ridership
FY	Fiscal Year
GEO	Governor's Energy Office
GHG	Greenhouse Gas
HESP	Home Energy Savings Program
HVAC	Heating, Ventilation, and Air Conditioning
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
M&V	Measurement and Verification
MACE	Maximum Achievable Cost-Effective
MaineHousing	Maine State Housing Authority
MMBtu	Million British Thermal Unit(s)
MTI	Maine Technology Institute
MPCT	Modified Participant Cost Test
MPRP	Maine Power Reliability Program
MRS	Maine Revised Statutes
MW	Megawatt(s)
NEEP	Northeast Energy Efficiency Partnerships
NOx	Nitrogen oxide
NTA	Non-Transmission Alternative
NTG	Net-to-Gross
NWA	Non-Wires Alternative
O&M	Operations and Maintenance
OPA	Office of the Public Advocate
PACE	Property Assessed Clean Energy
PACT	Program Administrator Cost Test
PHEV	Plug-in Hybrid Electric Vehicle
PUC	Public Utilities Commission
QP	Qualified Partner
RFP	Request for Proposals
RGGI	Regional Greenhouse Gas Initiative
RRV	Residential Registered Vendor
RTU	Rooftop Unit
SBI	Small Business Initiative
SLIC	Small Business Cost-effective Lighting Investment Calculator
SO	Spillover
T&D	Transmission and Distribution
T&ST	Transmission and Sub-Transmission
TA	Technical Assistance
TRC	Total Resource Cost
TRM	Technical Reference Manual
VRF	Variable Refrigerant Flow
VW	Volkswagen
WAP	Weatherization Assistance Program

Message from the Executive Director

Fiscal Year 2020 (FY2020) brought exciting changes to the Efficiency Maine Trust (the Trust). The State Legislature enacted several remarkable new pieces of legislation in FY2019, some of which called for an evolution of the Trust's role in Maine's energy programming landscape. We received a host of new tasks and responsibilities, and in FY2020 we hit the ground running.

With the passage of LD 614 – *An Act To Increase Electric Vehicles in Maine*, the Trust was formally authorized to offer rebates on electric vehicles (EVs) and also to promote the development of EV charging infrastructure across the state. Roughly $8 million in Volkswagen settlement funding allowed the Trust to support these new initiatives. With the launch of these new initiatives, FY2020 marked a notable expansion of the Trust's incentive portfolio into the transportation sector.

With LD 1679 – *An Act To Establish the Maine Climate Change Council To Assist Maine To Mitigate, Prepare for and Adapt to Climate Change*, the Trust was named as an ex-officio member of the new state body charged with developing a four-year plan to meet Maine's new carbon reduction goals. The Trust also was nominated to serve as co-chair for the Buildings, Infrastructure, and Housing Working Group. In collaboration with co-chair Kathleen Meil from Maine Conservation Voters and the Governor's Office of Policy Innovation and the Future, we convened monthly meetings of this stakeholder group to craft recommendations for the Council to review and consider as it develops the State's Climate Action Plan.

LD 1181 – *An Act To Reduce Electricity Costs through Nonwires Alternatives* expanded and solidified the Trust's role in promoting cost-effective, low-carbon energy resources located on the customer's side of the meter (or "behind-the-meter"). The new law amended the process for planning and approving investments in the electric utilities' transmission and distribution system by incorporating a formal, independent process for the consideration of non-wires alternatives (NWAs) such as energy efficiency, distributed generation, load management, and energy storage. The law assigns the Trust the role of analyzing, developing, and delivering all customer-sited NWA resources that are determined to be more cost-effective than the proposed transmission and distribution system investments.

Two other pieces of legislation newly tasked the Trust with spearheading the state's push to decarbonize through "beneficial electrification" of fossil-fuel end uses. LD 1766 – *An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives* – established a goal of installing 100,000 high-performance heat pumps in the state over five years and dedicated a funding source to help the Trust achieve this objective. In FY2020, the Trust launched enhanced heat pump incentives and doubled down on its outreach and training efforts, putting the state on the trajectory toward achieving this aggressive target. Additionally, LD 1464 – *An Act To Support Electrification of Certain Technologies for the Benefit of Maine Consumers, Utility Systems and the Environment* – directed the Trust to study barriers to beneficial electrification in the transportation and heating sectors in the state. The Trust conducted this study in consultation with stakeholders and published this report in FY2020. LD 1464 also directed the Maine Public Utilities Commission (PUC) to issue a request for proposals for beneficial electrification of transportation; the Trust applied for and was awarded a PUC

grant to develop instructional materials about EV charging in Maine and to expand availability of EV chargers under this solicitation in FY2020.

These exciting policy developments coincided with an important milestone for the Trust: we celebrated our 10-year anniversary. As we take on new responsibilities with an eye to the future, we also are taking stock of our past accomplishments. A decade of programs has resulted in installation of high-efficiency equipment that, over its lifetime, will lower costs for Maine energy consumers by $1.5 billion to $2 billion. This savings comes from reduced consumption of electricity, oil, and natural gas associated with the upgrades of 7 million LED bulbs; thousands of ENERGY STAR appliances; air sealing more than 15,000 homes; 3,500 loans for weatherization and heating systems; 17,500 projects at Maine businesses and municipalities; and major investments at nearly all of Maine's largest manufacturers, from Texas Instruments to Bath Iron Works to the Madawaska Paper Mill.

Through economic ups and downs, and even through the COVID-19 pandemic, the Trust's programs have helped grow good jobs in the state. According to a 2019 report by E4 The Future, Maine has more than 8,600 jobs working in 1,580 businesses in the energy-efficiency supply chain. Electricians, plumbers, insulation and heating technicians, energy auditors, engineers and architects, and sales staff at supply houses and retail stores join the flourishing renewable-energy trade as part of Maine's clean-energy economy. These jobs will play a critically important role as we transform the markets for products that consume energy in the years ahead.

The transformation in these markets, now in its early stages, will be on a massive scale. To sustain our economy and quality of life, Maine must aggressively shift to more efficient products that run on lower carbon energy. We can do it. We have already begun, and new beneficial electrification policies will help propel us further. With assistance from the Trust, homeowners and businesses have installed more than 55,000 high-performance heat pumps and 33,000 heat pump water heaters, including more than 3,000 in qualifying low-income homes, making Maine a national leader on beneficial electrification. Our grants to establish a network of EV charging stations across the state and rebates for EVs will help define the future of transportation. To the benefit of Maine's energy independence and resilience, these products will increasingly be powered by local, renewable-energy generation.

The Trust is well positioned to provide help during the transition ahead. We have been fortunate to have strong bipartisan support at the Legislature, careful oversight from the PUC, and thoughtful governance from our volunteer board of trustees. We have received feedback and advice from stakeholders making our programs stronger and our operations better. We have developed administrative capacity and processes, financing services, a robust website, a registry of vendors, and a deeply committed staff. Together, these resources enable the Trust to turn complex policies into successful programs.

Amid the uncertainty of these times, one thing is sure: Maine's economy and environment are inextricably bound to our use of energy. Ingenuity and entrepreneurship in the energy sector will bring us more efficient and cleaner technologies that we can use to light our buildings, heat our homes, power our factories, and travel our roads. Making good choices among these technologies will help us avoid high energy costs, create jobs, and cut carbon pollution. It has been, and will continue to be, our

privilege at the Trust to serve the state's energy consumers as we navigate together the transitions and opportunities that lie ahead.

/s/ Michael D. Stoddard

Introduction

This Annual Report of the Efficiency Maine Trust ("the Trust" or "Efficiency Maine") describes activities during Fiscal Year 2020 (FY2020), which covered the period from July 1, 2019, to June 30, 2020. 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 1.7 billion kWh and more than 3.3 million MMBtu in cost-effective lifetime energy savings for Maine ratepayers. Some noteworthy highlights of the Trust's FY2020 programs include:

- Avoiding more than $237 million in unnecessary lifetime energy costs;
- Prompting approximately $49 million of incremental private investment with $50 million of program investment;
- Reaching a milestone of promoting more than 55,000 high-performance heat pump installations over the past eight years;
- Supporting a record number of heat pump water heater installations in a single year – 8,542 units;
- Supporting weatherization projects in more than 1,500 homes through the Home Energy Savings Program (HESP) and Low-Income Initiatives;
- Adding more than 21.8 MW of new peak summer demand reductions to the grid; and
- Avoiding an estimated 54,466 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 distributed energy resources (such as efficiency and alternative energy) that cost less than traditional energy 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. Al Hodsdon (owner of A.E. Hodsdon Engineers) and Suzanne MacDonald (Chief Community Development Officer at the Island Institute) served as Chair and Vice-Chair, respectively. Glenn Poole (former Energy Manager at Verso Corporation) served as Treasurer, and Kenneth Fletcher (former Director of the Governor's Energy Office [GEO]) served as Secretary. Ex officio positions were filled by Dan Burgess (Director of the GEO) and by Dan Brennan (Director of the Maine State Housing Authority). James Boyle (owner of Boyle Associates Environmental Consultants), David Stapp (Chief Executive Officer/Chief Technology Officer of Peregrine Turbine Technologies), and Joan Welsh (former member of the Maine House of Representatives) also served.

[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		✓			
Distributor Initiatives	✓	✓	✓	✓	✓
Retail Initiatives	✓	✓	✓	✓	✓
Home Energy Savings Program			✓	✓	✓
Low-Income Initiatives			✓	✓	✓
Renewable Energy Demonstration Grants	✓				✓
Electric Vehicle Initiatives	✓	✓	✓	✓	✓

Funding

The Trust received funds in FY2020 from a variety of sources, including Maine's electricity and natural gas utility ratepayers, the Regional Greenhouse Gas Initiative (RGGI), the Maine Power Reliability Program (MPRP) Settlement, the Forward Capacity Market (FCM) from the New England grid, and the federal Volkswagen (VW) Settlement. The Trust is directed by Maine statute to invest these funds to promote more efficient and affordable use of energy and customer-sited alternative energy systems. Table 2 depicts the funding sources for each program. The table is followed by brief descriptions of the funding sources and how they are invested through Efficiency Maine programs.

Table 2: Program Funding Sources

Program	Electric Efficiency Procurement	Natural Gas Efficiency Procurement	Regional Greenhouse Gas Initiative	Maine Power Reliability Program Settlement	Forward Capacity Market	Federal/Other	Energy Efficiency and Renewable Resource Fund	Volkswagen Settlement Funds	Agricultural Fair Assistance Program Fund
Commercial and Industrial Custom Program	✓	✓	✓	✓	✓				
Commercial and Industrial Prescriptive Program	✓	✓	✓	✓	✓				
Small Business Initiative	✓			✓	✓	✓			
Distributor Initiatives	✓	✓	✓	✓	✓				
Retail Initiatives	✓		✓	✓	✓				
Home Energy Savings Program	✓	✓	✓	✓	✓	✓			
Low-Income Initiatives	✓	✓	✓	✓	✓				
Renewable Energy Demonstration Grants							✓		
Electric Vehicle Initiatives								✓	
Agricultural Fair Assistance Program[2]									✓

Electric Efficiency Procurement

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

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

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 the maximum achievable cost-effective natural gas savings through energy efficiency and conservation.

Maine's very large manufacturers and very large agricultural and aquaculture businesses, whose usage exceeds 1 million centum cubic feet (CCF) of natural gas annually, are limited to paying the assessment

[2] The Trust collected revenues for the Agricultural Fair Assistance Program Fund but did not make any expenditures from it in FY2020. The Trust will report on program results in future annual reports.

for the Natural Gas Efficiency Procurement on their first 1 million CCF of usage. This limitation does not impact their eligibility for the Trust's natural gas efficiency programs.

Regional Greenhouse Gas Initiative

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

Maine law requires that 100% of the annual carbon dioxide emissions allowances be allocated for public benefit to produce funds for carbon reduction and energy conservation, and that the revenue resulting from the sale of allowances must be deposited in the Regional Greenhouse Gas Initiative Trust Fund managed by the Trust.[3]

The Trust must use RGGI funds for measures, investments, loans, technical assistance and arrangements that reduce electricity consumption, increase energy efficiency or reduce greenhouse gas emissions and lower energy costs at commercial or industrial facilities and for investment in measures that lower residential heating energy demand and reduce greenhouse gas emissions.

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 FY2020, the Trust received through the MPRP Settlement $300,000 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.

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. Prior to FY2020 and for part of FY2020, the Trust used FCM revenues to offset a portion of the electric utility procurement necessary to capture MACE potential.

In late FY2019, the Maine Legislature enacted a Governor's bill – LD 1766 - *An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives* – establishing a goal of installing 100,000 high-performance heat pumps in the state during the next five fiscal years. The new law directs the Trust to allocate all of the next five years of FCM revenue to promoting high-efficiency heat pumps. It requires that these funds be used to "supplement but not supplant" the existing incentives funded by the Electric Efficiency Procurement, and provides that the Trust's FCM revenues must be excluded from consideration when the PUC determines the amount of cost-effective electric

[3] 38 MRS §580-B(7).

energy efficiency resources to be procured to capture MACE potential. The new law went into effect in September 2019.[4]

Federal/Other

The Trust received federal funds through the American Recovery and Reinvestment Act in 2009 and 2010. These funds were disbursed through grants and also through a revolving loan fund. The revolving loan fund continued to operate in FY2020.

Energy Efficiency and Renewable Resource Fund

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

Volkswagen Settlement Funds

In 2016 and 2017, VW agreed to settle allegations that it violated the federal Clean Air Act by installing "defeat devices" on certain diesel vehicles. Under consent decrees reflecting one settlement agreement, Maine (through the Maine Department of Transportation) received settlement funds from VW. Through a Memorandum of Understanding, the State contracted with the Trust to administer approximately $3.15 million of these funds to promote electric vehicle (EV) charging infrastructure with the goal of reducing GHG emissions and improving the energy efficiency of transportation in the state. Separately, VW settlement funds were also awarded to the Office of the Attorney General for the State of Maine. Of these funds, $5.1 million were transferred to the Trust for the purpose of running a program to reduce carbon and nitrogen oxide (NOx) emissions through the promotion and increased use of EVs. Some of these funds were reported on in the Trust's FY2019 Annual Report.

Agricultural Fair Assistance Program Fund

In late FY2019, the Maine Legislature enacted a bill, LD 1186 – *An Act To Address Electricity Costs of Agricultural Fairs,* requiring the Trust to administer a new program to help agricultural fairs reduce their electricity demand charges. The new law established the Agricultural Fair Assistance Program Fund to support this program. The PUC assesses each electric utility an amount necessary to collect the total value of demand charges paid by agricultural fairs in the state during the prior year. The Trust collected revenues for this fund but did not make any expenditures from it in FY2020.

Results

In FY2020, 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

[4] Public Law, Chapter 308, LD 1766, 129th Maine State Legislature – *An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives.*

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 FY2020. 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.[5]

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[6]) to the combination of Efficiency Maine costs and participants' incremental cost.

[5] 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).

[6] 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 IV.

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	9,992,838	148,508,745	$3,324,453	$2,422,533	$10,405,427	$0.039	1.81
Commercial and Industrial Prescriptive Program – Electric	24,820,003	339,957,146	$7,626,873	$9,619,530	$31,080,830	$0.051	1.80
Small Business Initiative	3,543,252	46,076,967	$2,289,541	$1,476,682	$5,268,153	$0.082	1.40
Distributor Initiatives – Electric	20,755,358	278,377,226	$6,659,120	$3,265,863	$25,840,710	$0.036	2.60
Retail Initiatives – Electric	42,246,583	370,183,336	$7,001,462	$9,726,917	$67,750,048	$0.045	4.05
Home Energy Savings Program – Electric	22,814,327	410,657,885	$6,581,483	$9,621,318	$35,385,696	$0.039	2.18
Low-Income Initiatives – Electric[7]	8,757,673	95,702,227	$3,201,203	$414,927	$11,369,031	$0.038	3.14
Electric Vehicle Initiatives			$2,291,723				
Strategic Initiatives – Electric			$796,054				
Administration – Electric			$2,590,732				
Total	**132,930,033**	**1,689,463,532**	**$42,362,643**	**$36,547,711**	**$187,099,894**	**$0.047**	**2.37**

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	31,731	465,483	$534,896	$1,288,592	$3,479,631	$3.92	1.91
Commercial and Industrial Custom Program – Unregulated Fuels	28,245	554,651	$429,219	$714,143	$10,202,472	$2.06	8.92
Commercial and Industrial Prescriptive Program – Natural Gas	11,572	260,725	$168,373	$46,145	$1,645,411	$0.82	7.67
Commercial and Industrial Prescriptive Program – Unregulated Fuels	18,283	425,430	$260,645	$46,577	$9,204,484	$0.72	29.96
Distributor Initiatives – Natural Gas[8]	-	-	$7,000	$0	$0	-	-
Distributor Initiatives – Unregulated Fuels	15,807	377,168	$2,129,397	$128,355	$5,947,901	$5.99	2.63
Retail Initiatives – Unregulated Fuels	1,984	49,600	$569,559	$0	$856,412	$11.48	1.50
Home Energy Savings Program – Natural Gas	96	2,406	$7,405	$1,793	$16,637	$3.82	1.81
Home Energy Savings Program – Unregulated Fuels	33,336	772,868	$2,953,209	$8,666,970	$15,943,025	$15.04	1.37
Low-Income Initiatives – Unregulated Fuels	7,155	126,907	$622,345	$1,515,733	$3,321,822	$16.85	1.55
Renewable Energy Demonstration Grants Program			$0				
Strategic Initiatives – Thermal			$36,547				
Administration – Thermal			$565,107				
Total	**147,488**	**3,035,238**	**$ 8,283,703**	**$12,408,308**	**$ 50,617,796**	**$6.82**	**2.45**

[7] Per Triennial Plan IV, the Trust allocated a portion of the Low-Income Initiatives electric budget to Retail Initiatives and Distributor Initiatives to capture heat pump water heater sales to low-income customers through these channels. The costs and savings associated with these investments are reflected in the Low-Income Initiatives electric results and not in the Distributor Initiatives or Retail Initiatives electric results.

[8] Distributor Initiatives launched new incentives for residential natural gas space and water heating systems in the latter half of FY2020. Though the Trust incurred costs associated with setting up and marketing the new measures, it did not process any associated rebates before year's end.

As discussed in the "Finance and Administration" section of this report, the Trust invested almost $60 million in FY2020 to fund the programs and cost savings described above. Table 5 provides a summary of the Trust's payments during FY2020.

Table 5: FY2020 Payments Made[9]

Use of Funds	Amount
Programs	**$47,868,292**
Commercial and Industrial Custom Program	$4,910,963
Commercial and Industrial Prescriptive Program	$8,055,422
Small Business Initiative[10]	$2,290,073
Distributor Initiatives	$8,800,681
Retail Initiatives	$7,572,461
Home Energy Savings Program[11]	$10,098,010
Low-Income Initiatives	$3,845,664
Renewable Energy Demonstration Grants Program	$295
Electric Vehicle Initiatives	$2,294,723
Strategic Initiatives, Public Information, and Administration	**$3,988,572**
Strategic Initiatives	$832,733
Administration	$3,155,839
Other Payments[12]	**$1,111,954**
Total Use of Funds – Efficiency Maine Trust	**$52,968,818**

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

[9] Table 3 and Table 4 reflect savings, costs, and benefits based on project completion dates, while Table 5 reflects accrual-basis accounting. This results in some variance in the Program payments made due to timing differences. Specific differences driven by factors other than timing are detailed in footnotes 11-13.

[10] Small Business Initiatives payments include a loan allowance reduction of $6,681 not reflected in the program tables.

[11] Home Energy Savings Program payments include $498,628 of loan support not reflected in the program tables.

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

Efficiency Maine Programs

Commercial and Industrial Custom Program

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

Commercial and Industrial Custom Program

Sectors Served

- Commercial and Industrial

Funds Invested

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

FY2020 Activities

Following are some program activity highlights for FY2020:

- Continued to employ an incremental approach to developing projects; staff focused on encouraging customers to complete one or more individual projects that fit with their current priorities and/or budget, building a positive foundation for additional program participation and energy efficiency investment in the future.
- Awarded incentives to three new customers and 14 past program participants.
- Completed two scoping audits and one technical assistance (TA) study, representing a notable decline from previous years' activity.
- Continued emphasis on targeting opportunities for natural gas customers, extending outreach efforts to a larger pool of potential customers.[13]
- Observed continued program interest from municipal water and wastewater treatment facilities after a notable uptick in FY2019. Received two formal project proposals from these entities (versus zero in FY2018, then six in FY2019) and several additional inquiries.

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

FY2020 Results[14]

Table 6: C&I Custom Program – Electric Results

Metric	Value
Total Participants	16
Total Projects	16
Annual kWh Savings	9,992,838
Lifetime kWh Savings	148,508,745
Efficiency Maine Costs	$3,324,453
Participant Costs	$2,422,533
Lifetime Energy Benefit	$10,405,427
Benefit-to-Cost Ratio	1.81

Table 7: C&I Custom Program – Thermal Results

Metric	Value	
	Natural Gas	Unregulated Fuels
Total Participants	5	3
Total Projects	6	3
Annual MMBtu Savings	31,731	28,245
Lifetime MMBtu Savings	465,483	554,651
Efficiency Maine Costs	$534,896	$429,219
Participant Costs	$1,288,592	$714,143
Lifetime Energy Benefit	$3,479,631	$10,202,472
Benefit-to-Cost Ratio	1.91	8.92

FY2020 Analysis

Participants in the C&I Custom Program relied primarily on outside contractors and vendors to identify energy efficiency opportunities in FY2020. In some cases, however, more complex projects required site-specific engineering beyond what most energy contractors or vendors were willing to explore on speculation. Accordingly, the program continued to offer support to overcome the lack of site-specific assessment and in-house expertise at customer facilities by providing free scoping audits to identify viable projects. The program also administered TA grants to support further development of complex projects.

The scoping audit offering saw relatively limited uptake in FY2020 compared to prior years; the program completed two scoping audits (versus nine in FY2019 and 12 in FY2018). Staff attributes this decline largely to the COVID-19-related shutdowns that prohibited outside parties from gaining physical access to facilities. TA studies also saw modest uptake, continuing a trend that began several years ago. As in FY2019, the program completed one TA study in FY2020. These figures have declined steadily from a high of nine completed TA studies in FY2015. This trend reflects the proliferation of smaller, less

[14] Several custom projects achieved a blend of electric and thermal savings in FY2020. 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 21 distinct participants in FY2020.

complex projects in the program over the same time period, most of which do not require advanced analysis through a specialized third party.

While scoping audits and TA studies may not currently be in high demand, they remain an important element of the program for those who do choose to take advantage of them. Activity from FY2015 through FY2019 suggests that, on average, 39% of scoping audits lead directly to project implementation in subsequent fiscal years. The data also show an average TA-to-project conversion rate of 70% for the same period. In addition to empowering and encouraging customers to move forward with meaningful energy efficiency projects, scoping audits and TA studies can help customers reduce costs. Moreover, the program scrutinizes the work of engineering firms and contractors, reducing the risk that customers will pay for inflated costs or unnecessary add-ons.

Despite FY2020's emphasis on natural gas outreach to an expanded pool of potential customers, the program approved only six projects to conserve natural gas (versus three in FY2018 and six in FY2019). Given the continued low price of natural gas, customers were relatively unmotivated to invest in natural gas efficiency measures. Furthermore, low avoided costs meant that several of the natural gas project applications that were submitted were ultimately rejected for failing to pass the program's cost-effectiveness screening.

As highlighted above, the program saw continued interest from municipal water and wastewater treatment facilities in FY2020 after a noticeable increase in the number of inquiries and applications from these entities in FY2019. Program staff suspects that it is due to the fact that the equipment in many of these facilities is coming to the end of its useful life, much of it having been installed in the 1970s. The program conducted a modest targeted outreach effort in FY2020, which likely helped to drive sustained activity from this sector.

The program saw a continued decline in the number of combined heat and power (CHP) project applications in FY2020. FY2017 saw the highest number of proposals in history, thanks to dedicated outreach efforts and a promotional incentive. The momentum from these efforts carried through to FY2018 to some extent but scaled back in FY2019. In FY2020, most conventional CHP projects did not screen benefit-cost positive, due primarily to operations and maintenance (O&M) costs. Those projects that did meet the program criteria benefited from a new turbine designed for cost-effective operation at the lower steam flow rates found in many of Maine's sawmills and other small industrial facilities.

There was notable interest in HVAC control upgrades in FY2020. Staff reviewed applications for automated guestroom controls; advanced rooftop unit controls; and implementation of schedules, setbacks, and continuous monitoring of air quality allowing for reduced ventilation rates. Staff also saw applications for new technologies, including high-efficiency dry-type transformers, enhanced oxygenation technology, ultrafiltration to replace steam-driven evaporation, and fiber-optic laser cutting.

FY2021 Plans

- Develop and execute a targeted outreach campaign for R-22 chiller replacement projects. (Manufacturing R-22 refrigerant or importing it to the United States was banned effective January 1, 2020, and supplies of recycled R-22 are expected to diminish and become prohibitively expensive. As facilities with R-22 chillers make plans to replace equipment, the program is eager to influence purchasing decisions in favor of more efficient chiller options.)
- Prioritize outreach to water and wastewater treatment facilities to capture efficiency opportunities in the growing number of locations replacing equipment at the end of its useful life.
- Continue emphasis on targeting natural gas customers among likely C&I Custom Program participants.
- Work to accommodate the potential for a small number of custom project proposals from larger industrial customers. In the event that a project shows potential for significant, cost-effective electricity savings but exceeds the program's $1 million incentive limit, the Trust may work with customers to bring a specific funding request to the Public Utilities Commission (PUC) to be considered for funding through a long-term capacity contract.

Commercial and Industrial Prescriptive Program

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

Commercial and Industrial Prescriptive Program

Sectors Served

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

Funds Invested

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

FY2020 Activities

Following are some program activity highlights for FY2020:

- Incentivized 1,454 lighting projects, 971 heat pumps, and 198 other heating measures.
- Launched three targeted Funding Opportunity Notices (FONs). The first notice offered enhanced lighting retrofits in Maine's public schools, investing over $690,000. The second offered outdoor lighting and pole-mounted LED upgrades to Maine businesses and has almost $320,000 invested. The third was offered for package terminal heat pumps in the lodging sector and currently has over $260,000 invested.
- Continued to engage with the Qualified Partner (QP) network and other contractors to connect customers with efficiency incentives.
- Continued to use the Trust's Cost-effective Lighting Investment Calculator (CLIC) tool, which enables contractors to assess the cost-effectiveness of retrofitting individual lighting fixtures in a given project while on site as well as to prepare all documents to close a project (e.g., scope of work, customer acceptance, bill of materials).
- Conducted targeted outreach to customers of specific C&I sectors with efficiency opportunities; participated in workshops and conferences to provide information to vendors on the program.
- Added incentives for variable refrigerant flow (VRF) systems at multiple heating capacity ranges to be used for heating or cooling in businesses.
- Launched new retrofit measures for high-performance heat pump and packaged terminal heat pump systems in certain Maine businesses.
- Shifted incentives for electronically commutated motor (ECM) circulator pumps and small- and medium-sized central heating systems to Distributor Initiatives.

FY2020 Results

Table 8: C&I Prescriptive Program – Electric Results

Metric	Value
Total Participants	1,361
Total Projects	1,921
Annual kWh Savings	24,820,003
Lifetime kWh Savings	339,957,146
Efficiency Maine Costs	$7,626,873
Participant Costs	$9,619,530
Lifetime Energy Benefit	$31,080,830
Benefit-to-Cost Ratio	1.80

Table 9: C&I Prescriptive Program – Thermal Results

Metric	Value	
	Natural Gas	Unregulated Fuels
Total Participants	18	13
Total Projects	28	19
Annual MMBtu Savings	11,572	18,283
Lifetime MMBtu Savings	260,725	425,430
Efficiency Maine Costs	$168,373	$260,645
Participant Costs	$46,145	$46,577
Lifetime Energy Benefit	$1,645,411	$9,204,484
Benefit-to-Cost Ratio	7.67	29.96

FY2020 Analysis

CIP started to see more VRF technology in the marketplace, particularly in new construction and major renovation projects. While incentives were available for these systems in FY2019, the program explored additional C&I applications in Maine's marketplace that could benefit from the technology in FY2020. VRF measures will continue to be a priority in FY2021. The program also introduced new eligible measures and incentives for packaged terminal heat pumps, high-performance heat pumps, and more.

The program was able to continue investing in energy savings projects despite restrictions due to COVID-19 by initiating FONs for targeted businesses and organizations. These programs were inspired by the Trust's desire to provide job opportunities for electrical contractors and supply houses during the economic downturn caused by the pandemic. More than 45 Maine public schools upgraded the quality of their interior and exterior lighting through one initiative, while more than 20 businesses improved the energy efficiency of the lighting in more than 30 of their public and outdoor spaces. Upgrading lighting in vacant schools and outdoor spaces presented a safe way to complete projects with limited physical interaction between customers and contractors. Together, these three notices have invested more than $1.2 million.

On the thermal side of the program, the unusually high benefit-to-cost ratio was driven principally by more than a dozen large boiler upgrades. These long-lived upgrades were achieved at low cost and avoided significant volumes of relatively costly propane.

FY2021 Plans

- Focus on promoting the high-performance heat pump and VRF measures that were introduced in FY2020.
- Explore opportunities to offer new refrigeration measures.
- Research and evaluate opportunities to expand HVAC solutions.
- Incentivize a broad range of off-the-shelf energy efficiency measures as well as targeted incentives for sector-specific solutions for key C&I customers, including municipalities.
- Continue to focus on lighting retrofits by prioritizing the proactive replacement of inefficient existing fixtures.
- Engage the QP network with monthly newsletters and webinars, frequent website updates, participation in sector conferences, and ongoing distributor events.

Small Business Initiative

Small Business Initiative

Sectors Served

- Small Businesses

Funds Invested

- Electric Efficiency Procurement
- Maine Power Reliability Program
- Forward Capacity Market
- Federal/Other

The Small Business Initiative (SBI) delivers efficiency retrofits directly to Maine's small businesses. In FY2020, the program continued to focus on lighting upgrade opportunities at businesses that have a peak demand of 25 kW or less. The program 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 Maine's smallest 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. The program 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).

FY2020 Activities

Following are some program activity highlights for FY2020:

- Launched the program in the areas of Calais, Dover-Foxcroft, Millinocket, and Brewer.
- Completed projects that were developed in FY2019 for the areas of Ellsworth; Old Town and Orono; Hallowell, Gardiner, and Chelsea; Burnham to Hermon; and Bangor and Hampden.
- Employed utility data to identify and prioritize eligible small businesses for targeted outreach (phone calls, in-person sales calls, and business-reply postcards).

FY2020 Results

Table 10: Small Business Initiative – Electric Results

Metric	Value
Total Participants	423
Total Projects	558
Annual kWh Savings	3,543,252
Lifetime kWh Savings	46,076,252
Efficiency Maine Costs	$2,289,541
Participant Costs	$1,476,682
Lifetime Energy Benefit	$5,268,153
Benefit-to-Cost Ratio	1.40

FY2020 Analysis

The program had a significant impact in multiple rural regions and relatively small urban areas, supporting 558 small business projects. The program's Small Business Cost-effective Lighting Investment Calculator (SLIC) tool continued to allow contractors to screen small business projects on a measure by measure basis, increasing confidence of all parties that each project element was cost-effective. The tool also gives the flexibility to specify hours of use, enabling more seasonal businesses to participate in the program. The tool is a valuable resource that helps contractors to quickly develop and close on upgrade opportunities, and that provides customers with detailed information on project costs and benefits.

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

While the program is designed to overcome some of the barriers experienced by small businesses, the turnkey approach, enhanced incentives, and significant savings were still not enough for some business owners to move forward with cost-effective lighting projects in FY2020. The program continues to explore ways to help more small businesses in a given area, while keeping administrative and delivery costs as low as possible.

In February and March, the program saw a decline in participation during the onset of COVID-19. This decline was short lived, and by the end of the fiscal year activity had returned to normal levels.

FY2021 Plans

- Continue emphasis on program coverage in rural regions and relatively small urban areas.
- Launch the program in the Bucksport, Belfast, and Belgrade Lakes areas, pushing direct outreach to businesses in an effort to boost participation.
- Complete all open projects in the Calais, Dover-Foxcroft, Millinocket, and Brewer areas that were started in FY2020.
- Launch incentive offerings for ductless mini-split heat pump retrofits to eligible small businesses and offer financing in targeted regions.

Distributor Initiatives

Distributor Initiatives offers incentives for energy-efficient products acquired through distributors. Distributors are supply houses where contractors and larger customers go to purchase plumbing, heating, refrigeration, and electrical supplies. Distributors stand in contrast to retail stores, where homeowners and smaller commercial customers typically shop. This midstream program leverages relationships with distributors of energy-efficient products to provide instant product discounts and to distribute rebate information at the point of purchase. In FY2020, the covered measures included heat pump water heaters, electronically commutated motor (ECM) circulator pumps for boiler systems, oil boilers and furnaces, natural gas water heaters, natural gas combination (combi) boilers, and screw-in LED bulbs.

Distributor Initiatives

Sectors Served

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

Funds Invested

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

FY2020 Activities

Following are some program activity highlights for FY2020:

- Processed 5,821 instant discounts for heat pump water heaters, which was a record number issued though the distributor channel in a year. Based on survey results, the Trust estimates that 437 of these discounted heat pump water heaters were ultimately installed in low-income homes.[15]
- Provided discounts for 4,596 ECM circulator pumps, a record number issued in a single year by the Trust.
- Issued 2,229 rebates for efficient oil boilers and 865 rebates for efficient oil furnaces, a record number issued in a single year by the Trust.
- Launched incentives for natural gas measures, including a $300 instant discount on ENERGY STAR natural gas combi boilers and a $300 discount on ENERGY STAR natural gas water heaters.
- Discounted 118,944 LED bulbs through distributors over the year.
- Began to track market share of heat pump water heaters and ECM circulator pumps by branch for each distributor and used this data to promote best practices and to target product training where market share was lowest.

[15] Per Triennial Plan IV, the Trust allocated a portion of the Low-Income Initiatives electric budget to Retail Initiatives and Distributor Initiatives to capture heat pump water heater sales to low-income customers through these channels. The costs and savings associated with these sales at retail locations are not reflected in Table 11, but rather in the Low-Income Initiatives electric results in Table 17.

- Recruited participation from nearly every plumbing distributor in Maine, ensuring ready access to discounted efficient products for plumbers across all areas of the state.
- Continued to focus marketing on manufacturers, distributors, installers, and property owners who are installing or replacing hot water heaters. Marketing efforts included in-distributor point-of-sale material, consumer shows, counter days, industry trade shows, trade school outreach, utility bill stuffers, emails, direct mail, e-newsletters, rebate check stuffers, field visits, in-distributor presentations, social media, digital ads, and the Efficiency Maine website.

FY2020 Results

Table 11: Distributor Initiatives – Electric Results

Metric	Value
Total Bulbs	118,944
Total Equipment	13,074
Annual kWh Savings	20,755,358
Lifetime kWh Savings	278,377,226
Efficiency Maine Costs	$6,659,120
Participant Costs	$3,265,863
Lifetime Energy Benefit	$25,840,710
Benefit-to-Cost Ratio	2.60

Table 12: Distributor Initiatives – Thermal Results

Metric	Value	
	Natural Gas	Unregulated Fuels
Total Participants	-	3,106
Total Projects	-	3,106
Annual MMBtu Savings	-	15,087
Lifetime MMBtu Savings	-	377,168
Efficiency Maine Costs	$7,000	$2,129,397
Participant Costs	-	$128,355
Lifetime Energy Benefit	-	$5,947,901
Benefit-to-Cost Ratio	-	2.63

FY2020 Analysis

Throughout FY2020, the program offered distributors up to $850 if they agreed to sell heat pump water heaters for no more than $249. This incentive helped keep the price of heat pump water heaters competitive with standard electric water heaters, driving considerable heat pump water heater demand. The program also updated its marketing materials to target plumbers, who are the primary customers of the distributors.

Prior to FY2020, the Trust offered incentives for commercial ECM circulator pumps through the Commercial and Industrial Prescriptive Program. The Trust saw a substantial increase in demand when it moved this incentive to an instant discount on both residential and commercial measures through Distributor Initiatives. The program also increased the instant discount for the ECM circulator pumps

from $50 to $75, and distributors were paid an administrative fee of $3 per discounted unit, helping to further drive sales.

Similarly, incentives for oil boilers and oil furnaces were formerly a mail-in rebate offered through the Home Energy Savings Program (HESP). The Trust shifted these incentives over to instant discounts through Distributor Initiatives in FY2020, driving a considerable increase in activity. Just as the Trust has seen with other measures, this program design removes barriers associated with covering an upfront incremental cost and better captures emergency replacements.

Distributor Initiatives launched new incentives for residential natural gas space and water heating systems in the latter half of FY2020. Like oil boilers and furnaces, incentives for residential natural gas measures formerly took the form of mail-in rebates offered through HESP. Though the Trust incurred costs associated with setting up and marketing the new measures through the distributor channel, it did not process any associated rebates before year's end. Disruption from the COVID-19 pandemic contributed to this result, which is reflected in Table 12; the Distributor Initiatives natural gas results show program spending without any measures installed or savings achieved. The Trust expects this benefit-cost ratio to climb above 1.0 in FY2021 when the program is fully up and running.

FY2021 Plans

- Continue to target training based on market share by branch and distributor for both heat pump water heaters and ECM circulator pumps.
- Work with distributors to promote discounts for natural gas water heaters and combi boilers.
- Continue to provide in-store support for product training, best practice sharing, in-store signage, and marketing materials.
- Evaluate additional ways to capture more market share and increase uptake of ECM circulator pumps.
- Explore ways to increase awareness of and activity for natural gas measures.

Retail Initiatives

Retail Initiatives focuses on energy-saving measures that sell in relatively high volumes through retail stores and that, on average and through typical usage, achieve predictable energy savings. The program leverages relationships with retailers 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, Retail Initiatives reaches the largest number of Maine customers; it also serves all sectors of the economy.

Retail Initiatives

Sectors Served

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

Funds Invested

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

FY2020 Activities

Following are some program activity highlights for FY2020:

- Piloted an instant discount for heat pump water heaters as an alternative to the existing mail-in rebate. The mail-in process typically experienced a six-week turnaround time.
- Processed a total of 1,940 heat pump water heater mail-in rebates, which was a record number issued through the retail channel in a year. Based on survey results, the Trust estimates that 146 of these discounted heat pump water heaters were ultimately installed in low-income homes.[16]
- Began to track market share of heat pump water heaters by store to help manufacturers target training support efforts.
- Continued to focus marketing on customers who are replacing products that are at or near the end of their useful life. Marketing activities included targeted online advertising for emergency replacement search terms (e.g., broken water heater), education of installers and retail store personnel about high-efficiency options and rebates, and in-store information (e.g., signage).
- The Trust's field representatives negotiated with store managers for retail merchandising space for energy-efficient consumer products and ensured a steady supply of inventory by working with department personnel to time their reordering.
- Offered incentives and support from field representatives on pellet stoves and wood stoves, transitioning from running the initiative under the Home Energy Savings Program. Rebated 475 pellet stoves and 300 wood stoves through the retail channel.

[16] Per Triennial Plan IV, the Trust allocated a portion of the Low-Income Initiatives electric budget to Retail Initiatives and Distributor Initiatives to capture heat pump water heater sales to low-income customers through these channels. The costs and savings associated with these sales at retail locations are not reflected in Table 13, but rather in the Low-Income Initiatives electric results in Table 17.

- Discounted more than 1.6 million high-efficiency LED bulbs at retailers. The Trust's strategy focused on discounting some of the most common types of bulbs in combination with favorable product placement in stores.
- Incentivized 7,168 ENERGY STAR-certified clothes washers, more than 1,400 room air purifiers, and 523 thermostatic low-flow shower valves.

FY2020 Results

Table 13: Retail Initiatives – Electric Results

Metric	Value
Total Bulbs	1,657,488
Total Equipment	10,913
Annual kWh Savings	42,246,583
Lifetime kWh Savings	370,183,336
Efficiency Maine Costs	$7,001,462
Participant Costs	$9,726,917
Lifetime Energy Benefit	$67,750,048
Benefit-to-Cost Ratio	4.05

Table 14: Retail Initiatives – Thermal Results

Metric	Value
	Unregulated Fuels
Total Participants	779
Total Projects	779
Annual MMBtu Savings	1,984
Lifetime MMBtu Savings	49,600
Efficiency Maine Costs	$569,559
Participant Costs	$0
Lifetime Energy Benefit	$856,412
Benefit-to-Cost Ratio	1.50

FY2020 Analysis

Heat pump water heater rebates continued to be offered through retail stores as a $750 mail-in rebate throughout FY2020. Though different retailers set slightly different starting prices on the units, the rebate generally brought the final price down to between $249-$349. In the last few weeks of the fiscal year, the program launched a pilot initiative using an instant discount barcode available through a smartphone app, only at Home Depot. The Trust's offer of the limited instant discount was contingent upon stores agreeing to lower the price of a heat pump water heater to a guaranteed $249. The Trust will report on the results of this pilot initiative in the FY2021 Annual Report.

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

FY2021 Plans

- Continue to support the launch of new instant discounts for heat pump water heaters.
- Continue to offer rebates that make the price of heat pump water heaters competitive with the baseline electric resistance water heater.
- Continue to monitor market share for heat pump water heaters to help retailers target training for sales associates.
- Continue rebates on other high-efficiency appliances, including clothes washers and room air purifiers.
- Continue to offer off-shelf marketing incentives to retailers for favorable LED product placement.
- Continue to monitor and adjust incentives to align with changes in market prices.

Home Energy Savings Program

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

Home Energy Savings Program

Sectors Served

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

Funds Invested

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

FY2020 Activities

Following are some program activity highlights for FY2020:

- Issued rebates on:
  - 8,824 heat pumps, a 14% increase compared to FY2019.[17]
  - 2,744 weatherization projects, a 19% decrease compared to FY2019.
  - 89 geothermal and pellet boiler systems, a 37% increase compared to FY2019.
- Enhanced several incentives:
  - Introduced a second tier of heat pump rebates, providing increased incentives for higher-efficiency units.
  - Pellet boiler rebates were doubled from $3,000 to $6,000 as of July 1, 2019.
- Enhanced training by:
  - Developing a free, one-hour training video for installers on heat pump basics. The training, developed with extensive stakeholder input, is required annually for all heat pump installation crews.
  - Establishing a formal curriculum for heat pump installers and heat pump salespeople to be listed as Residential Registered Vendors (RRVs) with Efficiency Maine.
  - Solicited interest of independent training organizations to be listed by Efficiency Maine as Registered Trainers.
- Shifted incentives for oil boilers and furnaces and for natural gas water heaters to Distributor Initiatives; moved incentives for wood and pellet stoves to Retail Initiatives.
- Presented and/or exhibited at 13 events over the course of the fall, winter, and spring, increasing program awareness among customers and contractors.

[17] In FY2020, the Trust changed its methodology for counting heat pump units. In the past, each *indoor* unit counted as one heat pump. Now, each *outdoor* unit counts as one heat pump, regardless of the number of indoor units it serves. In FY2020, HESP incentivized 8,824 outdoor units, or 11,051 indoor units. In order to compare equivalent metrics, this annual report uses the indoor unit figure to calculate the year-over-year percent change.

- Equipped Technical Field Representatives with tablets for real-time reporting of quality assurance inspections.
- Replaced on-site inspections for heat pumps with virtual inspections in response to restrictions related to COVID-19. Insulation inspections were suspended during the last quarter of the fiscal year in response to these restrictions.
- Expanded marketing and media outreach with increased number of print ads, digital ads (Google and Facebook), and social media posts.
- Maintained communications with trade allies and other stakeholders through monthly newsletters and tailored surveys.
- Offered loans for all of Efficiency Maine's residential measures.[18]

FY2020 Results

Table 15: Home Energy Savings Program – Electric Results

Metric	Value
Total Participants	1,372
Total Projects	7,653
Annual kWh Savings	22,814,327
Lifetime kWh Savings	410,657,885
Efficiency Maine Costs	$6,581,483
Participant Costs	$9,621,318
Lifetime Energy Benefit	$35,385,696
Benefit-to-Cost Ratio	2.18

Table 16: Home Energy Savings Program – Thermal Results

Metric	Value	
	Natural Gas	Unregulated Fuels
Total Participants	18	185
Total Projects	18	1,666
Annual MMBtu Savings	96	33,336
Lifetime MMBtu Savings	2,406	772,868
Efficiency Maine Costs	$7,405	$2,953,209
Participant Costs	$1,793	$8,666,970
Lifetime Energy Benefit	$16,637	$15,943,025
Benefit-to-Cost Ratio	1.81	1.37

FY2020 Analysis

Lower oil prices and restrictions due to COVID-19 significantly reduced demand for weatherization in FY2020, but heat pump volumes were less affected. Indeed, FY2020 was another record year for heat pump installations through HESP. With the new statutory goal of installing 100,000 high-performance

[18] The Trust offered loans (including Property Assessed Clean Energy [PACE] loans, which are secured by a lien on a property, and unsecured Home Energy Loans) to help residential customers take advantage of energy efficiency opportunities. In FY2020, the Trust loaned out $5,805,900 for 874 projects with low-income and non-low-income customers, compared to 761 projects in FY2019.

heat pumps in Maine over five years, the program enhanced rebates, increased marketing, and instituted a new basic training module for vendors to drive heat pump activity and ensure quality installations in a fast-growing market.[19] These program changes were successful even though they were not implemented until half-way through the fiscal year; overall, HESP incentivized 14% more heat pumps in FY2020 than in FY2019.

First, HESP instituted a second tier of rebates starting January 1, 2020, providing enhanced incentives for the very highest-efficiency heat pumps. These rebates were double the original rebate amounts. This action helped drive demand even as restrictions due to COVID-19 and low oil prices began to affect the market in the spring of 2020.

Second, the program significantly increased heat pump marketing in FY2020. Successful website enhancements and event outreach were complemented by social media, print and digital advertising, and email campaigns. Custom messages for multiple market segments were developed, tested, and implemented.

In addition to enhanced heat pump rebates and marketing, the program introduced updated installation training in FY2020. A curriculum for heat pump system designers and heat pump installers was developed with considerable stakeholder input. HESP also debuted a free, one-hour training video on heat pump basics, which is now required annually for all heat pump installation crews. A program that allows training organizations to become Efficiency Maine Registered Trainers also was implemented.

FY2021 Plans

- Continue to revise and hone the program eligibility and incentives based on feedback from contractors and other stakeholders.
- Increase marketing activities as budget permits.
- Continue to drive heat pump volume to help meet Maine's statutory goal of installing 100,000 high-performance heat pumps over five years.
- Explore options for online rebate processing.

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

Low-Income Initiatives

The Trust delivered energy-efficiency benefits to low-income customers through a portfolio of initiatives in FY2020. These initiatives targeted energy conservation funding to eligible households through three channels:

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

Low-Income Initiatives

Sectors Served

- Low-Income Households

Funds Invested

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

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

FY2020 Activities

Following are some program activity highlights for FY2020:

- Provided incentives to support the installation of 781 heat pump water heaters in low-income homes with electric resistance water heaters. Under this direct installation initiative, the program covered 100% of the project costs.
- Launched enhanced incentives of up to $2,000 for high-performance heat pumps for low- and moderate-income households, based on participation in the Low Income Home Energy Assistance Program (LIHEAP) or ownership of homes with property values less than county-based thresholds established by the Trust. The program incentivized 308 heat pumps through this initiative in FY2020.
- Launched offer of up to six hours of free air sealing with a home energy assessment as well as enhanced incentives for insulation upgrades. The program incentivized 51 projects through this initiative in FY2020.
- Received and fulfilled 12,578 kit requests for free DIY energy-saving kits (LED bulbs, low-flow showerheads, and faucet aerators).
- Provided technical guidance to the Maine State Housing Authority (MaineHousing), which administers a program that offers eligible households a no-cost heat pump through their Community Action Agencies (CAAs).

- Continued to partner with the Maine Department of Health and Human Services (DHHS) to reach an expanded universe of eligible participants for low-income initiatives (i.e., households that qualified to receive assistance through *any* state or federal means-tested, low-income program).
- Implemented a pilot project to assess and pursue potential weatherization and heating system upgrades for a sample of low-income homeowners with significantly high electricity use (greater than 13,000 kWh per year). Executed contracts with two CAAs to audit 60 homes. Fourteen homes received heat pump water heater installations, and 15 homes received weatherization upgrades and a heat pump.
- Continued to leverage AmeriCorps volunteers through a joint initiative with Maine Campus Compact. This initiative subsidized the cost of 468 window inserts, LEDs, and low-flow devices and trains volunteers to install them.
- Continued to support the electric utilities' Arrearage Management Program (AMP),[20] providing eligible customers with information and analysis about their energy use, energy-saving tips, offers for free DIY electricity-use-reduction kits, and outreach material for the Trust's other low-income program offerings. Staff prioritized direct-install heat pump water heater projects and other electricity-saving measures for these customers.
- Convened quarterly meetings of the Low-Income Advisory Group (a gathering of stakeholders, including the Office of the Public Advocate, the Public Utilities Commission, low-income advocates, state and local housing authorities, utilities, and CAAs) to collaborate on the Trust's offerings. The Advisory Group coordinated with other low-income programs and resources across the state, provided status reports on implementation, and gained valuable insights on program design and implementation.
- Raised awareness about the Trust's low-income incentive offerings at various events, including the celebration and 50th Anniversary of MaineHousing, AARP, Landlord Partner Forum, the United Way of Mid-Coast Maine Heating Conference, Damariscotta Weatherization Event, Capitol Area Housing Association, GrowSmart Maine, Central Maine Apartment Owners Association, Common Ground Fair, and a meeting of the Maine Council on Aging's Housing Options for Seniors.

FY2020 Results

Table 17: Low-Income Initiatives – Electric Results

Metric	Value
Total Participants	15,351
Total Projects	15,351
Annual kWh Savings	8,757,673
Lifetime kWh Savings	95,702,227
Efficiency Maine Costs	$3,201,203
Participant Costs	$414,927
Lifetime Energy Benefit	$11,369,031
Benefit-to-Cost Ratio	3.14

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

Table 18: Low-Income Initiatives – Thermal Results

Metric	Value
	Unregulated Fuels
Total Participants	400
Total Projects	400
Annual MMBtu Savings	7,155
Lifetime MMBtu Savings	126,907
Efficiency Maine Costs	$622,345
Participant Costs	$1,515,733
Lifetime Energy Benefit	$3,321,822
Benefit-to-Cost Ratio	1.55

FY2020 Analysis

Activity in the program's heat pump water heater direct-install initiative significantly outpaced FY2019; the program ended FY2020 with 781 installs and 203 pre-approved for future installation, compared to 451 completed installs in the previous year. The program attributes this growth primarily to the addition of a second participating distributor who was able to enlist the support of more plumbers for this initiative. The program also broadened its list of eligible customers by inviting DHHS participants who had opted in to earlier, smaller Efficiency Maine offers.

The program launched new incentives and expanded eligibility requirements for high-performance heat pumps in an effort to drive activity in support of the state's new statutory goal of installing 100,000 high-performance heat pumps in Maine over five years.[21] Participants in LIHEAP continued to access higher incentives for high-performance heat pumps if they decided to not pursue opportunities through MaineHousing. Meanwhile, the program expanded the number of moderate-income households eligible for higher incentives by setting property value thresholds by county instead of the prior approach to setting an $80,000 value statewide. Activity was relatively slow, partly due to restrictions to curb the spread of COVID-19. Collaboration with MaineHousing was important, as it launched a companion initiative to install heat pumps in LIHEAP households through the local CAAs. The Trust provided technical assistance to MaineHousing, including sharing documents, conducting trainings, and leading special workshops for MaineHousing to help design and implement program changes.

As in FY2019, collaborating with DHHS to reach low-income households represented a significant outreach opportunity. The program previously relied on the LIHEAP list of 38,000 households, which is maintained by MaineHousing. There are 175,000 households on the DHHS list. By providing materials to DHHS to send to its mailing list, the program was able to reduce delivery costs and provide cost-effective energy efficiency to low-income homes.

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

The Trust did not install any natural gas measures through Low-Income Initiatives in FY2020. The program's successful collaboration in FY2019 with the City of Lewiston to identify potential sites and conduct landlord outreach set the stage for similar partnerships in other towns and natural gas territories in the future. Staff began looking for additional opportunities to install smart thermostats in multifamily buildings fueled by natural gas but had to postpone that initiative due to the COVID-19 restrictions.

FY2021 Plans

- Launch a new initiative to assess and provide weatherization services to low-income households at no cost to the customer. The initiative will target eligible customers who are unlikely to receive similar upgrades from MaineHousing.
- Drive demand for heat pump water heaters in low-income homes and invite new distributors to participate in the program.
- Drive demand for high-performance heat pumps in low-income homes to help meet Maine's statutory goal of installing 100,000 high-performance heat pumps over five years.
- Provide AMP participants with the tools and measures to reduce energy consumption.

Renewable Energy Demonstration Grants

Renewable Energy Demonstration Grants

Sectors Served

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

Funds Invested

- Energy Efficiency and Renewable Resource Fund

The Renewable Energy Demonstration Grants support the promotion, research, design, and demonstration of emerging clean-energy technologies. The initiative is funded by the Energy Efficiency and Renewable Resource Fund (EERRF), a revenue stream composed of voluntary contributions from electric ratepayers, as well as funds from electricity suppliers that elect to meet their renewable portfolio standard obligations through alternative compliance payments.[22] Past projects have included solar photovoltaic (PV) installations, solar hot-air systems, biomass boilers, and district heating. Projects are selected through a competitive bidding process; grant awards are provided for applications of renewable energy technologies that demonstrate uses for renewable technologies and that support community facilities.[23] Revenues to this fund have been very limited in recent years. For this reason, the staff leverages the funds by periodically issuing competitive bids and using the grant award mechanism.

FY2020 Activities

Following are some activity highlights for FY2020:

- Continued to monitor the implementation of the three projects awarded under an FY2018 request for proposals (RFP) (see Table 19). This RFP targeted cost-effective renewable energy technologies in affordable housing settings and sought to demonstrate models for transferring investment benefits to residents. Two of the three awarded projects (solar PV installations at Milbridge Harbor Apartments and Dennysville Housing) were completed in FY2020. The Trust issued final grant awards, reviewed final reports, and planned a combined community education event.
- As required by statute, passed 35% of the EERRF annual 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.

[22] See 35-A MRS §10121.

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

Table 19: FY2018 RFP Awards

Awardee	Project Description	Grant Amount	Status
Portland Housing Development Corporation *Portland, ME*	• Install 45.4 kW rooftop solar array on the Portland Housing Authority's new 58 Boyd Street development (includes 40 affordable housing units) • Leverage value of energy savings to subsidize internet service for residents	$83,444	Under construction
Milbridge Harbor Apartments *Milbridge, ME*	• Install 31.9 kW rooftop solar array at a 5-unit apartment complex for residents with a history of homelessness and mental illness	$36,702	Completed in FY2020
Dennysville Housing *Dennysville, ME*	• Install 44.1 kW rooftop solar array at a 17-unit apartment complex for low-income seniors • Leverage value of energy savings to subsidize internet and cable service for residents	$57,264	Completed in FY2020

FY2020 Results

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

FY2020 Analysis

Approximately one year after installing solar PV at Milbridge Harbor Apartments and Dennysville Housing, Sunrise Opportunities (the Washington County-based social-services agency that owns these properties) reported impressive savings on its electrical bills. At Dennysville Housing, the agency was able to transfer a portion of this benefit to tenants in the form of free internet and cable TV. The agency also reported that the grant projects provided a helpful proof of concept; all future project developments in its property portfolio now include solar power as a core component.

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

FY2021 Plans

Staff will continue to monitor the implementation of the Portland Housing Development Corporation project in FY2021, disbursing grant payments and assisting with plans for community education and outreach activities. Given limited EERRF revenues, the Trust does not plan to conduct a new project solicitation in FY2021. As directed by statute, the Trust will continue to pass 35% of annual revenues through to MTI to help promote research and development of renewables.

Electric Vehicle Initiatives

The Trust administers programs to expand availability of electric vehicle (EV) charging infrastructure (also referred to as EV supply equipment [EVSE]) and the adoption of EVs in Maine. Its programs provide instant rebates for eligible vehicles at participating car dealers in Maine and grants to fund the installation of EV charging infrastructure in Maine.

Electric Vehicle Initiatives

Sectors Served

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

Funds Invested

- Volkswagen Settlement Funds

Funding for these EV initiatives comes primarily from the settlement of a lawsuit against Volkswagen (VW) for violating environmental protection laws. The settlement specified that funds be used for environmentally beneficial purposes, such as the reduction of vehicle pollution. The Trust also was awarded additional funding from the Maine Public Utilities Commission (PUC) for a pilot project to support beneficial electrification in the transportation sector.

FY2020 Activities

Following are some activity highlights for FY2020:

Charging:

- Oversaw the completion of the installation of direct current (DC) Fast Charging (also called "Level 3") and Level 2 charging stations at six out of the seven targeted locations along priority corridors in southern and western Maine. Each site includes two dual-plug 50 kW Level 3 chargers and one dual-plug Level 2 charger. The newly commissioned sites are located at Kennebunk Turnpike Plaza (Northbound and Southbound), West Gardiner Turnpike Plaza, Farmington at the intersection of Route 27 and Route 2, Skowhegan at the Intersection of Route 201 and Route 2, and Jackman on Route 201.
- Issued two rounds of Request for Proposals (RFPs) for Level 2 public charging stations at public locations (such as municipal lots, college campuses, general stores, and hotels), workplaces, and multifamily dwellings across Maine.
- Awarded funds to install more than 90 Level 2 charger plugs across nearly 30 public host sites.
- Received approval from the PUC for a Pilot Program to Support Beneficial Electrification of the Transportation Sector. The project will deliver rebates for Level 2 chargers, develop of "how-to" manuals and instructional videos for prospective and recent EV owners, and conduct "show and tell" events to help prospective customers get more familiar with EVs throughout the state.

Vehicles:

- Starting Labor Day Weekend, launched a rebate program for EVs, including enhanced rebates for qualified low-income customers, Maine governmental entities, and tribal governments.
- Authorized 48 new car dealers in Maine to participate in the EV Rebate Program, providing instant rebates for the purchase or lease of qualifying Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs).
- Added a total of 12 BEVs and 13 PHEVs to the program's list of vehicles eligible for a rebate.
- Provided a total of 483 EV rebates between the program's launch date of August 29, 2019, and the end of FY2020. Of those, 273 were for BEVs and 210 were for PHEVs. Eleven rebates went to governmental entities, and two were enhanced rebates for qualified low-income customers.
- Distributed point-of-purchase material to all participating dealers.
- Launched a series of public service announcements on radio stations in the Portland and Brunswick-Topsham regions to address common barriers to EV adoption such as range anxiety and public charging accessibility.
- Launched and expanded a robust digital advertising campaign to disseminate information about the new rebate and the benefits of switching to an EV.
- Began planning a series of workplace ride-and-drive events throughout the state, intended for in-person driving experiences and education about the benefits of driving electric. These plans were put on hold due to restrictions to curb the spread of COVID-19.
- Developed more than 12 new webpages on Efficiency Maine's website dedicated to comprehensive public information about EVs, EV charging education, and how to access Efficiency Maine rebates.

FY2020 Results

Table 20: FY2020 EV Rebate Results

Technology Type	Rebates Paid
Battery Electric Vehicle	273
Plug-in Hybrid Electric Vehicle	210
Total	483

Table 21: FY2020 EVSE Results

Type of Charger	Number of Plugs Awarded	Number of Host Locations
Level 2	108	38
Level 3 (DC Fast Charger)	14	7

FY2020 Analysis

In FY2020, the Trust continued to grow and implement its suite of EV initiatives. These initiatives—focused on vehicle charging infrastructure and EV adoption—were funded by approximately $8.2 million from settlements of two successful lawsuits against the car manufacturer group headed by VW for violation of air pollution and consumer protection laws.

One initiative focuses on expanding EV charging infrastructure. The Trust developed this initiative in collaboration with the Maine Department of Transportation, the Maine Department of Environmental Protection, and the Governor's Energy Office. Including input from EV stakeholders, the Trust developed a plan consisting of three phases to strategically locate and expand the publicly available EV charging infrastructure in Maine.

The Trust made significant progress in FY2020 toward the completion of Phase I, an effort to establish the foundation of Maine's publicly accessible Level 3 charger network. Many projects awarded under Phase II, an effort to improve local access and destination charging with publicly available Level 2 chargers, are completed and available for use.

In August 2019, the Trust launched the EV Rebate program to encourage the adoption and use of EVs through incentives and educational initiatives. The program offers instant rebates primarily through 48 participating car dealers in Maine, with enhanced incentives available for qualified low-income Maine residents, Maine governmental entities, and tribal governments. The Trust has placed particular emphasis on building a comprehensive public information campaign to reduce barriers to EV adoption and raise awareness about Efficiency Maine's rebates and EV charging initiatives.

FY2021 Plans

- Commission and open the seventh fast-charging station in North Windham to complete Phase I in the Trust's EVSE plan.
- Issue a third round of competitive solicitations for publicly accessible Level 2 chargers through the PUC pilot project to support the installation of up to 60 Level 2 charging plugs.
- Issue a second round of competitive solicitation for publicly accessible Level 3 fast chargers to complement the locations of the first solicitation, focusing on major routes located north and east of Augusta along the coast and around Lewiston/Auburn.
- Develop and disseminate "how-to" guides and instructional videos to educate prospective and recent EV buyers about the essential elements of EV ownership, with an emphasis on charging.
- Continue to improve and expand the Trust's comprehensive education and outreach campaign to encourage EV adoption statewide.
- Launch a special promotion for governmental entities and non-profits.
- Develop and offer virtual opportunities for public engagement to replace in-person events due to COVID-19-related restrictions.

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.

FY2020 Activities

Following are some activity highlights for FY2020:

- *Triennial Plan Studies* - The Trust initiated the following opportunity studies to better understand the potential for cost-effective energy savings and the market channels for energy efficiency measures under the next triennial plan:
    a. Baseline Assessment of Residential New Construction
    b. Baseline Assessment of HVAC Equipment in Businesses
    c. Small Business Lighting Study
    d. Non-Transmission Alternative Assessment
    e. Storage Demand Response Study.
- *Triennial Plan Proceedings* - Staff prepared materials for the Trust's filings at the Maine Public Utilities Commission (PUC) related to the current Triennial Plan, including the FY2020 Annual Update, scenario development, and sensitivities related to cost-effectiveness and budget levels.
- *Technical Reference Manual (TRM) Updates* - The Trust's TRMs memorialize the methods and assumptions used to calculate energy and demand savings. The Trust made quarterly updates to the TRM assumptions as new information became available in order to improve the accuracy of claimed savings.
- *FCM M&V Compliance Review* - The Trust completed its annual Forward Capacity Market (FCM) Measurement and Verification (M&V) Compliance Review. The review found that the Trust's methods and assumptions for calculating peak summer demand savings at the portfolio level are estimated at ±4.82% relative precision with 80% confidence, exceeding the requirement of the Independent System Operator for New England (ISO-NE). The ISO-NE standard is that the relative precision of the portfolio not exceed ±10% with 80% confidence.
- *Customer Surveys* - Trust staff conducted a series of online surveys with customers who had received heat pump water heater rebates or participated in the Small Business Initiative (SBI). The surveys captured customer feedback on the purchase decision contemporaneous with the date of the purchase.
- *Program Evaluations* - The Trust published online the final results of an independent evaluation of heat pump water heaters. Energy usage loggers were deployed in the field for evaluations that cover retail lighting, distributor lighting, and SBI. A Commercial Heat Pump Impact Evaluation was kicked off with metering scheduled to begin in the Fall of FY2021.

- *Studies* - The Trust is working to complete a study of residential electric vehicle charging behavior. The findings of this study will support the Trust's Electric Vehicle Initiatives and the Innovation Program. The Trust also conducted an electricity reduction feasibility study, which looked at energy impacts of heat pumps in low-income homes.
- *effRT 2*.0[24] – The Trust transitioned the Home Energy Savings Program and Low-Income Initiatives' rebate claim processing to the effRT 2.0 platform.

FY2021 Plans

Following are some activities planned for FY2021:

- Publish periodic updates to the TRMs as new information becomes available.
- Conduct studies in support of Triennial Plan IV and in preparation for Triennial Plan V.
- Roll out real-time, ongoing customer surveys on other programs.
- Conduct a study to determine statewide marginal avoided costs for the electricity grid's transmission and distribution (T&D).

[24] effRT 2.0 is the multi-program database that supports the Trust's reporting and project activity tracking.

Innovation

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

FY2020 Activities

Following are some Innovation Program activity highlights for FY2020:

- Completed a building tune-up pilot at long-term care facilities.
- Completed a pilot exploring the savings opportunity for advanced controls in rooftop units (RTUs).
- Monitored progress on a behavioral pilot to assist low-income electricity consumers in coordination with Central Maine Power (CMP).
- Monitored activity on two pilots awarded under the first ("Phase 1") Request for Proposals (RFP) for projects that demonstrate electric load management technologies and strategies.
- Awarded two pilots under a second RFP ("Phase 2") for projects that demonstrate electric load management technologies and strategies.
- Issued an RFP for a Level 2 electric vehicle (EV) smart charging study.
- Issued an RFP for a commercial split-system heat pump water heater demonstration pilot.

FY2020 Analysis

The Trust completed a building tune-up pilot in long-term care facilities in FY2020. The pilot had three primary objectives: (1) use a meter-based software platform to identify operations and maintenance (O&M) savings potential at a sample of facilities; (2) implement operational and controls upgrades at facilities showing good savings opportunities; and (3) measure and verify performance using the software platform. In FY2017, the pilot recruited 15 facilities at which to perform a detailed baseline energy-use study with help from the Maine Health Care Association. Survey results and interval data analytics were used to select 10 participants for the pilot. The Trust then offered financial incentives to encourage the initial tune-up investment and the building management practices required for persistent energy savings. Two sites accepted, completing the upgrades in FY2018 and FY2019. While standard practice dictates that a custom analysis is required to identify O&M savings, the pilot showed that interval data analysis is a viable and more efficient alternative. It also found that interval data analysis can successfully measure ongoing performance. Finally, the pilot noted that O&M savings opportunities in the long-term care sector are somewhat limited due largely to a strong focus on resident comfort;

activities with significant savings potential, such as pre-cooling or reduced cooling during peak periods, proved incompatible with maintaining the residents' desired room temperatures.

The Trust also completed a pilot exploring the savings opportunity for using advanced controls with packaged air conditioning and heat pump equipment located on rooftops of Maine's businesses and institutions. Much of the installed base of packaged air conditioning and heat pump equipment located on rooftops (known as rooftop units or 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. Aftermarket 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. The goal of this pilot was to test these advanced RTU controls and explore the savings opportunity for Maine's businesses and institutions. In FY2019, the Trust installed 13 controls at eight project sites (including a mix of building types) and monitored activity over a six-month period. While this technology showed promise of energy savings, the pilot also illustrated some potential issues. These included data communication problems associated with wireless connectivity, and challenges with confusing user interfaces. The pilot also found that, while demand-controlled ventilation strategies saved energy for spaces that were previously over-ventilated or had continuous ventilation but were not continuously occupied, they can also increase energy use in spaces with poor indoor air quality or insufficient existing ventilation.

The Trust continued to monitor progress on a pilot exploring behavioral strategies for reducing energy use among low-income electricity consumers in FY2020. In FY2018, the Trust collaborated with CMP to issue an RFP to develop and demonstrate an innovative strategy for using CMP's Energy Manager platform. The pilot sought to inform and encourage low-income customers to take steps to reduce their electricity use, lower their electricity bills, and reduce any arrearages on their electric bills. The pilot built on the work of the Trust and CMP performed through the Public Utilities Commission's Arrearage Management Program (AMP) stakeholder group, as well as the discussions regarding the low-income sector that occurred during the development of Triennial Plan III. The Trust plans to review the results of the pilot in FY2021.

Throughout FY2020, the Trust also monitored activity on two pilots awarded under the first RFP ("Phase 1") for projects that demonstrate electric load management technologies and strategies (issued in FY2018). The first pilot involves the operation of a fleet of 50 to 100 dispatchable residential and small commercial distributed energy resources (DERs), including high-performance heat pumps, heat pump water heaters, EV chargers, and battery storage systems. In FY2020, the contractor completed equipment installations and initiated a series of demand response events 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 involves the deployment of remote and automated dispatch signals to a small number of commercial solar-powered battery storage installations. The contractor will simulate potential revenue streams from ancillary grid services, measuring potential benefits to the customer and electric ratepayers. In FY2020, the contractor completed equipment installations; the test year will begin in FY2021. The Trust plans to report on the results of these pilots in the next annual report.

In FY2020, the Trust made two awards under a second RFP ("Phase 2") for pilot projects that demonstrate electric load management technologies and strategies. This solicitation focused on commercial and industrial facilities deploying interventions that reduce peak load with little to no impact on the facility's normal business operations (i.e., no active dispatch or interventions on the part of the customer). The first of these pilots is designed to leverage the thermal storage capacity of various air-to-thermal storage heat pumps (including air-to-water heat pumps, air-to-phase change material [PCM] heat pumps and refrigeration loads) as a way to move abundant, but low-value or wasted, daytime solar production to evening and nighttime hours. The project plans to achieve this reallocation of energy consumption by automatically "charging" the devices while the sun is shining and using them when it is not. The second Phase 2 pilot will implement passive load management using PCM technology in cold storage applications at grocery stores and warehouses. The provider will deploy and evaluate the impact of PCM-based thermal storage technologies with advanced, intelligent controls. The Trust will likely review preliminary results of these pilots in FY2021.

The Trust issued a new Innovation Program RFP in FY2020 aimed at testing the effectiveness of two load management strategies for residential EV charging: (1) smart networked EV chargers with default off-peak charging, and (2) simulated time-of-use rates. The Trust will compare the two interventions (each with 50 participants) against the control group (of roughly 300 participants) to test the effectiveness of each. The pilot will measure the timing and magnitude of the peak shift and the costs associated with charging in each of the three scenarios. For the first group, the Trust will provide participants with financial incentives if they refrain from opting out of their smart chargers' pre-programmed off-peak charging schedules. For the second group, the Trust will simulate the benefit of off-peak time-of-use rates by offering an incentive when participants maintain at least 90% of their charging off peak. The participants' smart chargers will report energy consumption, time of charging, and overall pilot compliance to the Trust.

The Trust issued a second Innovation Program RFP in FY2020, aiming to incentivize demonstration projects that use split-system heat pump water heaters cost-effectively in commercial water heating settings. The winning bidder will recruit commercial participants willing to install heat pump water heater systems for primary heating or preheating of domestic and process water, and measure the benefits of these systems over time. The Trust plans to review the results of the pilot in FY2021.

FY2021 Plans

- Analyze and report on results from the low-income behavioral pilot.
- Analyze and report on results from the Phase 1 electric load management pilots.
- Initiate data gathering and analysis stages of the Phase 2 electric load management pilots.
- Initiate the Level 2 EV smart charging study.
- Complete equipment installations and initiate data gathering and analysis stages of the pilot for split-system heat pump water heaters in commercial settings.
- Identify ideas for new innovation pilots and issue solicitations, as appropriate.

Public Information and Outreach

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

FY2020 Activities

Following are some program activity highlights for FY2020:

- Convened advisory groups to guide program design and implementation, including electric vehicle (EV) stakeholders and the Low-Income Advisory Group.
- Organized additional stakeholder processes as co-chair of the Maine Climate Council's Working Group on Buildings, Infrastructure, and Housing.[25]
- Consulted with stakeholders in preparing a study on beneficial electrification for the Legislature.[26]
- Enhanced informational and educational web resources (available on the Efficiency Maine website – www.efficiencymaine.com) about heat pumps; EVs; and residential, commercial, and industrial solutions. Over the course of FY2020 the website averaged close to 17,500 visits per month.
- Addressed several regional and national meetings on ductless heat pumps and beneficial electrification, including the Rural Energy Conference of the American Council for an Energy-Efficient Economy (ACEEE) and the Electrification U.S. Symposium Series: "Pathways to Decarbonization in the Northeast," organized by the Electric Power Research Institute (EPRI).
- Enhanced media outreach and social media activity to publicize the benefits of existing programs and to amplify positive media coverage.
- Participated in media interviews on energy efficiency issues, including discussions and articles in the Portland Press Herald, the Bangor Daily News, Energy News Network, Greentech Media, Mainebiz, the Sun Journal, The County, PBS Newshour, Ellsworth American, Boothbay Register, Green & Healthy Maine Homes, WQCB, WWMJ, WDEA-AM, WBZN, WEZQ, and more.
- Participated as panelists before a variety of gatherings of Maine businesses and residents. Hosts for these events included Maine professional associations, E2Tech, major Maine businesses, and local energy groups.

[25] For more detail on the Maine Climate Council process, see the Other Initiatives section.
[26] For more detail on the beneficial electrification study, see the Other Initiatives section.

- Leveraged digital advertising and social media platforms to advertise incentives, drive potential participants to the website, answer customer questions, and promote word-of-mouth information exchange among program participants and vendors.
- Answered customer inquiries related to the Trust's programs through the Trust's call center staffed by customer service agents. In FY2020, the call center averaged more than 1,400 calls, 700 emails, and 2,800 letters a month. In addition, the call center conducts website testing, fulfills requests for brochures, enrolls participants in the low-income free water heater program, issues 20-bulb-limit waivers for LED retailers, and enters loan application information for customers who are uncomfortable using the internet.

FY2021 Plans

- Continue to develop and provide educational resources on key technologies and their use, including high-performance heat pumps. This may include information kits for new heat pump owners, continuing education resources for heat pump installers, a general tips guide on energy conservation and energy efficiency, and additional resources on reducing energy costs and no- and low-cost strategies for reducing energy use.
- Explore and implement, as appropriate, opportunities to train contractors on Maine's transition to the 2015 edition of building energy codes.
- Continue to respond in a timely manner to media inquiries from online and broadcast outlets interested in learning more about Efficiency Maine programs or seeking commentary on topics of growing interest, such as beneficial electrification and EVs.
- Continue to improve the functionality, responsiveness, and usefulness of the online tools and resources available via the Efficiency Maine website.
- Continue to answer customer inquiries via phone and email through the call center.
- Continue to provide resources, such as website information, guidebooks, and informational videos, for Mainers interested in learning about EVs and related charging infrastructure.
- Continue to participate in symposiums, conferences, and industry meetings to share program information with efficiency professionals and potential customers. These forums may continue to take the form of virtual conferences due to COVID-19 restrictions.
- Provide industry training (online or virtually) for the growing trade ally community to accelerate the adoption of energy efficiency technologies.

Finance and Administration

Audit Results

The independent certified public accountant firm of Runyon, Kersteen, Ouellette, Inc., issued an audit report on the Trust's activities for the year ended June 30, 2020. The report covered the Trust's internal control over financial reporting and compliance with government accounting standards and financial statements. The report was unanimously accepted by the Board of Trustees on October 7, 2020.

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

> In our opinion, the financial statements … present fairly, in all material respects, the respective financial position of the governmental activities, the major fund, and the remaining fund information of Efficiency Maine Trust, as of June 30, 2020, 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.[27]

As reported in the audit, the Trust's FY2020 revenues and expenditures are $64,902,777 and $51,856,864, respectively, plus another $1,111,954 sent to state agencies resulting in an increase to fund balance of $11,933,959. The Trust's governmental fund balance as of June 30, 2020 is $70,631,281 of which $49,296,434 is restricted for operations and programs and $21,334,847 is restricted for grant and revolving loan activity.

The Trust's revenues and expenditures for the 12 months of FY2020 are summarized in Table 22.[28]

[27] Efficiency Maine Trust, "Annual Financial Report for the Year Ended June 30, 2020," prepared by Runyon, Kersteen, Ouellette, Inc., October 7, 2020, at 2.
[28] Ibid., Statement 4, at 16.

Table 22: Statement of Revenues and Expenditures – Governmental Fund

	Special Revenue Fund
Revenues	
Interest income:	
Investments	$ 300,312
Loans	$ 797,939
Other Income	$ 6,681
Change in loan allowance	$ 35,442,223
Electric Procurement	$ 84,570
Renewable Resource	$ 179,000
Maine Power Reliability Program settlement proceeds	$ 70,118
VW electric vehicle settlement proceeds	$ 1,500,003
VW attorney general settlement proceeds	$ 2,157,960
Forward Capacity Market credits	$ 14,066,372
Regional Greenhouse Gas Initiative proceeds	$ 10,297,599
Total Revenues	$ **64,902,777**
Expenditures	
Low-Income Initiatives	$ 3,845,664
Retail Initiatives	7,572,461
Home Energy Savings Program	$ 10,098,010
Commercial and Industrial Prescriptive Program	$ 8,055,422
Commercial and Industrial Custom Program	$ 4,910,963
Commercial Small Business	$ 2,290,073
Distributor Initiatives	$ 8,800,681
Electric Vehicle Charging Stations	$ 1,415,738
Electric Vehicle Rebates	$ 878,985
Renewables	$ 295
Administration and Strategic Initiatives	$ 3,988,572
Total Expenditures	**$ 51,856,864**
Excess of Revenues over Expenditures	$ 13,045,913
Other Financing Uses:	
Intra-entity grants - state agencies	$ -1,111,954
Net change in fund balance	**$ 11,933,959**
Fund balance, beginning of year	**$ 58,697,322**
Fund balance, end of year	**$ 70,631,281**

Administration

In 2020, the terms of Kenneth Fletcher and David Stapp were scheduled to expire. No replacements were nominated by the time this report was prepared and they continue to serve.

The Board of Trustees elected the following officers toward the end of FY2020:

- Al Hodsdon, Chair
- Suzanne MacDonald, Vice-Chair
- Glenn Poole, Treasurer
- Kenneth Fletcher, Secretary

The Board of Trustees approved one change to the Trust's policies in FY2020. The bylaws of the Trust require that Trustees meet in person to establish a quorum in order to conduct business. However, with the COIVD-19 pandemic, the Board of Trustees felt it could not constitute a quorum without unduly posing a risk to the health and safety of the Trustees, Staff, and the communities in which they live. In order to conduct business during the effective period of the restrictions on travel and gatherings, the Board of Trustees voted to amend Section 4.5 of the bylaws of the Trust for the limited purpose of allowing Trustees to establish a quorum by means of remote participation during the pendency of emergency state or federal restrictions on travel or gatherings.

Other Initiatives

In FY2020, 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 forums and initiatives with an eye to supporting policies and programs that will promote cost-effective energy conservation or greenhouse gas (GHG) reductions, consistent with the purposes given to the Trust in the Efficiency Maine Trust Act.

Legislature

In FY2020, 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."[29] The Trust staff provided information, analysis, and testimony on matters directly relating to the Trust's programs and issues of energy conservation, customer-sited alternative energy systems, or reducing GHG emissions. A sampling of the bills that the Trust monitored or participated in discussing includes:

- LD 912 – *An Act To Establish the Wood Energy Investment Program;*
- LD 1634 – *An Act To Create the Maine Clean Energy Fund and To Authorize a General Fund Bond Issue To Capitalize the Fund;*
- LD 1646 – *An Act To Restore Local Ownership and Control of Maine's Power Delivery Systems;*
- LD 1748 – *An Act To Allow for the Establishment of Commercial Property Assessed Clean Energy (CPACE) Programs;*
- LD 1750 – *An Act To Establish Appliance Energy and Water Standards;*
- LD 1894 – *An Act To Incentivize the Purchase of Electric School Buses;*
- LD 2013 – *An Act To Extend Arrearage Management Program Requirements for Transmission and Distribution Utilities for One Year;* and
- LD 2055 – *An Act To Require State Agencies To Use Renewable and Sustainable Energy and Reduce Greenhouse Gas Emissions.*

Beneficial Electrification

In past years, most GHG mitigation efforts in the energy space have focused on two strategies: increasing clean, renewable electricity supply and improving energy efficiency. More recently, however, "beneficial electrification" has gained traction as a third, complementary strategy. This new approach involves transitioning energy end uses from fossil fuels to cleaner electricity. As the trend toward a decarbonized electricity supply continues, supporting more end uses with electricity means powering

[29] 35-A MRS §10104(2)(B).

more energy needs with renewables. Indeed, a growing number of experts agree that electrification is essential to driving deep decarbonization and meeting aggressive climate goals.[30]

FY2020 was a notable year for the development of beneficial electrification policy in Maine, with important impacts on the Trust. In late FY2019, the Legislature enacted LD 1464 – *An Act To Support Electrification of Certain Technologies for the Benefit of Maine Consumers, Utility Systems and the Environment*.[31] The bill added the following definition to the Efficiency Maine Trust Act (Title 35-A, Section 10102):

> **3-A. Beneficial electrification.** "Beneficial electrification" means electrification of a technology that results in reduction in the use of a fossil fuel, including electrification of a technology that would otherwise require energy from a fossil fuel, and that provides a benefit to a utility, a ratepayer or the environment, without causing harm to utilities, ratepayers or the environment, by improving the efficiency of the electricity grid or reducing consumer costs or emissions, including carbon emissions.

LD 1464 also directed the Trust, in consultation with stakeholders, to study barriers to beneficial electrification in the transportation and heating sectors in the state. The Trust issued a Request for Information in August 2019, seeking preliminary input from the public. Over the course of the fall, the Trust also held several one-on-one meetings with specific stakeholders, including representatives from state agencies, nonprofit organizations, academic institutions, and interest groups. The Trust then released a draft report in December, providing the public with further opportunity to submit written information and comments. The final report was published in January 2020 and subsequently presented to the Energy, Utilities and Technology Committee at the Maine Legislature. The report is available on the Trust's website.

Additionally, LD 1464 required the Maine Public Utilities Commission (PUC) to issue an RFP for pilot projects to support beneficial electrification in the transportation sector. As described in the Electric Vehicle Initiatives section of this annual report, the Trust was awarded a grant through this solicitation in FY2020. The first element of the Trust's pilot project will provide a rebate of up to $4,000 per plug toward the installation of Level 2 EV chargers. Central Maine Power (CMP) was awarded a grant for a similar pilot to provide $4,000 worth of "make ready" infrastructure per Level 2 charging station. In addition to expanding the state's public charging network, these comparison group pilots will test consumers' incentive preferences and provide first-hand information that will inform the Trust's development of consumer education materials. The second element of the Trust's pilot project provides consumer education about EV chargers and the benefits of EVs; the Trust will create "how-to" manuals for prospective and recent EV owners, produce instructional videos to show the crucial elements of EV ownership to prospective purchasers, and host EV "show and tell" events throughout the state.

[30] Keith Dennis, Jim Lazar, and Ken Colburn, "Environmentally beneficial electrification: The dawn of 'emissions efficiency'," *The Electricity Journal,* Volume 29, Issue 6 (July 2016, p. 52-58).
[31] Public Law, Chapter 365, LD 1464, 129th Maine State Legislature – *An Act To Support Electrification of Certain Technologies for the Benefit of Maine Consumers, Utility Systems and the Environment*.

Another bill passed in late FY2019 – LD 1766 – *An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives* – provided further support for implementation of beneficial electrification in Maine.[32] As mentioned elsewhere in this annual report, this new law establishes a goal of installing 100,000 high-performance heat pumps in the state over five fiscal years. To help reach this target, this law directs the Trust to allocate all of the next five years of Forward Capacity Market revenue to promoting high-efficiency heat pumps, thereby providing a dedicated funding stream for fuel-switching incentives.

Finally, the passage of LD 614 – *An Act To Increase Electric Vehicles in Maine*, in tandem with a series of Volkswagen (VW) settlement stipulations, propelled beneficial electrification of the transportation sector in Maine in FY2020. LD 614 officially authorized the Trust to administer rebate programs for EVs and EV chargers. Roughly $8 million in VW settlement funding has allowed the Trust to support rebates for qualifying EVs (including plug-in hybrid EVs), develop a robust campaign of consumer engagement on EVs, and provide grants for EV charging stations across the state in FY2020 and continuing into FY2021.[33]

Maine Climate Council

In late FY2019, the Legislature passed a bill establishing the Maine Climate Council to develop a four-year Climate Action Plan that would put Maine on a trajectory to reduce emissions by 45% by 2030 and at least 80% by 2050.[34] The Council and its six Working Groups comprise the expertise of scientists, industry leaders, local and state officials, and engaged citizens. The Trust was named as an ex-officio member of the Council and was nominated to serve as co-chair for the Buildings, Infrastructure, and Housing Working Group. Each Working Group was charged with developing, analyzing, and recommending strategies to inform the Council's plan to mitigate emissions and support resilience in Maine's various sectors.

Beginning in the fall of 2019, the Buildings, Infrastructure, and Housing Working Group convened once a month through May 2020 to gather information and identify strategies that would both reduce emissions and benefit Maine's people, businesses, and institutions. The Working Group's final report enumerates a wide range of benefits, such as reducing energy costs, enhancing energy independence, improving health and productivity, making the grid more reliable, keeping businesses competitive in a global marketplace, and fostering jobs and local entrepreneurs. The Working Group also took care to gather information about costs that would be associated with the recommendations, to discuss ways these costs could be mitigated, and to discuss equity impacts on vulnerable communities. The Trust was also actively involved in the Energy Working Group and the Transportation Working Group.

[32] Public Law, Chapter 308, LD 1766, 129th Maine State Legislature – *An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives.*
[33] For additional detail, see the "Electric Vehicle Initiatives" section.
[34] Public Law, Chapter 476, LD 1679, 129th Maine State Legislature – *An Act To Promote Clean Energy Jobs and to Establish the Maine Climate Council.*

The Council will deliberate the recommendations of the Working Groups throughout the fall of 2020 and refine them into a four-year Climate Action Plan, to be submitted to the Governor and Legislature on December 1, 2020.

Governor's Energy Office

The Trust worked with the Governor's Energy Office (GEO) to report energy data and program results to the U.S. Department of Energy (DOE), the American Council for an Energy-Efficient Economy (ACEEE), and other national and regional information systems. The Trust also collaborated with the GEO to develop a strategy for implementing the Governor's Executive Order 13, FY 19/20, *An Order for State Agencies to Lead by Example through Energy Efficiency, Renewable Energy and Sustainability Measures.*

MaineHousing

The Trust 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 Low Income Home Energy Assistance Program (LIHEAP) Weatherization and Central Heating Improvement Program (CHIP) initiatives. As it does every year, in FY2020 MaineHousing briefed the Trust's Board, at a public meeting, on the elements of the coming year's weatherization plans. The Trust had the opportunity to ask questions and provide input regarding lessons learned, best practices, and opportunities to ensure that similar initiatives are complementary and not duplicative.

The Trust also coordinated with MaineHousing on the development of the agency's new heat pump program in FY2020. With the passage of LD 1766 – *An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives*, MaineHousing agreed to allocate a portion of its federal LIHEAP funds for heat pump installations in support of the state's new 100,000 heat pump goal.[35] MaineHousing "piggybacked" the bulk of its heat pump program design elements on the Trust's existing equipment criteria, installation requirements, and inspection training protocols. As with weatherization initiatives, the two organizations worked to develop programs that 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.[36]

The budgets and expenses of these initiatives are summarized in Table 23, which was prepared by MaineHousing.

[35] 35-A MRS §10104(8).
[36] 35-A MRS §10104(5)(B)(4).

Table 23: MaineHousing Weatherization Initiatives

	GRANT YEAR/PERIOD		PRODUCTION BUDGET	PRODUCTION EXPENSES	UNITS	COMMENTS
HEAP WEATHERIZATION						
Weatherization efforts to maximize energy savings and reduce fuel burden; maximum health/safety per unit of $1,200 and minimal incidental repairs (20% of weatherization costs) to make installation of weatherization materials effective; funds allocated to Community Action Agencies (CAAs), then paid directly to contractor for services; per unit average of $7,669.	2017	10-01-16/ 03-31-21	$4,076,079	$4,054,682	452 Completed 454 Projected	Production in process Contract extended to 03/31/2021
	2018	10-01-17/ 03-31-22	$3,788,636	$2,998,173	337 Completed 403 Projected	Production in process Contract extended to 03/31/2022
	2019	10-01-18/ 03-31-22	$1,560,353	$659,834	73 Completed 195 Projected	Production in process Contract extended to 03/31/2022
	2020	10-01-19/ 09-30-22	$1,979,153	$ -	-	Program is in startup phase
HEAP CENTRAL HEATING IMPROVEMENT						
The Central Heating Improvement Program is designed to repair or replace non-working or ineffective, permanently installed home heating systems to increase efficiency and reduce household fuel burden. Per unit average of $5,000.	2017	10-01-16/ 03-31-21	$5,890,233	$5,753,573	2,162 Completed 2,220 Projected	Production in process Contract extended to 03/31/2021
	2018	10-01-17/ 03-31-22	$4,588,913	$4,512,724	1,816 Completed 1,830 Projected	Production in process Contract extended to 03/31/2022
	2019	10-01-18/ 03-31-22	$2,775,745	$1,924,481	651 Completed 765 Projected	Production in process Contract extended to 03/31/2022
Heat Pumps installed using CHIP funding are accounted for below.	2020	10-01-19/ 09-30-22	$2,968,728	$404,666	121 Completed 900 Projected	Production in process
HEAT PUMPS						
	ongoing	10-01-19/ 09-30-24	$6,000,000	$585,658	216 Completed 1,714 Projected	Funding available is contingent on availability and grant amounts from LIHEAP.
DEPARTMENT OF ENERGY WEATHERIZATION (DOE/WX)						
Weatherization efforts to maximize energy savings and reduce fuel burden; minimal health/safety per unit of $1,200 and minimal incidental repairs (15% of weatherization costs) to make installation of weatherization materials effective; funds allocated to CAAs and then paid directly to contractor for services; per unit average max $7,669..	2018	04-01-18/ 03-31-19	$3,038,544	$2,768,178	276 Completed	Production closed
	2019	04-01-19/ 03-31-20	$2,744,704	$2,526,204	288 Completed	Production closed
	2020	04-01-20/ 03-31-21	$4,265,142	$258,538	38 Completed 415 Projected	Production in Process

prepared by gls/MH 09-01-2020

Public Utilities Commission

The Trust staff was active in proceedings at the PUC in FY2020. 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 relevant dockets that were active in FY2020 included:

- Docket No. 2018-00321 – Request for Approval of Fourth Triennial Plan for Fiscal Years 2020-2022 Pertaining to Efficiency Maine Trust
- Docket No. 2019-00117 – Public Utilities Commission Procurement of Electric Resources and Assessment for Natural Gas Resources for Fourth Triennial Plan FY 2020-2022;
- Docket No. 2019-00135 – Commission Initiated Solicitation for Applications for Disbursement of 2019 RGGI Funds; and
- Docket No. 2015-00015 – Implementation of an Arrearage Management Program.

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 various dockets involving non-wires alternatives (NWAs), having recently been assigned an official role assessing NWA opportunities in the new transmission and distribution system planning and approval process for electric utilities. (For more on this, see the following subsection "Non-Wires Alternatives".) The NWA-related cases that were active in FY2020 included:

- Docket No. 2020-00010 – Commission Initiated Inquiry Into Rules Regarding Non-Wires Alternative Coordinator Investigations;
- Docket No. 2020-00125 – Commission Initiated Inquiry of the Non-Wires Alternatives Investigation Process;
- Docket No. 2020-00152 – Public Utilities Commission Amendments for Criteria to Exclude Small Transmission Projects and Distribution Projects from Investigation by the Non-Wires Alternative Coordinator Chapter 319;
- Docket No. 2019-00309 – Request for Approval of Section 31 Rebuild Pertaining to Central Maine Power Company;
- 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.

Other cases that the Trust engaged with in FY2020 included:

- Docket No. 2019-00015 – Commission Initiated Investigation of Metering and Billing Issues Pertaining to Central Maine Power Company;

- Docket No. 2019-00217 – Commission Initiated Request for Proposals for Pilot Programs to Support Beneficial Electrification of the Transportation Sector (Public Law 2019 Chapter 365, Section 5);
- Docket No. 2019-00065 – Request for Approval of Tariff Revision EV Charging Station Pilot Program Central Maine Power Company;
- Docket No. 2020-00120 – Request for Approval of Tariff Revision for the Processing of Conversion Incentive Rebates Pertaining to Summit Natural Gas of Maine, Inc.; and
- Docket No. 2020-00090 – Commission Initiated Inquiry Regarding Thermal Renewable Portfolio Requirement.

Non-Wires Alternatives

In 2019, the Legislature enacted LD 1181 – *An Act To Reduce Electricity Costs through Nonwires Alternatives*, amending the process for planning and approving investments in the electric utilities' transmission and distribution system. The new law incorporates a formal, independent process for the consideration of NWAs.[37] The law established an NWA Coordinator position within the Office of the Public Advocate (OPA) to review annual plans and individual project proposals. In these reviews, the law requires the Trust to analyze the potential for cost-effective NWA resources located on the customer's side of the meter (also called "behind the meter" or BTM) such as energy efficiency, distributed generation, load management, or energy storage. It assigns the Trust the role of developing and delivering all customer-sited NWA resources that are determined to be more cost-effective than the proposed transmission and distribution system investments.

In FY2020, the Trust issued a competitive solicitation seeking a team of experts to assist the Trust in carrying out its new duties under the act. Once under contract, the team helped the Trust to craft recommendations for a benefit-cost test and evaluate the BTM potential for an NWA project in the Brunswick area.

Department of Environmental Protection

In FY2020, the Trust worked with the Maine Department of Environmental Protection (DEP) on multiple issues. DEP is Maine's administrative liaison to RGGI Inc. RGGI Inc. is the non-profit entity that manages the Regional Greenhouse Gas Initiative (RGGI). In FY2020, 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. DEP also served on the advisory group providing guidance to the Trust on its program to establish a network of EV chargers across the state.

Workforce Development

In FY2020, the Trust monitored workforce capacity in the trades that serve energy conservation and alternative energy programs. During FY2020, the Trust sponsored trainings for heat pump installers and certification classes for facility managers, hosted webinars for contractors to learn about the latest

[37] 35-A MRS §3131-3134.

technology developments, and facilitated continuing education credits for realtors or other trade professionals on issues related to energy conservation.

Regional and National Initiatives

The Efficiency Maine Trust Act provides that: "The trust shall monitor conservation planning and program development activities in the region and around the country…" and also that "The trust may coordinate its efforts under this section with similar efforts in other states in the northeast region…"[38]

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 electric efficiency measures supported through its programs and bidding those savings resources into the FCM auction.

As in prior years, in FY2020 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 FY2020, the Trust participated in the 14th Forward Capacity Auction (FCA). In the auction, the Trust took on a new obligation to supply 45 MW of summer peak demand savings, for which it will be paid a price of $2.001 per kW per month. The Trust also prepared for the 15th FCA, which will be held in February 2021. By the end of FY2020, the Trust's programs had delivered a total of 17.5 MW of new summer peak demand savings. This represents a decline from past years due in large part to the fact that 24 MW of measures from prior years reached the end of their expected life and expired out (see Figure 1). Figure 2 summarizes the Trust's delivered savings and future obligations.

[38] 35-A MRS §10110(2)(D) and (I).

Figure 1: FY2020 Expiring Measures vs. New Measures

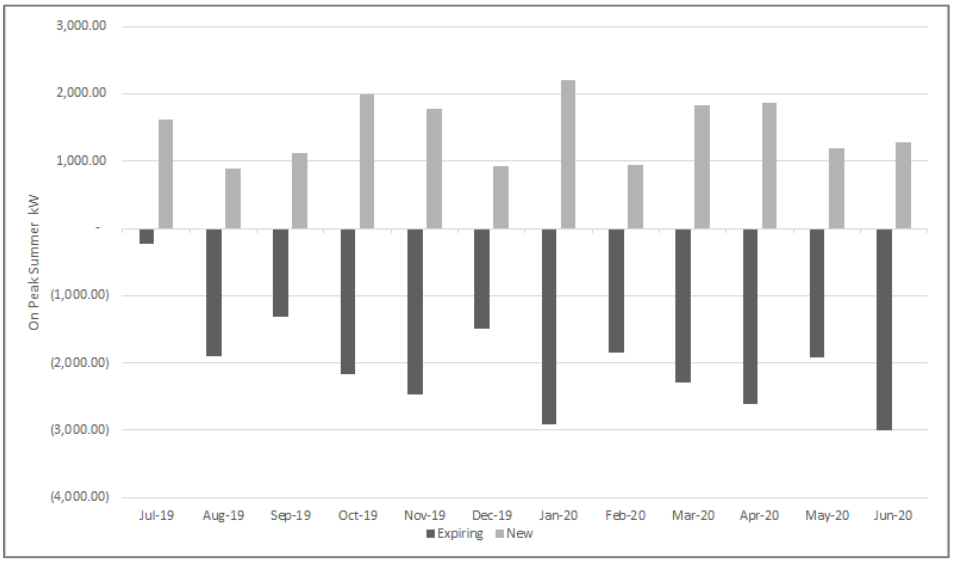
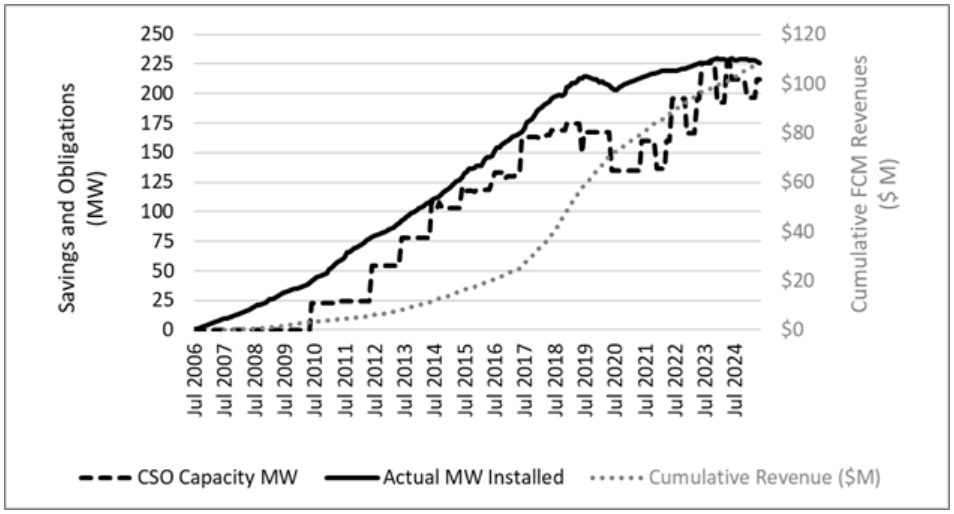


Figure 2: Summary of the Trust's FCA Actions



CSO = Capacity Supply Obligation.

Regional Greenhouse Gas Initiative

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

In the most recent RGGI Annual Report, the Trust described how it invested $9.82 million of RGGI funds in FY2019. The RGGI funds expended in that year are projected to result in annual savings of 242,032 MMBtu, and 19,488 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 Trust participated in the Northeast Energy Efficiency Partnerships (NEEP) Regional Electrification & Building Decarbonization Leadership Forum and subscribed to the NEEP 2019 Allies Program to keep up-to-date on regional developments. The Trust also submitted a letter of support for a NEEP grant to the U.S. Department of Energy to research the growth, potential, and opportunities associated with the prefabricated building construction industry and propose new standards and best practice guidelines to help it increase its market reach.

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."[39] The Trust does not have any such recommendations at this time.

[39] 35-A MRS §10104(4).

Appendices

Appendix A: Total Energy Savings and Lifetime Energy Benefit

Tables A-1 and A-2 illustrate the total energy savings[40] and lifetime energy benefit associated with each of the programs administered by the Trust in FY2020. 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: FY2020 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	9,992,838	148,508,745	$3,324,453	$2,422,533	$10,405,427	$0.039	1.81
Commercial and Industrial Prescriptive Program – Electric	24,820,003	339,957,146	$7,626,873	$9,619,530	$31,080,830	$0.051	1.80
Small Business Initiative	3,543,252	46,076,967	$2,289,541	$1,476,682	$5,268,153	$0.082	1.40
Distributor Initiatives – Electric	20,755,358	278,377,226	$6,659,120	$3,265,863	$25,840,710	$0.036	2.60
Retail Initiatives – Electric	42,246,583	370,183,336	$7,001,462	$9,726,917	$67,750,048	$0.045	4.05
Home Energy Savings Program – Electric	22,814,327	410,657,885	$6,581,483	$9,621,318	$35,385,696	$0.039	2.18
Low-Income Initiatives – Electric[41]	8,757,673	95,702,227	$3,201,203	$414,927	$11,369,031	$0.038	3.14
Electric Vehicle Initiatives			$2,291,723				
Strategic Initiatives – Electric			$796,054				
Administration – Electric			$2,590,732				
Total	**132,930,033**	**1,689,463,532**	**$42,362,643**	**$36,547,711**	**$187,099,894**	**$0.047**	**2.37**

[40] 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 Maine Public Utilities Commission as part of the approval process for the Trust's Triennial Plan IV.

[41] Per Triennial Plan IV, the Trust allocated a portion of the Low-Income Initiatives electric budget to Retail Initiatives and Distributor Initiatives to capture heat pump water heater sales to low-income customers through these channels. The costs and savings associated with these investments are reflected in the Low-Income Initiatives electric results and not in the Distributor Initiatives or Retail Initiatives electric results.

Table A-2: FY2020 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	31,731	465,483	$534,896	$1,288,592	$3,479,631	$3.92	1.91
Commercial and Industrial Custom Program – Unregulated Fuels	28,245	554,651	$429,219	$714,143	$10,202,472	$2.06	8.92
Commercial and Industrial Prescriptive Program – Natural Gas	11,572	260,725	$168,373	$46,145	$1,645,411	$0.82	7.67
Commercial and Industrial Prescriptive Program – Unregulated Fuels	18,283	425,430	$260,645	$46,577	$9,204,484	$0.72	29.96
Distributor Initiatives – Natural Gas[42]	-	-	$7,000	$0	$0	-	-
Distributor Initiatives – Unregulated Fuels	15,807	377,168	$2,129,397	$128,355	$5,947,901	$5.99	2.63
Retail Initiatives – Unregulated Fuels	1,984	49,600	$569,559	$0	$856,412	$11.48	1.50
Home Energy Savings Program – Natural Gas	96	2,406	$7,405	$1,793	$16,637	$3.82	1.81
Home Energy Savings Program – Unregulated Fuels	33,336	772,868	$2,953,209	$8,666,970	$15,943,025	$15.04	1.37
Low-Income Initiatives – Unregulated Fuels	7,155	126,907	$622,345	$1,515,733	$3,321,822	$16.85	1.55
Renewable Energy Demonstration Grants Program			$0				
Strategic Initiatives – Thermal			$36,547				
Administration – Thermal			$565,107				
Total	**147,488**	**3,035,238**	**$ 8,283,703**	**$12,408,308**	**$ 50,617,796**	**$6.82**	**2.45**

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 Primary Benefit-Cost 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:

- *Primary test:* The Primary test compares combined program administrator and customer costs to utility resource savings. The Primary test measures the benefits of the energy efficiency program for the region. Costs included in the Primary 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, water, and when quantifiable, avoided operation and maintenance costs.
- *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.

[42] Distributor Initiatives launched new incentives for residential natural gas space and water heating systems in the latter half of FY2020. Though the Trust incurred costs associated with setting up and marketing the new measures, it did not process any associated rebates before year's end.

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	
	Primary	PACT			Primary	PACT
Commercial and Industrial Custom Program – Electric	1.81	3.13	2017	92%	1.80	3.09
Commercial and Industrial Prescriptive Program – Electric	1.80	4.08	2017, Note 2	71%	1.73	3.90
Small Business Initiative	1.40	2.30	Note 2	93%	1.39	2.27
Distributor Initiatives – Electric	2.60	3.88	Note 2	73%	2.51	3.74
Retail Initiatives – Electric	4.05	9.68	2020, Note 2	78%	4.01	9.70
Home Energy Savings Program – Electric	2.18	5.38	2019	69%	2.11	4.96
Low-Income Initiatives – Electric	3.14	3.55	2020	97%	3.05	3.44
Electric Vehicle Initiative	-	-	Note 3	-	-	-
Total	**2.37**	**4.42**		**77%**	**2.32**	**4.24**

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	
	Primary	PACT			Primary	PACT
Commercial and Industrial Custom Program – Natural Gas	1.91	6.51	Note 3	93%	1.90	6.46
Commercial and Industrial Custom Program – Unregulated Fuels	8.92	23.77	2017	93%	8.85	23.27
Commercial and Industrial Prescriptive Program – Natural Gas	7.67	9.77	2017	59%	7.53	9.28
Commercial and Industrial Prescriptive Program – Unregulated Fuels	29.96	35.31	2017	68%	30.72	34.89
Distributor Initiatives – Natural Gas	-	-	Note 3	-	-	-
Distributor Initiatives – Unregulated Fuels	2.63	2.79	Note 3	75%	2.44	2.57
Retail Initiatives – Unregulated Fuels	1.50	1.50	Note 3	75%	1.36	1.36
Home Energy Savings Program – Natural Gas	1.81	2.25	2019	75%	1.73	2.12
Home Energy Savings Program – Unregulated Fuels	1.37	5.40	2019	72%	1.35	5.08
Low-Income Initiatives – Natural Gas	-	-	2014, Note 3	-	-	-
Low-Income Initiatives – Unregulated Fuels	1.55	5.34	Note 3	100%	1.55	5.34
Total	**2.45**	**6.11**		**79%**	**2.31**	**5.33**

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

Appendix B: Program Expenditures

Table B-1: Electric Program Expenditures

Program	Incentive	Delivery	Total
Commercial and Industrial Custom Program – Electric	$2,781,278	$543,175	$3,324,453
Commercial and Industrial Prescriptive Program – Electric	$6,525,684	$1,101,189	$7,626,873
Small Business Initiative	$1,929,796	$359,745	$2,289,541
Distributor Initiatives – Electric	$5,172,457	$1,486,663	$6,659,120
Retail Initiatives – Electric	$5,640,009	$1,361,454	$7,001,462
Home Energy Savings Program – Electric	$5,355,000	$1,226,483	$6,581,483
Low-Income Initiatives – Electric	$2,427,078	$774,125	$3,201,203
Electric Vehicle Initiatives	$2,220,364	$71,359	$2,291,723
Strategic Initiatives – Electric		$796,054	$796,054
Administration – Electric		$2,590,732	$2,590,732
Total	**$32,051,666**	**$10,310,977**	**$42,362,643**

Table B-2: Thermal Program Expenditures

Program	Incentive	Delivery	Total
Commercial and Industrial Custom Program – Natural Gas	$485,759	$49,136	$534,896
Commercial and Industrial Custom Program – Unregulated Fuels	$314,986	$114,233	$429,219
Commercial and Industrial Prescriptive Program – Natural Gas	$157,630	$10,743	$168,373
Commercial and Industrial Prescriptive Program – Unregulated Fuels	$221,150	$39,495	$260,645
Distributor Initiatives –Natural Gas	$0	$7,000	$7,000
Distributor Initiatives – Unregulated Fuels	$1,547,000	$582,397	$2,129,397
Retail Initiatives – Unregulated Fuels	$387,404	$182,155	$569,559
Home Energy Savings Program – Natural Gas	$6,100	$1,305	$7,405
Home Energy Savings Program – Unregulated Fuels	$2,466,803	$486,407	$2,953,209
Low-Income Initiatives – Unregulated Fuels	$539,964	$82,381	$622,345
Renewable Energy Demonstration Grants Program	$0	$0	$0
Strategic Initiatives – Thermal		$36,547	$36,547
Administration – Thermal		$565,107	$565,107
Total	**$6,126,796**	**$2,156,907**	**$8,283,703**

Appendix C: Amended Budget

Table C-1: Efficiency Maine Trust FY2021 Budget as Approved by the Board of Trustees 10/28/2020

	EMT ADMIN FUND	REGIONAL GREENHOUSE GAS INITIATIVE	ELECTRIC EFFICIENCY PROCUREMENT	MAINE POWER RELIABILITY PROGRAM SETTLEMENT	FORWARD CAPACITY MARKET	FCM HEAT PUMP INITIATIVE	NATURAL GAS EFFICIENCY PROCUREMENT	ENERGY EFFICIENCY & RENEWABLE RESOURCE FUND	AGRICULTURAL FAIRS	VW SETTLEMENT FUNDS	REVOLVING LOAN FUNDS	FY 2021 TOTAL BUDGET
TOTAL REVENUES AND USE OF FUND BALANCE	**4,253,000**	**16,539,176**	**50,779,325**	**2,752,895**	**5,410,852**	**12,948,000**	**2,639,914**	**316,090**	**339,849**	**2,693,945**	**726,000**	**99,399,046**
C&I CUSTOM PROGRAM	-	**3,219,176**	**4,540,000**	**1,406,880**	**1,710,000**	-	**656,413**	-	-	-	-	**11,532,469**
C&I PRESCRIPTIVE PROGRAM	-	**1,649,000**	**12,835,875**	**201,220**	**3,700,852**	-	**1,231,732**	-	-	-	-	**19,618,679**
SMALL BUSINESS INITIATIVE	-	**2,480,000**	**3,173,000**	**40,080**	-	-	-	-	-	-	**26,000**	**5,719,080**
Commercial Small Business	-	**2,480,000**	**3,173,000**	**40,080**	-	-	-	-	-	-	-	**5,693,080**
Commercial Loan Support	-	-	-	-	-	-	-	-	-	-	**26,000**	**26,000**
DISTRIBUTOR INITIATIVES	-	**1,200,000**	**8,421,400**	**155,200**	-	-	**395,199**	-	-	-	-	**10,171,799**
RETAIL INITIATIVES	-	-	**6,525,000**	**91,470**	-	-	-	-	-	-	-	**6,616,470**
HOME ENERGY SAVINGS PROGRAM	-	**3,600,000**	**4,858,000**	**82,220**	-	**9,242,000**	-	-	-	-	**600,000**	**18,382,220**
Home Energy Savings Program	-	**3,600,000**	**4,858,000**	**82,220**	-	**9,242,000**	-	-	-	-	-	**17,782,220**
Revolving Loan Support	-	-	-	-	-		-	-	-	-	**350,000**	**350,000**
Loan Loss Reserve	-	-	-	-	-		-	-	-	-	**250,000**	**250,000**
LOW-INCOME INITIATIVES	-	**2,300,000**	**4,338,000**	**527,825**	-	**2,950,000**	**236,600**	-	-	-	-	**10,352,425**
AGRICULTURAL FAIR INITIATIVES	-	-	-	-	-	-	-	-	**339,849**	-	-	**339,849**
RENEWABLES	-	-	-	-	-	-	-	**298,090**	-	-	-	**298,090**
ELECTRIC VEHICLE SUPPLY EQUIPMENT	-	-	-	-	-	-	-	-	-	**1,597,079**	-	**1,597,079**
ELECTRIC VEHICLE ACCELERATOR PROGRAM	-	-	-	-	-	-	-	-	-	**928,012**	-	**928,012**
INNOVATION	-	**290,000**	**571,000**	**16,000**	-	**33,000**	**5,000**	-	-	-	-	**915,000**
PUBLIC INFORMATION	-	**180,000**	**309,050**	**7,500**	-	**33,000**	**8,970**	-	-	-	-	**538,520**
EM&V	-	**538,000**	**1,843,000**	**106,500**	-	**164,000**	**25,000**	-	-	-	-	**2,676,500**
ADMINISTRATION	**3,793,000**	**799,000**	**2,944,000**	**104,000**	-	**460,000**	**71,000**	-	-	**168,854**	**78,480**	**8,418,334**
INTER-AGENCY TRANSFERS	**30,000**	**284,000**	**421,000**	**14,000**	-	**66,000**	**10,000**	**18,000**	-	-	-	**843,000**
Public Utilities Commission	-	**99,000**	**421,000**	**14,000**	-	**66,000**	**10,000**	-	-	-	-	**610,000**
RGGI Rate Relief	-	-	-	-	-	-	-	-	-	-	-	-
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	**3,823,000**	**16,539,176**	**50,779,325**	**2,752,895**	**5,410,852**	**12,948,000**	**2,639,914**	**316,090**	**339,849**	**2,693,945**	**704,480**	**98,947,526**
RESERVED FUND BALANCE	**1,117,062**	-	-	-	-	**4,694,515**	-	-	-	**3,113,710**	**21,334,847**	**30,260,134**

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 2020					
Electric Efficiency Procurement					
Procurement Quarter:	**Jul-Sep 2019**	**Oct-Dec 2019**	**Jan-Mar 2020**	**Apr-Jun 2020**	**Total - FY 2020**
Billing Date:	**1-Jul-19**	**1-Oct-19**	**1-Jan-20**	**1-Apr-20**	
Name					
Central Maine Power Co	$ 3,853,375	$ 3,853,375	$ 10,226,343	$ 10,226,343	$ 28,159,436
Eastern Maine Electric Coop	$ 45,207	$ 45,207	$ 119,974	$ 119,974	$ 330,363
Emera (Bangor Hydro/MPS)	$ 846,752	$ 846,752	$ 2,247,167	$ 2,247,167	$ 6,187,838
Fox Island Electric Coop	$ 4,921	$ 4,921	$ 13,059	$ 13,059	$ 35,960
Houlton Water Co*	$ 34,681	$ 34,681	$ 92,038	$ 92,038	$ 253,437
Kennebunk Light & Power*	$ 45,672	$ 45,672	$ 121,206	$ 121,206	$ 333,756
Madison Electric Works	$ 12,607	$ 12,607	$ 33,456	$ 33,456	$ 92,126
Van Buren Light & Power Co	$ 6,747	$ 6,747	$ 17,906	$ 17,906	$ 49,307
Totals	**$ 4,849,961**	**$ 4,849,961**	**$ 12,871,150**	**$ 12,871,150**	**$ 35,442,222**

Revenue Forecast**	**FY 2021**
Central Maine Power Co	$ 25,514,176
Eastern Maine Electric Coop	$ 305,973
Versant (formerly Emera)	$ 5,711,620
Fox Island Electric Coop	$ 33,591
Houlton Water Co	$ 236,144
Kennebunk Light & Power	$ 303,620
Madison Electric Works	$ 88,240
Van Buren Light & Power Co	$ 45,687
Total	**$ 32,239,050**

Natural Gas Efficiency Procurement		
	Total - FY 2020	**Revenue Forecast - FY 2021**
Name		
Northern Utilities - Unitil		
Bangor Natural Gas	*Confidential*	*Confidential*
Maine Natural Gas		
Summit Natural Gas		
Totals	**$ 84,570**	**$ 1,129,000**

Alternative Compliance Mechanism (ACM)		
Assessment Timeframe:	**Jul '19- June '20**	**Total - FY 2020**
Billing Date:	**N/A**	
Name		**Total - FY 2020**
N/A (none)	$ -	$ -
Totals	**$ -**	**$ -**

* At FY2020 year end, Houlton Water Company and Kennebunk Light & Power still owed $89,815.05 and $87,740.85 of their procurement amounts, respectively. All these funds were subsequently remitted to the Trust in FY2021.

** As Ordered by the PUC on 6/10/2020 in Docket 2019-00117 - "PUBLIC UTILITIES COMMISSION PROCUREMENT OF ELECTRIC RESOURCES AND ASSESSMENT FOR NATURAL GAS RESOURCES FOR FOURTH TRIENNIAL PLAN FY 2020-2022.

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.

Arrearage: Unpaid debt or overdue payments.

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

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

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

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

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

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

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

Midstream: Incentive programs for energy-efficient products are characterized as midstream, upstream, or downstream depending on who receives the incentives. Upstream programs provide incentives for manufacturers to make more efficient products, and downstream programs provide rebates for consumers, encouraging them to purchase more efficient products. A midstream program provides incentives at the retailer or distributor level, encouraging them to stock and sell more high-efficiency equipment models.

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

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

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

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

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

Residential Registered Vendor: A term used to describe the network of contractors and vendors working with Efficiency Maine's residential programs.

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

Primary Benefit-Cost 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 Primary test measures the benefits of the energy efficiency program for the region as a whole. Costs included in the Primary 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, avoided cost of water, and when quantifiable, avoided operation and maintenance costs.