FY2022 ANNUAL REPORT

The Trust is the administrator for programs to improve the efficiency of energy use and reduce greenhouse gases in Maine. The Trust serves all sectors and all regions of the state. Its suite of nationally recognized programs provides consumer information, discounts, rebates, loans, and investments for high-efficiency, clean energy equipment and strategies to manage energy demand. The Trust is a quasi-state agency governed by a Board of Trustees with oversight from the Maine Public Utilities Commission.

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Abbreviations/Acronyms

AESC 2021	*Avoided Energy Supply Components in New England: 2021 Report*
AMP	Arrearage Management Program
ARP	Alternative Rate Plan
ARPA	American Rescue Plan Act
BEV	Battery Electric Vehicle
C&I	Commercial and Industrial
C-PACE	Commercial Property Assessed Clean Energy
CAA	Community Action Agency
CCF	Centum Cubic Feet
CHIP	Central Heating Improvement Program
CSO	Capacity Supply Obligation
DC	Direct Current
DEP	Maine Department of Environmental Protection
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
FHWA	Federal Highway Administration
FON	Funding Opportunity Notice
FR	Free Ridership
FY	Fiscal Year
GEO	Governor's Energy Office
GHG	Greenhouse Gas
GOPIF	Governor's Office of Policy Innovation and the Future
HEAP	Home Energy Assistance Program
HESP	Home Energy Savings Program
HVAC	Heating, Ventilation, and Air Conditioning
IIJA	Infrastructure Investment and Jobs Act
ISO-NE	Independent System Operator for New England
kW	Kilowatt(s)
kWh	Kilowatt-Hour(s)
LD	Legislative Document
LED	Light-Emitting Diode

M&V	Measurement and Verification
MACE	Maximum Achievable Cost-Effective
MAAF	Maine Association of Agricultural Fairs
MaineDOT	Maine Department of Transportation
MaineHousing	Maine State Housing Authority
MJRP	Maine Jobs and Recovery Plan
MMBtu	Million British Thermal Unit(s)
MTI	Maine Technology Institute
MPCT	Modified Participant Cost Test
MPRP	Maine Power Reliability Program
MRS	Maine Revised Statutes
MUBEC	Maine Uniform Building and Energy Code
MW	Megawatt(s)
NECEC	New England Clean Energy Connect
NEIF	National Energy Improvement Fund
NEVI	National EV Infrastructure
NTA	Non-Transmission Alternative
NTG	Net-to-Gross
NWA	Non-Wires Alternative
NWAC	NWA Coordinator
PACT	Program Administrator Cost Test
PHEV	Plug-in Hybrid Electric Vehicle
PreK	Pre-Kindergarten
PUC	Public Utilities Commission (Maine)
QP	Qualified Partner
RFP	Request for Proposals
RGGI	Regional Greenhouse Gas Initiative
RRV	Residential Registered Vendor
SBI	Small Business Initiative
SNAP	Supplemental Nutrition Assistance Program
SO	Spillover
T&D	Transmission and Distribution
T&ST	Transmission and Sub-Transmission
TA	Technical Assistance
TANF	Temporary Assistance for Needy Families
TRM	Technical Reference Manual
VRF	Variable Refrigerant Flow
VW	Volkswagen

Message from the Executive Director

The pandemic continued to shape the work of the Efficiency Maine Trust ("the Trust" or "Efficiency Maine") in Fiscal Year 2022 (FY2022). Many vendors and suppliers experienced supply chain constraints, and efficient technologies were not immune from rising prices. Segments of Maine's business community shied away from efficiency investments as their economic future felt uncertain. And homeowners showed their reluctance to risk exposure to COVID-19 variants by closing their doors (temporarily) on weatherization crews.

Yet, despite these many challenges, our programs made significant gains. Interest in heat pumps continued to grow across all sectors, even exceeding the prior year's record performance. In fact, the Association of Energy Service Professionals awarded the Trust's residential heat pump programs with their 2022 Groundbreaking Program Design and Implementation Award. Perhaps one of the most satisfying results of our work in FY2022 was fostering a rebound in weatherization projects in the last quarter of the year. We collaborated closely with weatherization contractors to drive demand that has helped them rebuild their workforce and meet ambitious goals for weatherizing homes across the state. Weatherization for low-income customers has increased significantly and is a subject of particular focus for the Trust. Late in the fiscal year, the Trust added new pathways for eligibility and pre-approval of low-income customers. These pathways have already begun to help even more low-income Mainers save on energy costs.

The Trust also succeeded in reaching more Mainers through a variety of outreach efforts. Industry conferences and events connected our commercial and industrial programs with businesses across the state. Ride-and-drive events allowed prospective electric vehicle (EV) purchasers to test out a growing list of EV types. We celebrated the work of our efficiency community at our Annual Event held in June 2022. And the ability to connect virtually brought us significant comments during our strategic planning process; connected us with countless community events; and helped us launch new offerings, including virtual consultations for businesses. These virtual consultations were one of many ways our commercial programs continued to reach more potential customers despite the many challenges of the pandemic.

The Trust's Electric Vehicle Initiatives succeeded in reducing gaps in consumer education around EVs and charging. We are proud to have received national awards for this work. The program focused on a growing array of EV models available on the market, including pickup trucks and vans. But supply chain disruptions significantly reduced the number of vehicles available in the state and has, for the moment, frustrated sales growth in EVs.

FY2022 also marked the last year of our Triennial Plan IV period. During the three years of that Plan, our programs provided financial incentives for more than 68,000 heat pumps, achieving 68% of the state goal to install 100,000 heat pumps by 2025.[1] The Trust also delivered incentives for more than 28,000

[1] The Trust bases its count of units on a "heat pump equivalent" to accommodate the diversity of systems installed across the residential and commercial sectors. The Trust counts every 25.1 MMBtu/year of heat provided as one "heat pump equivalent." This metric is based on the modeled performance of a single residential heat pump with

heat pump water heaters and the weatherization of more than 5,500 homes. The cumulative impact of our programs from FY2020 to FY2022 reduced lifetime electricity consumption by approximately 6,233,091 MWh and reduced peak summer demand on the grid by approximately 58 MW. Together with 11,144,993 MMBtu of lifetime reductions in natural gas, unregulated fuels, and gasoline, these programs cut greenhouse gas (GHG) emissions by 2,872,933 tons of carbon dioxide equivalent—the equivalent of taking roughly 553,494 cars off the road for one year. During Triennial Plan IV, these programs invested $186 million to install measures to save, over the life of the measures, more than $910 million in energy costs in Maine.

We are continuing this progress over the next three-year period as part of the new Triennial Plan V. We are grateful to the many stakeholders who participated in workshops, reviewed initial drafts, and shared written comments that were instrumental in crafting the plan. Through the combined efforts of staff and the efficiency community, Triennial Plan V was approved by the Efficiency Maine Trust Board of Trustees in the fall of 2021. In an adjudicatory proceeding, the Maine Public Utilities Commission reviewed and approved the Plan in May 2022.

Parts of this year's Annual Report describe steps we have already taken to transition to the priorities of Triennial Plan V. For example, in FY2022 we launched a new generation of initiatives including a Demand Management Program, a pilot program to install large batteries at critical care facilities, and a pilot study to test the performance of heat pumps as a whole-home solution. We also worked on developing a new suite of financing initiatives, starting with Commercial Property Assessed Clean Energy (C-PACE) loans to help businesses pursue larger efficiency projects over longer terms. These initiatives will take us into the future as the Trust continues to explore all the ways we can help consumers maximize energy savings while helping maintain grid resilience and reliability. They will deliver benefits in the form of reductions in peak energy use, peak demand charges, wholesale electricity prices, and power plant pollution. And expanded financing tools will give the efficiency community more ways to develop and sell efficiency projects and more pathways for interested customers to install efficient technology.

This report also details the work the Trust has started in FY2022 to invest federal American Rescue Plan Act (ARPA) funds allocated to Efficiency Maine by the Maine Jobs and Recovery Plan (MJRP). Efforts to invest these funds to help low- and moderate-income Mainers improve the comfort of their homes and reduce their heating bills began in FY2022, using Regional Greenhouse Gas Initiative (RGGI) funding to cover projects completed in FY2022. An initiative to improve energy efficiency in the hospitality sector was launched, as well as another to target efficiency opportunities in public schools and town offices. We will see the results from these efforts, including lower taxpayer costs due to lower energy expenses in schools and town offices, in this next fiscal year, as well as the launch of additional initiatives and efforts to invest these and other federal funds.

The Trust is excited to help Mainers save energy and money through these new ways to manage the grid and the new funding made available from the federal government. We are also grateful for the

an Air-Conditioning, Heating, and Refrigeration Institute-rated Heating Seasonal Performance Factor between 10 and 12.5.

opportunity this report presents to reflect on the progress achieved in the last year and last Triennial Plan period. The energy savings and efficiency projects described in this report are the result of the work of a growing community of contractors, distributors, vendors, and manufacturers, as well as thousands of customers across the state. We are thankful for everyone who worked to make these projects happen; to our Board of Trustees; and the policymakers, regulators, and stakeholders that have continued to guide and support Efficiency Maine's programs.

Thank you.

/s/ Michael D. Stoddard

Introduction

This Annual Report of the Efficiency Maine Trust ("the Trust" or "Efficiency Maine") describes activities during Fiscal Year 2022 (FY2022), which covered the period from July 1, 2021, to June 30, 2022. The report includes the budgets, activities, and results for all programs and related activities administered by the Trust. In total, these programs will save more than 2.3 billion kWh, and more than 4.7 million MMBtu in cost-effective lifetime energy savings for Maine energy consumers. The Trust's FY2022 programs helped:

- Avoid more than $356 million in unnecessary lifetime energy costs;
- Prompt approximately $126.04 million of incremental private investment using $70.67 million of program investment;
- Reach a milestone of promoting nearly 116,000 high-performance heat pumps over the past 10 years;
- Support weatherization projects in 2,230 homes through the Home Energy Savings Program (HESP) and Low-Income Initiatives;
- Continue the expansion of EV Initiatives with newly eligible electric pickup trucks and vans and installation of more public chargers;
- Undertake several innovation pilots targeting grid flexibility and energy storage;
- Avoid an estimated 76,972 short tons of annual GHG emissions;
- Reduce summer peak demand by more than 16 MW; and
- Launch new programs and targeted initiatives in anticipation of Triennial Plan V and various new funding streams.

The Trust was created by state statute in 2009.[2] 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 residents, businesses, non-profits, and governmental entities.

The Trust is governed by a nine-member Board of Trustees. In FY2022, Suzanne MacDonald (Chief Community Development Officer at the Island Institute) and Joan Welsh (former member of the Maine House of Representatives) served as Chair and Vice-Chair, respectively. Glenn Poole (former Energy Manager at Verso Corporation) served as Treasurer, and Kenneth Colburn (Principal at Symbiotic Strategies LLC) served as Secretary. Ex officio positions were filled by Dan Burgess (Director of the Governor's Energy Office [GEO]) and by Dan Brennan (Director of the Maine State Housing Authority).

[2] 35-A MRS Chapter 97.

Heather Furth (Owner of Orono Brewing Company), Mark Isaacson (Manager at Competitive Energy Services, retired), and Christopher Rauscher (Senior Director of Market Development and Strategy at Sunrun) also served.

Sectors Served

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

Table 1: Sectors Served by Major Programs

Program	Commercial and Industrial	Small Businesses	Multifamily	Residential	Low-Income Households	Institutions and Govern-mental Entities
Commercial and Industrial Custom Program	✓					✓
Commercial and Industrial Prescriptive Program	✓	✓	✓			✓
Small Business Initiative		✓				
Distributor Initiatives	✓	✓	✓	✓	✓	✓
Retail Initiatives	✓	✓	✓	✓	✓	✓
Home Energy Savings Program			✓	✓	✓	
Low-Income Initiatives			✓		✓	
Electric Vehicle Initiatives	✓	✓	✓	✓	✓	✓

Funding

The Trust received and expended funds in FY2022 from a variety of sources, including Maine's electricity and natural gas utility ratepayers, RGGI, the Maine Power Reliability Program (MPRP) Settlement, the Forward Capacity Market (FCM) from the New England grid, the New England Clean Energy Connect (NECEC) Settlement, federal funds, the Energy Efficiency and Renewable Resource Fund (EERRF), Volkswagen (VW) Settlements, and the Agricultural Fair Assistance Program Fund. 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 FY2022 funding sources for each major program. The table is followed by brief descriptions of the Trust's funding sources and how they are invested through Efficiency Maine's major programs and other initiatives.

Table 2: Major Program Funding Sources

Program	Electric Efficiency Procurement	Natural Gas Efficiency Procurement	Regional Greenhouse Gas Initiative	Maine Power Reliability Program Settlement	Forward Capacity Market	NECEC Settlement	Federal[3]	Volkswagen Settlement Funds
Commercial and Industrial Custom Program	✓	✓	✓	✓	✓			
Commercial and Industrial Prescriptive Program	✓	✓	✓	✓				
Small Business Initiative	✓		✓	✓				
Distributor Initiatives	✓	✓		✓				
Retail Initiatives	✓			✓				
Home Energy Savings Program	✓		✓	✓	✓		✓	
Low-Income Initiatives	✓	✓	✓	✓	✓	✓		
Electric Vehicle Initiatives						✓		✓

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, but are generally eligible for other funds.

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 MACE 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

[3] This table does not reflect that in FY2022 the Trust was named a recipient of $50 million of ARPA funds as part of the MJRP. As described later in this report, several initiatives to invest ARPA/MJRP funds were launched in the last quarter of FY2022, but none of these funds were invested. The FY2023 Annual Report will include the first budget line items for this fund.

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 multistate 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.[4]

The Trust must use RGGI funds for measures, investments, loans, technical assistance (TA), and arrangements that reduce electricity consumption, increase energy efficiency or reduce GHG emissions, and lower energy costs at commercial or industrial facilities and for investment in measures that lower residential heating energy demand and reduce GHG 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 FY2022, the Trust received through the MPRP Settlement $150,000 for the weatherization of low-income homes, $250,000 for efficiency projects for T&ST customers, and another $100,000 to be allocated for other 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 that 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.

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 between 2019 and 2025. The new law directed the Trust to allocate five years of new FCM revenue to promoting high-efficiency heat pumps and required that these funds be used to "supplement but not supplant" the existing incentives funded by the Electric Efficiency Procurement. The new law also provided that the Trust's FCM revenues must be excluded from consideration when the PUC determines the amount of cost-effective electric energy

[4] 38 MRS §580-B(7).

efficiency resources to be procured to capture MACE potential. The new law went into effect in September 2019.[5]

New England Clean Energy Connect – Settlement Funds

In 2019, the PUC approved Central Maine Power's request to build the NECEC—a 1,200 MW transmission line traversing Maine from the Quebec border to Lewiston.[6] As part of the settlement agreement approving the project, the project sponsors agreed to establish multiple funds to deliver benefits to Maine; three of the funds were to be fully administered by the Trust, and the fourth was to have been partially administered by the Trust. In FY2021 and the first part of FY2022, the Trust received settlement fund payments for a variety of initiatives—including EVs; EV chargers; variable refrigerant flow (VRF) systems for schools; and weatherization, heat pumps, and heat pump water heaters for low- and moderate-income households—but the NECEC project was put on hold in the wake of a referendum vote and court decision in late 2021. The NECEC has suspended new settlement payments while the project is on hold pending a final decision. In January 2022, the Trust staff and Board decided to remove future payments from the FY2022 budget and replace a portion of NECEC funding in the annual budget with available RGGI revenue. The FY2022 budget and program investment reflect NECEC settlement payments received before the suspension.

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 through a revolving loan fund. The revolving loan fund has been in operation since that time and continued to operate in FY2022.

Also in FY2022, the Trust was named a recipient of $50 million of ARPA funds as part of the MJRP. The MJRP allocated the $50 million to Efficiency Maine to accelerate weatherization upgrades for low- and moderate-income residents, and to expand energy efficiency investment among local governments, schools, community organizations, businesses, and manufacturers. The MJRP also allocated $8 million to the Maine Department of Transportation (MaineDOT) to expand state, municipal, and other publicly accessible EV charging stations and related infrastructure in partnership with Efficiency Maine. As described later in this report, several initiatives to invest ARPA/MJRP funds were launched in the last quarter of FY2022, but no funds were invested. The FY2023 Annual Report will include the first budget line items for this fund.

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. Maine (through MaineDOT) received settlement funds from VW under consent decrees reflecting one settlement agreement. Through a Memorandum of Understanding, MaineDOT contracted with the Trust to administer approximately $3.15 million of these funds to promote EV charging infrastructure with the goal of reducing GHG emissions and improving the

[5] Public Law, Chapter 308, 129th Maine State Legislature, LD 1766, An Act To Transform Maine's Heat Pump Market To Advance Economic Security and Climate Objectives.
[6] Maine PUC, Orders Approving Transmission Line, Dkt. No. 2017-00232 as supplemented by Dkt. No. 2019-00179, May 3, 2019, and October 20, 2020, respectively.

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 running a program to reduce carbon and nitrogen oxides emissions through the promotion and increased use of EVs. Another approximately $3 million in funds were transferred to the Trust to help state government facilities reduce their carbon footprint through energy efficiency improvements as part of the Governor's "Lead by Example" initiative.[7]

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 on 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. Although Efficiency Maine did not launch a call for projects in FY2022, one is planned for FY2023.

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 in FY2021 and FY2022. The first round of expenditures on new measures to reduce demand at fairs is expected in FY2023.

Results

In FY2022, the programs that the Trust administered played a critical role in helping Maine businesses and homes take advantage of energy efficiency, educating consumers about products that save energy, and helping them connect with vendors and contractors. The Trust's programs provided financial incentives that spurred consumers to choose energy-efficient options over lower-priced, less-efficient options—a choice that will reduce energy bills over the long term and put the Maine economy on a stronger footing.

Table 3 and Table 4 illustrate the total energy savings and lifetime avoided energy supply costs associated with major programs that the Trust administered in FY2022.[8] 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 demand that results directly from program-related actions taken by participants in an

[7] Maine Executive Order No. 13, FY 19/20, An Order for State Agencies to Lead by Example Through Energy Efficiency, Renewable Energy and Sustainability Measures, November 26, 2019.
[8] The initiatives for which there were expenses but no associated savings may be found in Table 5 and Table B-3.

Efficiency Maine program, regardless of why they participated, adjusted by factors developed through program evaluations.[9]

In addition to energy savings, the tables show the sum of Efficiency Maine's costs. These costs reflect the financial incentives paid by the programs, 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, including those associated with upfront costs and operational costs. The benefit-to-cost ratio indicates the ratio of the financial benefits (from the lifetime avoided energy supply costs and avoided operations and maintenance costs[10]) to the combination of Efficiency Maine costs and participants' incremental cost.

[9] 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 TA 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).

[10] The lifetime benefits shown in the summary tables, and in the individual program tables throughout this report, are 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 Costs	Lifetime Benefits	Cost/kWh (Lifetime)	Benefit-to-Cost Ratio
Commercial and Industrial Custom Program – Electric	7,481,052	94,190,814	$2,360,417	$2,321,243	$9,713,816	$0.050	2.07
Commercial and Industrial Prescriptive Program – Electric	19,318,286	267,422,578	$7,271,646	$6,754,808	$30,841,268	$0.052	2.20
Small Business Initiative – Electric	1,341,650	24,450,399	$1,551,801	$850,754	$3,954,372	$0.098	1.65
Distributor Initiatives – Electric	22,574,610	311,315,932	$9,246,453	$2,618,710	$35,458,041	$0.038	2.99
Retail Initiatives – Electric	36,512,797	159,004,292	$7,659,593	$4,853,887	$30,710,581	$0.079	2.45
Home Energy Savings Program – Electric	73,607,540	1,324,935,718	$13,564,151	$65,863,328	$134,364,892	$0.060	1.69
Low-Income Initiatives – Electric[11]	12,113,005	120,360,482	$3,336,522	$324,102	$16,421,789	$0.030	4.49
Strategic Initiatives – Electric	-	-	$1,637,645	-	-	-	-
Administration – Electric	-	-	$780,677	-	-	-	-
Total	172,948,938	2,301,680,215	$47,408,904	$83,586,834	$261,464,760	$0.057	2.00

[11] In Triennial Plan IV, the Trust directed a portion of the Low-Income Initiatives electric budget for investment through the Retail Initiatives and Distributor Initiatives to fund 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 4: Costs and Savings for Thermal Programs

Program	Annual MMBtu Savings	Lifetime MMBtu Savings	Efficiency Maine Costs	Participant Costs	Lifetime Benefits	Cost/ MMBtu (Lifetime)	Benefit-to-Cost Ratio
Commercial and Industrial Custom Program – Natural Gas	13,607	257,977	$156,447	$402,763	$1,872,580	$2.17	3.35
Commercial and Industrial Custom Program – Unregulated Fuels	61,343	1,202,935	$671,729	$557,304	$4,652,487	$1.02	3.79
Commercial and Industrial Prescriptive Program – Natural Gas	15,030	323,837	$292,331	$131,521	$2,294,799	$1.31	5.41
Commercial and Industrial Prescriptive Program – Unregulated Fuels	24,043	491,386	$1,052,055	$1,927,023	$12,882,764	$6.06	4.32
Small Business Initiative – Unregulated Fuels	14,716	261,072	$1,307,936	$3,619,641	$7,781,431	$18.87	1.58
Distributor Initiatives – Natural Gas	7,249	102,166	$211,527	$248,832	$839,936	$4.51	1.82
Home Energy Savings Program – Unregulated Fuels	36,839	859,107	$6,468,138	$12,287,958	$22,025,617	$21.83	1.17
Low-Income Initiatives – Natural Gas	18	182	$409	$67	$1,630	$2.61	3.43
Low-Income Initiatives – Unregulated Fuels	38,812	665,427	$6,716,231	$7,720,736	$18,915,112	$21.70	1.31
Electric Vehicle Initiatives – EV Rebates[12]	59,308	580,807	$2,348,460	$15,560,096	$24,159,320	$30.83	1.35
Strategic Initiatives – Thermal	-	-	$734,304	-	-	-	-
Administration – Thermal	-	-	$2,296,301	-	-	-	-
Total	270,966	4,744,896	22,255,869	$42,455,940	$95,425,677	$13.64	1.47

[12] For the Electric Vehicles Initiatives – EV Rebates' lifetime energy savings reflect gasoline savings associated with rebated EVs, net of the increased electricity use associated with charging those EVs (converted to MMBtu). Monetized impacts of gasoline savings and estimated avoided maintenance costs for EV ownership are included in the benefits. Participant Costs reflect those associated with EV rebates; they reflect both the customers' share of the incremental costs to purchase the vehicle and new electricity costs associated with charging those EVs.

As discussed in the "Finance and Administration" section of this report, the Trust invested more than $70 million in FY2022 to fund the programs and cost savings described above. Table 5 provides a summary of the Trust's payments during FY2022.

Table 5: FY2022 Payments Made[13]

Use of Funds	Amount
Major Programs	
Commercial and Industrial Custom Program	$3,721,666
Commercial and Industrial Prescriptive Program	$8,611,783
Small Business Initiative	$2,858,225
Distributor Initiatives	$9,458,334
Retail Initiatives	$7,658,913
Home Energy Savings Program[14]	$20,611,557
Low-Income Initiatives	$10,053,644
Electric Vehicle Initiatives – EV Rebates	$2,348,460
Other Programs and Initiatives	
Renewable Energy Demonstration Grants Program	$83,444
Agricultural Fair Assistance Program	$7,680
Lead by Example Initiative	$34,118
Electric Vehicle Initiatives – EV Supply Equipment	$336,275
Strategic Initiatives and Administration	
Strategic Initiatives	$2,371,950
Administration	$3,638,497
Other Payments[15]	$99,167
Total Use of Funds – Efficiency Maine Trust	**$71,893,713**

The following sections of the Annual Report provide short descriptions of each program and initiative referenced in Table 3, 4, and 5. 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.

[13] 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 14–15.
[14] Home Energy Savings Program payments include $574,768 of loan support not reflected in the program tables.
[15] Includes payments to MTI for its share of the EERRF, payments to the Maine Department of Environmental Protection (DEP) for its RGGI-related administration costs, and payments for administration costs to RGGI Inc. (the non-profit entity that manages RGGI). 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 primarily 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
- Institutions and Governmental Entities

Funds Invested

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

FY2022 Activities

Following are some program activity highlights for FY2022:

- Awarded incentives to 23 new customers and 18 past program participants (as compared to 28 new customers and 12 past program participants in FY2021, and 3 new customers and 14 past program participants in FY2020).
- Observed continued program interest from cannabis cultivation facilities; cannabis horticultural lighting and heating, ventilation, and air conditioning (HVAC) equipment projects constituted 19 of 41 awards made and accounted for 13% of incentive funds awarded in FY2022. Cannabis lighting projects were transitioned to the C&I Prescriptive Program in February 2022 except for special circumstances requiring a more detailed baseline or energy savings review.
- Observed renewed interest from ski areas; high-efficiency snow gun projects constituted 4 of 41 awards made and accounted for 35% of the program awards for FY2022.
- Observed continued interest from lumber mills in combined heat and power; microsteam turbine projects constituted 2 of 41 awards made and accounted for 15% of the program annual awards.
- Completed only one formal scoping audit report but received 15 requests in FY2022. Of those, staff visited five facilities that transitioned directly into project development for incentive opportunities. The remainder of the requests were received late in the fiscal year and will be completed in FY2023. This represents an increase in activity from FY2021.

FY2022 Results[16]

Table 6: C&I Custom Program – Electric Results

Metric	Value
Total Participants	35
Total Projects	37
Annual kWh Savings	7,481,052
Lifetime kWh Savings	94,190,814
Efficiency Maine Costs	$2,360,417
Participant Costs	$2,321,243
Lifetime Benefits	$9,713,816
Benefit-to-Cost Ratio	2.07

Table 7: C&I Custom Program – Thermal Results

Metric	Value	
	Natural Gas	Unregulated Fuels
Total Participants	4	4
Total Projects	4	4
Annual MMBtu Savings	13,607	61,343
Lifetime MMBtu Savings	257,977	1,202,935
Efficiency Maine Costs	$156,447	$671,729
Participant Costs	$402,763	$557,304
Lifetime Benefits	$1,872,580	$4,652,487
Benefit-to-Cost Ratio	3.35	3.79

FY2022 Analysis

The C&I Custom Program continued to employ an incremental approach to developing projects; the program team focused on encouraging customers to complete one or more individual projects that fit with their current priorities and budget, building a positive foundation for additional program participation and energy efficiency investment in the future.

Projects at cannabis cultivation facilities continued to represent a large number of C&I Custom Program applications for two reasons. First, though the medical cannabis market has been active in Maine since the late 1990s, the recent legalization of recreational adult use led to considerable sector expansion.[17] Second, in October 2020, the Efficiency Maine Board of Trustees adopted a new policy to allow program

[16] Several custom projects achieved a blend of electric and thermal savings in FY2022. 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 38 distinct participants in FY2022.

[17] In November 2016, Maine voters approved the recreational use, retail sale, and taxation of cannabis. During the 128th Legislature, a 17-member legislative committee was convened to overhaul the Marijuana Legalization Act passed by voters. After a lengthy process, An Act To Implement a Regulatory Structure for Adult Use Marijuana became law on May 2, 2018. LD 719, An Act To Amend the Adult Use Marijuana Law, was enacted in June 2019 and authorized the newly formed Office of Marijuana Policy to proceed with final adoption of adult use rules. The first active adult use establishment licenses—including the first cultivation licenses—were issued on September 8, 2020.

eligibility for projects located at cannabis-related businesses.[18] Maine's cannabis growers—some new, some existing, but all newly eligible for incentives—turned to the program for assistance in opting for higher-efficiency lighting and HVAC solutions than they would otherwise have chosen to pursue. As noted above, cannabis projects constituted 19 of 41 awards made but only accounted for 13% of incentive funds because many were, on average, smaller projects. For comparison, in FY2021, cannabis projects constituted 22 of 40 awards made and accounted for 36% of incentive funds awarded.

Initially, the Trust decided that all Trust-funded energy efficiency projects at cannabis facilities would be administered through the C&I Custom Program. Over the course of FY2021, it became apparent that an in-depth custom analysis was not necessary in all cases. Certain types of lighting projects yielded consistent, predictable savings across different cannabis-growing facilities and involved relatively simple and easily accessible equipment. For this reason, the Trust re-directed many of these projects to be processed through the C&I Prescriptive Program in FY2022. The balance of projects at cannabis facilities, where the run-times and applications of efficiency measures varies significantly case-by-case, continue to be processed under the C&I Custom Program in FY2023.

The program also saw renewed interest from Maine's ski areas and lumber mills in FY2022. Several ski areas were motivated to replace inefficient snow-making equipment due to rising energy costs. New, high-efficiency equipment also produces higher-quality snow. The growth in interest from lumber mills was driven largely by an active vendor with new microsteam turbine engine technology. This vendor offers a compact and efficient backpressure turbine package that is economically attractive to lumber mills due to availability of cheaper biomass fuel and rising electric rates. FY2022 saw the first of these packages commissioned, and several more are expected to be awarded and completed during FY2023.

Over the past few years, the C&I Custom Program witnessed a slight downturn in participation from several of the state's largest, energy-intensive manufacturers while the statutory set-aside of RGGI funds for "affected customers" was in place. The product of a legislative mandate, this set-aside resulted in complex program requirements for "affected customers" seeking to participate in the program and reduced available funding, both of which discouraged participation from the impacted manufacturers.[19] The budget set-aside expired in FY2021, and staff worked hard to rebuild connections and renew interest in FY2022. The program team expects this effort to bear fruit in FY2023.

Participants in the C&I Custom Program relied primarily on outside contractors and vendors to identify energy efficiency opportunities in FY2022. 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 offered TA grants to support further development of complex projects, but several were postponed due to COVID-19-related concerns.

[18] Efficiency Maine Trust Board Meeting, Minutes, October 7, 2020.
[19] See Public Law, Chapter 498, 127th Maine Legislature, Second Regular Session, LD 1398, An Act To Reduce Electric Rates for Maine Businesses.

The program completed one scoping audit (versus nine in FY2019 and 12 in FY2018) but received a large number of requests during the winter and spring of FY2022. This could be a result of rising energy prices and easing of COVID-19-related restrictions that prohibited outside parties from gaining physical access to many of the facilities over the last two years. The program did not complete any TA studies in FY2022, continuing the declining trend that began several years ago. (The program completed one TA study in each of the past three fiscal years, down from a high of nine completed TA studies in FY2015.) This trend reflects the proliferation of smaller, less complex projects (most of which do not require advanced analysis through a specialized third party) participating in the program over the same time period.

Nevertheless, scoping audits and TA studies can be an important element of the program for those who choose to take advantage of them. Activity from FY2015 through FY2020 suggests that, on average, 38% of scoping audits lead directly to project implementation in subsequent fiscal years. The data also show an average TA-to-project conversion rate of 75% for the same period. The program will continue to invest in these studies because, 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 in other ways. Moreover, the audits and studies allow the program to scrutinize the work of engineering firms and contractors before the project proposal stage, reducing the risk that customers will pay for inflated costs or unnecessary add-ons.

FY2023 Plans

- Launch a new initiative, the Energy Efficiency Initiative for Manufacturers, leveraging federal ARPA funds and state Industrial Climate Transition Initiative funds to provide enhanced incentives for high-efficiency, clean energy equipment to reduce energy costs. The initiative will focus on projects that achieve significant reductions in carbon emissions, targeting measures that reduce unregulated fuel use.
- Monitor opportunities to transition certain cannabis project types to the C&I Prescriptive Program.
- Focus on rebuilding connections and renewing program interest among the state's largest energy users.
- Work to accommodate the potential for a small number of custom project proposals from larger industrial customers. If 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 have the PUC consider a specific funding request through a long-term capacity contract.

Commercial and Industrial Prescriptive Program

The C&I Prescriptive Program offers fixed-price financial incentives for a predefined list of widely available efficiency measures. Typical solutions promoted through this program include LED lighting; 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 other institutional settings. The program pairs these offerings with targeted, market-based initiatives to access specific sectors and hard-to-reach markets.

Commercial and Industrial Prescriptive Program

Sectors Served

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

Funds Invested

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

FY2022 Activities

Following are some program activity highlights for FY2022:

- Incentivized 2,398 heat pumps, including VRF systems.
- Completed two Funding Opportunity Notices (FONs), offering enhanced incentives for specific measures in the long-term care and service station industries.
- Launched two new campaigns targeting the hospitality industry and pre-kindergarten to grade 12 (PreK-12) public schools to invest federal funds.
- Expanded marketing and outreach efforts directly to Maine businesses, including direct mail, business-to-business advertising, and digital advertising, as well as hosting and participating in workshops, conferences, and events.
- Launched free “virtual” consultations in May 2022 for businesses interested in learning more about how to get started on an energy efficiency project. Interest was high; the Trust conducted 90 virtual consultations between May 11 and June 30, 2022.
- Launched cannabis horticultural lighting and dehumidification solutions.
- Engaged the Qualified Partner (QP) network and participating distributors with monthly newsletters and webinars, frequent website updates, participation in sector conferences, and ongoing distributor events.
- Collaborated with Distributor Initiatives on a fluorescent fixture campaign.
- Prepared for increased targeted initiatives as a part of Triennial Plan V, including integrating the Small Business Initiative (SBI) and launching other initiatives to invest federal funds.

FY2022 Results

Table 8: C&I Prescriptive Program – Electric Results

Metric	Value
Total Participants	1,108
Total Projects	1,407
Annual kWh Savings	19,318,286
Lifetime kWh Savings	267,422,578
Efficiency Maine Costs	$7,271,646
Participant Costs	$6,754,808
Lifetime Benefits	$30,841,268
Benefit-to-Cost Ratio	2.20

Table 9: C&I Prescriptive Program – Thermal Results

Metric	Value	
	Natural Gas	Unregulated Fuels
Total Participants	15	35
Total Projects	16	38
Annual MMBtu Savings	15,030	24,043
Lifetime MMBtu Savings	323,837	491,386
Efficiency Maine Costs	$292,331	$1,052,055
Participant Costs	$131,521	$1,927,023
Lifetime Benefits	$2,294,799	$12,882,764
Benefit-to-Cost Ratio	5.41	4.32

FY2022 Analysis

In FY2022, the program launched a significant marketing effort to reach customers directly rather than primarily relying on the customer outreach efforts of the QP network. This included participating in industry conferences, attending and leading workshops, and marketing the program across the state. Late in the fiscal year, the program introduced a virtual consultation service for businesses interested in pursuing efficiency but uncertain where to start. The program was immediately popular; interest in the consultations indicates that a certain population of Maine businesses and commercial property managers would like to install efficient equipment but do not feel ready to call a contractor. Several businesses receiving consultations have already moved forward with projects. The program will track customers receiving virtual consultations to gauge their effectiveness in leading to completed projects.

The program also targeted specific sectors with distinct efficiency opportunities or in harder-to-reach sectors. Earlier in the fiscal year, the program targeted long-term care facilities and service stations. In the fourth quarter, it also launched new targeted initiatives to support the investment of federal funds in PreK-12 schools and the hospitality industry. The program has found that the combination of enhanced incentives, direct outreach, and custom information through these targeted efforts elicits more customer engagement than through standard C&I Prescriptive offerings alone. These targeted initiatives also encourage QPs to review opportunities with their customer networks.

The program saw a shift in project types and investments over the year. Many lighting projects were completed through the Distributor Initiatives' LED lighting promotion instead of the C&I Prescriptive Program. Also, the C&I Prescriptive Program saw larger, more complex HVAC projects than in prior years. The Trust anticipates that this trend will continue. In FY2023, the program will focus even more heavily on HVAC projects and targeted outreach efforts, including through FONs, to continue to reach sectors with enhanced opportunity or sectors that have been traditionally hard to reach. As described in the SBI section below, this focus will also fold in SBI as one of several targeted initiatives of the re-named "C&I Prescriptive Initiatives." The Trust believes that this approach with targeted initiatives will leverage the statewide reach and extensive QP network developed through the program along with the focused outreach, direct support, and enhanced incentives that have been part of SBI and FONs. This effort will continue with its split focus of marketing directly to eligible customers as well as supporting QPs in developing projects.

As in previous years, the program's QP network was an important focus of program efforts. The Trust communicates directly with participating contractors through webinars, newsletters, a website, and workshops. Through collaboration with QPs and direct outreach to likely customers, the fiscal year also saw an increased adoption of HVAC solutions such as VRF systems. The program will continue to prioritize these measures in FY2023 and will continue to focus on developing informational materials and hosting workshops about VRF systems.

FY2023 Plans

- Offer continued targeted incentives for sector-specific solutions for key C&I customer sectors, including small businesses, small municipalities, health care, and multifamily buildings (five or more units).
- Integrate SBI, formerly treated as a stand-alone program, as one of the targeted customer sectors to be administered through the C&I Prescriptive Initiatives.
- Integrate the distributor LED replacement lamp offering, formerly part of Distributor Initiatives, into the C&I Prescriptive Initiatives. (The Trust has found that lighting distributors are key participants in the C&I Prescriptive Initiatives; they are integral players in the project scoping process and often have active inside sales teams.) Continue to expand marketing and outreach efforts directly to all Maine businesses in addition to those eligible for enhanced incentives through targeted initiatives.
- Continue to offer the virtual consultation service and evaluate the program's effectiveness.
- Continue to attend conferences, workshops, meetings, and other events to share information with potential customers and participating QPs.
- Collaborate with participating distributors and QPs to market available incentives and discounts and targeted initiatives.
- Continue to expand ventilation solutions offered through the program.

Small Business Initiative

The Small Business Initiative delivers efficiency retrofits directly to Maine's small businesses. The initiative combines local marketing, competitive product pricing, and contractor support with streamlined delivery to incentivize customers in targeted geographic areas. The initiative focused on Maine's rural communities through a regional approach over the past two Triennial Plan periods and will be available statewide through C&I Prescriptive Initiatives starting in FY2023.

Small Business Initiative

Sectors Served

- Small Businesses

Funds Invested

- Electric Efficiency Procurement
- Regional Greenhouse Gas Initiative
- Maine Power Reliability Program Settlement

FY2022 Activities

Following are some program activity highlights for FY2022:

- Supported 311 lighting retrofit projects and 694 heat pump units in small businesses.
- Launched the initiative in the Bath, Biddeford, Brunswick/Topsham, Camden, Northern Maine, and Winter Harbor regions.
- Completed projects that were developed in FY2021 in the Belfast, Belgrade Lakes, Bucksport, and Lewiston regions.
- Continued to provide support for customers financing their project through the Small Business Revolving Loan Fund.
- Used utility data to identify and prioritize eligible small businesses for targeted outreach (using phone calls, in-person sales calls, and business reply cards).
- Continued to offer heat pump retrofit incentives for small businesses statewide as well as an enhanced incentive in targeted regions for businesses that were participating in an active SBI effort or had completed lighting projects in the past ("SBI grads").
- Prepared for SBI to transition to a statewide program as one of several targeted initiatives of the C&I Prescriptive Initiatives during the Triennial Plan V period.

FY2022 Results[20]

Table 10: Small Business Initiative – Electric Results

Metric	Value
Total Participants	234
Total Projects	311
Annual kWh Savings	1,341,650
Lifetime kWh Savings	24,450,399
Efficiency Maine Costs	$1,551,801
Participant Costs	$850,754
Lifetime Benefits	$3,954,372
Benefit-to-Cost Ratio	1.65

Table 11: Small Business Initiative – Thermal Results

	Value
Metric	Unregulated Fuels
Total Participants	337
Total Projects	362
Annual MMBtu Savings	14,716
Lifetime MMBtu Savings	261,072
Efficiency Maine Costs	$1,307,936
Participant Costs	$3,619,641
Lifetime Benefits	$7,781,431
Benefit-to-Cost Ratio	1.58

FY2022 Analysis

SBI had a significant impact in multiple rural regions and small urban areas, supporting 311 lighting retrofits and 362 high-performance heat pump projects in small businesses. Using customer data from electric utilities to target marketing and outreach continued to be an important element of the initiative. This data allowed the program team to better reach eligible businesses with direct mail, phone calls, in-person sales calls, direct mail, and tailored case studies, as well as by partnering with local organizations.

In addition to the regions targeted for lighting retrofits, the initiative provided incentives for small businesses across the state. Higher incentives were paired with a new financing option to help reduce the first-cost barrier faced by many businesses. Small businesses in active SBI geographic areas—as well as returning SBI "graduates" in areas serviced by SBI in prior months and years—received a bonus incentive (in the form of a time-limited coupon) if they installed heat pumps in addition to the more typical lighting solutions. As with any new initiative, interest in the heat pump incentives started slowly, as customers and vendors became familiar with the offer and planned their projects. Some installers reported that demand for heat pumps in the residential sector limited their capacity to pursue small business projects. Halfway through the fiscal year, the eligibility for the enhanced small business heat pump incentive changed from 25 kW to 50 kW. This change allowed for more small businesses, not just

[20] Table 10 reflects electric results associated with lighting projects. Table 11 reflects the thermal results associated with heat pump retrofits.

Maine's smallest businesses, to participate in the program. By year end, the initiative had incentivized 633 total heat pump units.

The initiative will continue to explore how best to address barriers to energy-efficient lighting and heat pumps for Maine's smallest businesses. While the initiative was 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 projects. Alternatively, in some cases small businesses in targeted regions were found to already have efficient lighting. As the initiative merges with the C&I Prescriptive Initiatives next year, the effort should be able to leverage more eligible businesses and more QPs with a statewide approach. Project assessment and eligibility criteria have been simplified to allow for both participating businesses and QPs to determine if a business is eligible for enhanced incentives. As part of the C&I Prescriptive Initiatives, interested businesses will receive the traditional or enhanced incentive depending on their size. Direct outreach will continue for businesses deemed eligible via utility data; regional efforts will also continue in places with a high concentration of businesses likely to be eligible for enhanced incentives.

FY2023 Plans

- Deliver enhanced incentives to Maine's smallest businesses statewide as a targeted initiative of the C&I Prescriptive Initiatives.
- Continue to use utility data to geotarget customer outreach with high concentrations of potential customers while also opening the initiative to businesses statewide.
- Continue to focus program outreach efforts on rural regions and relatively small urban areas.
- Continue to focus outreach to regions targeted but not completed in FY2022, including Bath, Biddeford, Brunswick/Topsham, Camden, Northern Maine, and Winter Harbor.

Distributor Initiatives

Distributor Initiatives offer 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. This midstream program leverages relationships with distributors of energy-efficient products to provide instant product discounts and to distribute technology information at the point of purchase. In FY2022, the covered measures included heat pump water heaters, electronically commutated motor (ECM) circulator pumps for boiler systems, natural gas water heaters, natural gas combination (combi) boilers, LED bulbs, and smart thermostats.

Distributor Initiatives

Sectors Served

- Commercial and Industrial
- Small Businesses
- Multifamily
- Residential
- Low-Income Households
- Institutions and Governmental Entities

Funds Invested

- Electric Efficiency Procurement
- Natural Gas Efficiency Procurement
- Maine Power Reliability Program

FY2022 Activities

Following are some program activity highlights for FY2022:

- Discounted 160,391 LED replacement lamps, most as part of a campaign targeting old fluorescent fixtures.
- Processed 6,676 instant discounts for heat pump water heaters.
- Provided discounts for 11,204 ECM circulator pumps, the most issued in a single year by the Trust.
- Provided discounts on 150 combi boilers and 1 tankless water heater that use natural gas and are ENERGY STAR certified.
- Provided a mail-in rebate of up to $200 for smart thermostats purchased through any channel (including through retail stores and online). Processed 578 rebates for smart thermostats for natural gas customers in the Bangor Natural Gas, Maine Natural Gas, and Unitil territories.
- Continued to track market share of heat pump water heaters and ECM circulator pumps by branch for each distributor and used this data to target product training where market share was lowest.

FY2022 Results

Table 12: Distributor Initiatives – Electric Results

Metric	Value
Total Bulbs	160,391
Total Equipment	17,095
Annual kWh Savings	22,574,610
Lifetime kWh Savings	311,315,932
Efficiency Maine Costs	$9,246,453
Participant Costs	$2,618,710
Lifetime Benefits	$35,458,041
Benefit-to-Cost Ratio	2.99

Table 13: Distributor Initiatives – Thermal Results

Metric	Value
	Natural Gas
Total Participants	727
Total Projects	729
Annual MMBtu Savings	7,249
Lifetime MMBtu Savings	102,166
Efficiency Maine Costs	$211,527
Participant Costs	$248,832
Lifetime Benefits	$839,936
Benefit-to-Cost Ratio	1.82

FY2022 Analysis

In FY2022, the program offered distributors an incentive if they would sell heat pump water heaters for no more than $499. The incentive helped keep the price of heat pump water heaters competitive with standard electric water heaters, driving considerable demand. Additionally, one distributor started selling heat pump water heaters directly to consumers, and retailers responded by lowering their prices. Though the program pursued marketing strategies targeting manufacturers, distributors, and property owners, it focused on updating its outreach materials to better target plumbers, the primary customers of distributors. Marketing efforts included in-distributor point-of-sale material, utility bill stuffers, emails, direct mail, e-newsletters, social media, digital ads, and the Efficiency Maine website. By the end of the year, distributors reported that heat pump water heaters constituted 73% of the top-selling electric water heaters, compared to the national average of 2%.

The program also incentivized a significant number of LEDs, particularly through its T8 LED replacement lamp promotion. The Trust collaborated with distributors and lighting contractors to identify customers with T8s and replaced the T8 lamps with “Type A” LED lamps while keeping the existing fixture in place.[21] The Type A LED lamp replacement was an important opportunity for businesses that had previously decided replacing the existing fluorescent fixture was not worthwhile.

[21] Type A T8 LED lamps operate with an existing high-performance ballast.

Demand for ECM circulator pumps continued to grow as they have become more established in the program and with distributors. Momentum continued to build significantly in FY2022 as more plumbers tried and accepted the new technology at the discounted price. By the end of the year, distributors reported that ECM circulator pumps accounted for 52% of top-selling circulator pumps.

Interest in residential natural gas measures as part of Distributor Initiatives continued to decline. Distributors report that the complexity and limited funding of the natural gas program make participation difficult. Each distributor receives a small allocation of funds per natural gas local distribution company, and if they exceed this amount, they risk not being reimbursed for discounts they offered. For this reason, some branches have declined to participate in the program in FY2023. More successful was the smart thermostats initiative for natural gas customers based on the previous year's pilot. The initiative was heavily marketed and captured many likely participants but may continue as a low-income initiative in order to reach potential participants newly eligible for enhanced incentives.

The COVID-19 pandemic presented some challenges to the program in FY2022 in terms of changes in material costs and supply chain issues. Overall, because the program targets emergency replacements, COVID-19 did not have a significant impact on program activity.

FY2023 Plans

- Transition the LED replacement lamp offering to C&I Prescriptive Initiatives. (The Trust has found that they are subject to unique market conditions and supply-chain dynamics that make them better suited to promotion through that channel.)
- 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. One initiative will directly target large plumbing companies to augment distributor efforts.
- Continue to collaborate with manufacturers, distributors, and plumbers to drive the sale of efficient water heaters.

Retail Initiatives

Retail Initiatives focus 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 to promote Efficiency Maine's mail-in rebates or instant discounts on energy-efficient products. 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
- Institutions and Governmental Entities

Funds Invested

- Electric Efficiency Procurement
- Maine Power Reliability Program

FY2022 Activities

Following are some program activity highlights for FY2022:

- Provided an instant discount at two retailers for heat pump water heaters as an alternative to the existing mail-in rebate, driving the considerable uptick in program activity.
- Processed 1,724 heat pump water heater incentives; 468 of those were instant discounts, and 1,256 of those were mail-in rebates.
- Tracked market share of heat pump water heaters by store to help manufacturers target training support.
- 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 distribution of in-store signage.
- Worked with retail partners to place energy-efficient consumer products in prominent store locations and ensured a steady supply of inventory by working with department personnel to time their reordering.
- 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. These discounts were combined with favorable product placement in stores.
- Rebated 5,008 ENERGY STAR®-certified clothes washers, 128 room air purifiers, and 79 low-flow showerheads with thermostatic valves.

FY2022 Results

Table 14: Retail Initiatives – Electric Results

Metric	Value
Total Bulbs	1,633,778
Total Equipment	7,339
Annual kWh Savings	36,512,797
Lifetime kWh Savings	159,004,292
Efficiency Maine Costs	$7,659,593
Participant Costs	$4,853,887
Lifetime Benefits	$30,710,581
Benefit-to-Cost Ratio	2.45

FY2022 Analysis

The program continued its lighting marketing model from FY2021, 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.

Mail-in rebates for heat pump water heaters continued to be offered through retail stores during FY2022. Though different retailers set slightly different starting prices on the units, the rebate generally brought the final price down to between $749 and $849. Changes in material costs and supply chain issues increased the price of heat pump water heaters in FY2022, but the program worked with some manufacturers to mitigate price increases in Maine.

At the same time, the program piloted an initiative using an instant discount barcode, available through a smartphone app, at Home Depot and Lowe's. The promotion reduced the "first-cost barrier," allowing customers to get a lower price on the product without needing to wait for a rebate.

FY2023 Plans

- Continue to offer off-shelf marketing incentives to retailers for favorable LED product placement while monitoring the impacts of new federal standards pertaining to LED lights.
- Continue to collaborate with retailers to provide instant discounts for heat pump water heaters.
- Continue to offer incentives 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 to monitor and adjust incentives to align with changes in market prices.

Home Energy Savings Program

The Home Energy Savings Program drives installation of home weatherization and 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

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

Funds Invested

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

FY2022 Activities

Following are some program activity highlights for FY2022:

- Incentivized 24,437 heat pumps, continuing a year-over-year increase in the units rebated.
- Increased funding for weatherization to support contractors ramping up to meet growing demand and to demonstrate a multiyear commitment to building envelope projects, and simplified weatherization eligibility criteria and increased rebates to stimulate demand.
- Initiated a comprehensive marketing plan promoting weatherization and heat pumps in collaboration with Low-Income Initiatives.
- Experienced relatively high demand for building-envelope projects; rebated 3,446 measures, representing a significant increase compared to FY2021. The fourth quarter of FY2022 was a record-breaking quarter for weatherization.
- Offered loans for all of Efficiency Maine's residential measures and loaned more than $7 million to interested residential customers who took advantage of rebates through HESP and Low-Income Initiatives.[22]
- Presented at 23 events and 6 training workshops over the course of FY2023, increasing program awareness among customers and contractors.

[22] The Trust offered loans to help residential customers take advantage of energy efficiency opportunities. The loan types included Property Assessed Clean Energy loans, which are secured by a lien on a property, and unsecured Home Energy Loans. In FY2022, the Trust loaned out $7,404,958 for 951 projects for residential customers.

FY2022 Results

Table 15: Home Energy Savings Program – Electric Results

Metric	Value
Total Participants	14,564
Total Projects	14,682
Annual kWh Savings	73,607,540
Lifetime kWh Savings	1,324,935,718
Efficiency Maine Costs	$13,564,151
Participant Costs	$65,863,328
Lifetime Benefits	$134,364,892
Benefit-to-Cost Ratio	1.69

Table 16: Home Energy Savings Program – Thermal Results

Metric	Value
	Unregulated Fuels
Total Participants	1,973
Total Projects	2,022
Annual MMBtu Savings	36,839
Lifetime MMBtu Savings	859,107
Efficiency Maine Costs	$6,468,138
Participant Costs	$12,287,958
Lifetime Benefits	$22,025,617
Benefit-to-Cost Ratio	1.17

FY2022 Analysis

Regarding weatherization, the year started off slowly. But the program's work to simplify eligibility, increase rebates, and market weatherization resulted in a significant increase in weatherization projects in FY2022. The program, seeking to steadily build and sustain demand sufficient to meet 2030 weatherization targets set in the Efficiency Maine Trust Act, significantly boosted the HESP weatherization budget in FY2022 using available RGGI revenue. This mid-year adjustment was instrumental in encouraging weatherization contractors that they should add staff and invest in additional equipment. Instead of the typical slowdown in the third and fourth quarter of the fiscal year, demand for weatherization increased. At the close of the fiscal year, RRVs reported weatherization project backlogs of nearly three months, a sign that demand is strong. The program's efforts to reinvigorate the marketplace have been successful to date—resulting in a record number of weatherization projects, a flurry of activity with contractors hiring and investing in equipment, and new contractors entering the field.

FY2022 was also a record year for heat pump installations. The increased interest was due to a number of factors—higher oil prices, the Trust's significant investment in marketing heat pumps, and word of mouth as more and more Mainers install heat pumps. Maine now has nearly 100,000 heat pump customers, and surveys show very high satisfaction with the equipment. More than 88% of heat pump owners surveyed scored their experience a 9 or 10 on a scale from 0 to 10.

In addition to an increased investment in marketing during the year, staff participated in a number of workshops, events, and conferences for both homeowners and contractors. The program also increased its support for participating RRVs by providing training scholarships, matching marketing investments, and offering a program liaison service with regular outreach to contractors with the highest levels of program participation.

FY2023 Plans

- Develop and launch program design changes, if any, and continue marketing and outreach to advance the statutory goal of weatherizing 35,000 homes and businesses between 2021 and 2030.[23]
- Continue to drive interest in heat pumps to help meet Maine's statutory goals of installing 100,000 high-performance heat pumps over five years (through FY2025)[24] and, by 2030, having at least 115,000 households in the state wholly heated by heat pumps and an additional 130,000 households in the state partially heated by heat pumps.[25]
- Continue to revise and hone the program eligibility and incentives based on feedback from contractors and other stakeholders.

[23] 35-A MRS §10104(4)(F)(2). This goal was established by the Maine Climate Council in 2020 and codified in statute by the 130th Legislature in 2021.
[24] 35-A MRS §10119(2)(A)(2).
[25] 35-A MRS §10104(4)(F)(7). This goal was established by the Maine Climate Council in 2020 and codified in statute by the 130th Legislature in 2021.

Low-Income Initiatives

The Trust delivered energy efficiency benefits to low-income customers through a portfolio of initiatives in FY2022. These initiatives targeted energy conservation funding to eligible households through several channels and other activities:

- *Direct installation* of conservation measures, where the Trust covers up to 100% of the cost of equipment and installation, and oversees contractor support;
- *Market-based initiatives*, where low-income customers participate in the programs that the Trust offers to all residential customers, and where low-income customers may be eligible for enhanced rebates; and
- *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.

Low-Income Initiatives

Sectors Served

- Low-Income Households
- Multifamily

Funds Invested

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

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

FY2022 Activities

Following are some program activity highlights for FY2022:

Direct Installation

- Provided incentives to support the installation of 968 heat pump water heaters in low-income homes to replace existing electric resistance water heaters or systems that pull domestic hot water off the boiler (i.e., tankless coil water heating). Under this direct installation initiative, the program covered 100% of the project costs.

Market-Based Initiatives

- Collaborated with Retail Initiatives and Distributor Initiatives to provide discounted heat pump water heaters to low-income customers; discounted 935 heat pump water heaters through Distributor Initiatives and an additional 244 through Retail Initiatives.
- Continued to drive demand for heat pumps for low- and moderate-income households; incentivized 1,042 heat pump units in FY2022. Coordinated with the Maine State Housing Authority (MaineHousing), which administers a program that offers eligible households a no-cost heat pump installation through Community Action Agencies (CAAs).
- Designed and launched expanded market-based weatherization initiatives for low- and moderate-income households. Interest in the program doubled over FY2021.

- Collaborated with the Home Energy Savings Program on an extensive marketing and outreach campaign focused on heat pumps and weatherization.

Direct-Mail Campaigns

- Fulfilled 20,052 requests for free DIY energy-saving kits (containing items such as LED bulbs, low-flow showerheads, and faucet aerators).

Other Activities

- Awarded funding for two new-construction affordable housing projects to build to higher energy efficiency standards as part of an Affordable Housing Pilot.
- Collaborated with Distributor Initiatives to offer smart thermostats to low-income natural gas customers.
- Continued to support the electric utilities' Arrearage Management Program (AMP).[26]
- Expanded eligibility and introduced an online form to help individuals "opt in" to enhanced incentives. Late in the fiscal year, program eligibility was expanded from participation in the Home Energy Assistance Program (HEAP) and demonstration of property values below county-based thresholds set by Efficiency Maine to also include participation in the Supplemental Nutrition Assistance Program (SNAP) for food assistance, Temporary Assistance for Needy Families (TANF) for cash assistance, or MaineCare for medical insurance coverage.
- Continued to partner with the Maine Department of Health and Human Services (DHHS) to reach eligible participants for low-income initiatives (i.e., households that qualified to receive assistance through a state or federal means-tested, low-income program).
- 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, tribal group representatives, 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 offerings at various events, including the Bangor Home Show, a Maine Mortgage Association meeting, an Electrify Everything! Webinar, a Belfast Climate Crisis Committee meeting, a Sustainable Auburn meeting, a Kittery Town Council Climate Adaptation Committee meeting, the Central Maine Landlord Association meeting, a webinar for Green and Healthy Maine HOMES Home+Energy Chats, the Isleboro Community Energy Jamboree, the Maine Affordable Housing Conference, Greater Portland Sustainability Advisory Group meetings, GrowSmart Maine's Climate Action Series, Eastport weatherization meetings, CAA Housing Council meetings, and heat pump training classes.

[26] 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.

FY2022 Results

Table 17: Low-Income Initiatives – Electric Results

Metric	Value
Total Participants	22,269
Total Projects	22,269
Annual kWh Savings	12,113,005
Lifetime kWh Savings	120,360,482
Efficiency Maine Costs	$3,336,522
Participant Costs	$324,102
Lifetime Benefits	$16,421,789
Benefit-to-Cost Ratio	4.49

Table 18: Low-Income Initiatives – Thermal Results

Metric	Value	
	Natural Gas	Unregulated Fuels
Total Participants	2	1,955
Total Projects	2	1,955
Annual MMBtu Savings	18	38,812
Lifetime MMBtu Savings	182	665,427
Efficiency Maine Costs	$409	$6,716,231
Participant Costs	$67	$7,720,736
Lifetime Benefits	$1,630	$18,915,112
Benefit-to-Cost Ratio	3.43	1.31

FY2022 Analysis

Direct Installation

Activity in the program's initiative to install heat pump water heaters increased in FY2022 despite higher prices of heat pump water heaters and reduced reimbursement for installers. The Trust raised the limit of the reimbursement to help address the situation, but installers still earned less per installation than they did in FY2021. Notwithstanding supply and installation challenges, the program saw significant activity—about half of the installations replaced electric resistance water heaters and the other half tankless coil systems for water heating. Using NECEC funds, the program is the only one in the country replacing tankless coil systems with heat pump water heaters.

Market-Based Initiatives

Interest in the market-based initiatives to install heat pumps and upgrade weatherization grew significantly during FY2022, at an even greater rate than it did for the HESP offerings described in the prior section. The Low-Income Initiatives significantly increased rebates for weatherization (to 90% of the project cost up to $9,000) and continued heat pump initiatives, while increasing marketing and other outreach, including targeted mailing initiatives. The program was directly marketed to past recipients of heat pump rebates, residents of homes with a property valuation in the bottom quartile (by county), residents of towns with a high Social Vulnerability Index (as reported by the U.S. Department of Agriculture's Rural Development's Innovation Center), and recipients of air-sealing rebates who had not

yet undertaken insulation. Participation doubled compared to FY2021. The higher rebate amounts also encouraged more complex weatherization projects, compared to just air sealing.

Direct-Mail Campaigns

Collaborating with DHHS to reach low-income households continued to represent a significant outreach opportunity in FY2022. Prior to FY2019, the Trust relied on the HEAP list (containing between 30,000 and 50,000 households), which is maintained by MaineHousing. In contrast, there are 205,000 households on the DHHS list.[27] By providing materials to DHHS to send to its mailing list, the program was able to reach a significant number of low-income households—far more than through other low-income initiatives. Nonetheless, the Trust saw a continued decline in the number of DIY kit requests from the previous few years, suggesting that the Trust may have satisfied most of the demand from the DHHS pool. In FY2023, this initiative may reach more eligible households through expanded eligibility criteria.

Other Activities

The Trust saw an increase in enrollments in AMP. An 18-month moratorium on disconnections from electric utility service expired on April 15, 2022, and after that time many new customers joined the program. The program continues to provide electricity usage assessments, energy-saving tips, and offers for energy-saving devices to 100% of new AMP enrollees. The program also continues to assess which AMP customers may benefit from a heat pump water heater installation.

The program collaborated with Distributor Initiatives to offer smart thermostats to low-income households that were natural gas customers. This smart thermostat initiative was successful in connecting natural gas customers with smart thermostats, but very few of them were low-income customers despite targeted outreach to customers identified as low-income by the local distribution companies. The program is hopeful that the expanded eligibility criteria for Low-Income Initiatives moving into FY2023 will mean more households might benefit from the smart thermostats and weatherization in the next fiscal year. The program will also continue to explore energy-saving opportunities in natural-gas-heated multifamily properties predominantly occupied by low-income tenants.

In addition, in FY2022 the Trust added an online form that individuals can use to opt into the higher incentives offered through the program. The form initially included two pathways for eligibility: HEAP participation or ownership of a property that met county-based thresholds (set by Efficiency Maine) for tax-assessed valuation. The Trust then verified eligibility and notified the individuals. This simplified the process for the individual and provided a way to participate even if they had not received, or had lost, a direct-mail offer. The approach also helped leverage the significant interest generated by the marketing and outreach campaigns. Late in the fiscal year and in collaboration with DHHS, the Trust added more pathways for individuals to prequalify for enhanced incentives. The online form now includes the following additional pathways: participation in SNAP for food assistance, TANF for cash assistance, or MaineCare for medical insurance coverage. Using the form, individuals provide sufficient information for

[27] 2021 data from DHHS. This figure represents an increase from 175,000 households in 2019.

DHHS to verify participation; upon receiving verification from DHHS, the Trust then sends the customer confirmation that they can participate in the program. As a result, the program is less dependent on direct mailings using the DHHS mail house. These changes also help RRVs support their customers and receive rebates more quickly.

In another activity, the program selected two new construction projects as part of its affordable housing pilot. The first project contains 60 units being developed by Avesta on Valley Street in Portland, and the second project comprises 60 units being developed by South Portland Development Corporation on Jocelyn Street. As part of the pilot, Efficiency Maine is incentivizing the developers to build to Passive House standards.[28] Even before the projects' completion, the Trust has benefitted from gaining more detailed information about the differences between the previous baseline and the Passive House standards and anticipates learning more about the best way to approach high-performance new construction after the buildings are complete.

FY2023 Plans

- Continue to expand the market-based weatherization initiative to support Maine's goal to weatherize at least 10,000 low-income households through the combined efforts of the Trust and MaineHousing between 2020 and 2030.[29] Leverage ARPA funds for this purpose, supporting increased incentives and expanded marketing and outreach.
- Drive demand for heat pump water heaters in low-income homes.
- Drive demand for high-performance heat pumps in low-income homes to help meet Maine's statutory goals (across all-income homes) of installing 100,000 high-performance heat pumps over five years (through FY2025)[30] and, by 2030 having at least 115,000 households in the state wholly heated by heat pumps and an additional 130,000 households in the state partially heated by heat pumps.[31]
- Advertise the natural gas thermostat program to the expanded pool of eligible low-income customers and explore other energy-saving opportunities (such as weatherization) in multifamily properties in natural gas territories.
- Explore potential for use of finance, leasing, and other creative approaches to facilitate access to the Trust's programs for low- and moderate-income Mainers.

[28] More information about Passive House standards may be found on the Passive House Institute U.S. website at https://www.phius.org/.
[29] 35-A MRS §10104(4)(F)(2). This goal was established by the Maine Climate Council in 2020 and codified in statute by the 130th Legislature in 2021.
[30] 35-A MRS §10119(2)(A)(2).
[31] 35-A MRS §10104(4)(F)(7). This goal was established by the Maine Climate Council in 2020 and codified in statute by the 130th Legislature in 2021.

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
- Institutions and Governmental Entities

Funds Invested

- Volkswagen Settlement Funds
- NECEC Settlement Funds

FY2022 Activities

Following are some activity highlights for FY2022:

Charging

- Awarded funds for 12 Level 2 charging plugs through an initiative to install chargers at Maine state government facilities.
- Awarded grants for 24 Level 2 charging plugs to serve residents at five affordable housing properties as part of an initiative to increase charging access in multiunit dwellings.
- Supported the installation of charging plugs at municipalities participating in the fleet rebate program.
- Launched a four-part video series for property owners considering installing EV chargers for public or workplace use. Collaborated with MaineDOT, GEO, Governor's Office of Policy Innovation and the Future (GOPIF), and DEP to develop Maine's Plan for EV Infrastructure Deployment, which was submitted to and approved by the Federal Highway Administration (FHWA). This Plan's approval was a prerequisite to receiving Maine's $19 million allotment of funds through the National EV Infrastructure (NEVI) Formula Program. The Trust also presented a draft of this statewide plan to several stakeholder groups, including Drive Electric Maine, the Transportation Working Group of the Maine Climate Council, the Trust's Low-Income Advisory Group, and the MaineDOT State Transportation Innovation Council.

Vehicles

- Continued to administer point-of-sale rebates for EVs, including enhanced rebates for qualified low-income customers, Maine governmental entities, tribal governments, and select non-profits.
- Introduced new incentives for business fleets to encourage Maine businesses to switch to EVs; in addition, launched a limited-time promotion on commercial vans to target business fleets.
- Authorized nine new car dealerships in Maine to participate in the EV Rebates Program, bringing the total number of participating EV dealers to 76.

- Added new battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) to the list of vehicles eligible for rebates as they became available, including the Ford E-transit commercial van, Ford and Rivian pickup trucks, and new models, such as the Hyundai Ioniq 5 and the Kia EV 6.
- Provided a total of 1,316 EV rebates in FY2022. Of those, 472 were for BEVs and 844 were for PHEVs. Forty-four rebates went to governmental entities, four were enhanced rebates for qualified low-income customers (one of which was for a used EV), and six were enhanced rebates for business customers as part of the limited business fleet promotion.
- Distributed a bi-monthly newsletter to participating EV dealers, containing program statistics and updates.
- Resumed monthly visits to dealerships to replenish EV brochures and other materials, build relationships with participating dealership staff, and gather feedback from dealers.

Education and Marketing

Launched a seven-part educational video series starring Maine humorist Tim Sample. The series includes videos on Home Charging, How to Find EV Chargers, and One-Pedal Driving. These videos and other outreach efforts were developed in part through funding awarded as part of a PUC consumer engagement pilot program.

Managed a comprehensive marketing campaign to publicize the videos, including email campaigns, social media posts, media advisories, and radio ads.

Produced the first in a series of three “how-to” guidebooks called “How to Select and Install a Home Electric Vehicle Charger.” The second and third guidebooks will cover how to charge at home and away and instructions for prospective host sites looking to install EV charging equipment. The first guidebook is being distributed at participating dealerships and EV events, as well as through partner organizations and the Efficiency Maine website.

- Completed a radio campaign consisting of public service announcements with a focus on range confidence, the availability of public chargers, and the benefits of EVs.
- Hosted or participated in a significant number of EV workshops, conferences, and ride-and-drive events, including the Wells EV Show, National Drive Electric Week, Center for an Ecology-Based Economy Solar + EV Expo, Green Home + Energy Show, Bar Harbor Climate Task Force EV Show, Islesboro Community Day, Efficiency Maine Annual Event, and the Governor’s Communities Leading on Climate Conference.
- Presented EV Initiatives updates at stakeholder meetings such as Drive Electric Maine, the Transportation Working Group of the Maine Climate Council, and local climate action groups.

Participated in the steering committee for Maine’s Clean Transportation Roadmap, providing expertise and data from the Trust’s experience administering incentives for EVs and EV charging infrastructure.

FY2022 Results

Table 19: EV Initiatives – EV Rebate Results

Metric	Value
Total EV Rebates	1,316
Municipal Chargers Paired with EV Rebates	2
Annual Gasoline Savings (MMBtu)	71,287
Annual Electricity Used for Charging Rebated EVs (kWh)	(3,510,827)
Lifetime Energy Savings (MMBtu)	1,165,721
Efficiency Maine Costs	$2,348,460
Participant Costs	$15,560,096
Lifetime Benefits	$24,159,320
Benefit-to-Cost Ratio	1.35

Table 20: EV Initiatives – Electric Vehicle Supply Equipment Results

Metric	Value
EV Charging Plugs Awarded	46
Efficiency Maine Costs	$336,276

FY2022 Analysis

The Trust continued to grow and implement its suite of EV Initiatives. In FY2022, these initiatives—focused on vehicle charging infrastructure and EV adoption—were funded primarily by two sources: approximately $3 million in remaining funds from settlements of two successful lawsuits against the car manufacturer group headed by VW, and approximately $7 million from the NECEC settlement.

One initiative focuses on expanding EV charging infrastructure. The Trust continues to strategically expand the publicly available EV charging infrastructure in Maine. This past year, the Trust focused on wrapping up its Phase II solicitation for Level 2 Community Charging by awarding funds for plugs at small businesses, state agencies, and affordable housing developments. It also focused on supporting property owners looking to install chargers by developing extensive informational materials for potential host sites. The Trust continues to participate in statewide planning for EV infrastructure. Most notably, the Trust collaborated with MaineDOT, GEO, GOPIF, and DEP to develop a statewide Plan for Electric Vehicle Infrastructure Deployment, which must be approved by FHWA in order to receive approximately $19 million in funding from the Infrastructure Investment and Jobs Act (IIJA). The Trust will play a major role in administering the IIJA funding for expanding EV charging in Maine and will continue to manage rounds of funding for EV chargers over the next five years.

The second initiative focuses on increasing the adoption of EVs in Maine. The Trust's EV Rebates Program offers instant rebates through participating car dealers in Maine and for vehicles purchased directly from the manufacturer. The program offers enhanced incentives for qualified low-income Maine residents, Maine governmental entities, tribal governments, and select non-profits. In FY2022, the program added several new models to the list of eligible vehicles, including newly released pickup trucks and commercial vans. Despite the growing and increasingly diverse list of potentially eligible vehicles,

supply chain disruptions significantly constrained vehicle inventory throughout the year. The disruption is expected to continue through FY2023.

The Trust's enhanced incentives for fleets were popular; a number of municipalities and businesses applied to participate. The program has seen fewer applications by low-income customers, however, and has recently completed a customer survey for low-income customers who start the process but do not purchase an electric car. The Trust continues to explore options for making the program more accessible to low-income customers as part of those findings. Late in the fiscal year, the Trust launched new pathways for pre-approval through the Trust's Low-Income Initiatives. This has expanded the number of households eligible for enhanced EV rebates and should increase low-income household participation in the program.

Finally, in FY2022 the program invested considerable energy in creating public information resources for potential EV buyers and charging hosts. The centerpiece of this effort was a seven-part educational video series starring Maine humorist Tim Sample; several of these videos received national recognition from the Viddy Awards. "Charging Your EV—Ways to Pay" and "One-Pedal Driving and Regenerative Braking" received Gold Awards; and a third video, "How to Use Public Electric Vehicle Chargers," earned an honorable mention.[32] These videos were complemented by a comprehensive marketing campaign, including public service radio announcements, and a "how-to" guidebook on home EV charging. Interest was high in EV events across the state, and as pandemic restrictions eased, Trust staff members were able to participate in many ride-and-drive events, workshops, conferences, and presentations. In addition to creating and disseminating customer-facing public information resources and participating in events for the general public, the program continues to be heavily involved in policy discussions about EV infrastructure and the future of EVs in Maine. In FY2022, this included active participation in crafting the Clean Transportation Roadmap and the Plan for Electric Vehicle Infrastructure Deployment.

FY2023 Plans

- Develop and launch program changes to increase participation in the EV Rebates Program among low- and moderate-income customers.
- Issue at least one competitive solicitation for public DC fast chargers along Alternative Fuel Corridors using federal NEVI funds through the IIJA.
- Issue at least one competitive solicitation for public DC fast charging on other state priority corridors using MJRP funds.
- Issue multiple Funding Opportunity Notices for Level 2 community charging.
- Finalize and disseminate two additional "how-to" guides on EV Charging at Home and Away and Installing Public EV Chargers.
- Continue to educate participating dealers by conducting regular dealership visits and improving training resources available on the Trust's website.

[32] Viddy Awards are marketing industry awards administered and judged by the Association of Marketing and Communication Professionals that recognize excellence in the way a video is created, produced, and delivered.

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.

FY2022 Activities

Following are some activity highlights for FY2022:

- *Triennial Plan Drafts and Proceedings* – Staff prepared materials for the Trust's filings at the PUC related to the current Triennial Plan, including the FY2022 Annual Update. Staff also drafted and presented the Triennial Plan V draft and supporting studies to stakeholders and the Board of Trustees, and subsequently to the PUC. The PUC approved Triennial Plan V as part of Docket 2021-00380 in May 2022.
- *Technical Reference Manual Updates* – The Trust's TRMs memorialize the methods and assumptions used to calculate energy and demand savings. The Trust made updates to the TRM assumptions as new information became available in order to improve the accuracy of claimed savings.
- *Forward Capacity Market Measurement and Verification (M&V) Compliance Review* – The Trust completed its annual FCM 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 ±4.71% relative precision with 80% confidence, exceeding the requirement of the ISO-NE. Winter demand savings were calculated at ±5.80% relative precision. The ISO-NE standard is that the relative precision of the portfolio not exceed ±10% with 80% confidence. The review team also found that the metering equipment used by the Trust to measure distributed generation assets was FCM compliant.
- *Customer Surveys* – The Trust conducted a series of online surveys with customers who had received heat pump water heater rebates. The surveys captured customer feedback on the type of purchase decision contemporaneous with the date of the purchase. The Trust conducted a series of online surveys with customers who had purchased EVs to learn about customer experience and satisfaction, customer demographics, and customer usage habits. To learn about barriers to participation, the Trust also surveyed potential recipients of enhanced low-income EV rebates who did not ultimately purchase an EV.
- *Program Evaluations* – The Residential Heat Pump Impact Evaluation team installed meters on 170 heat pump units in 126 homes to assess achieved savings for installations under the Home Energy Savings Program and Low-Income Initiatives. The Commercial and Industrial Heat Pump Impact Evaluation team retrieved meters from 79 heat pump systems in 52 businesses that were installed in the fall of 2021; the team has begun analyzing the data. Both teams' evaluations will be completed in FY2023.

- *Avoided Cost Study* – The Trust sponsored and participated in the regional avoided cost study performed by Synapse Energy Economics. The study findings were published in the *Avoided Energy Supply Components in New England: 2021 Report* (AESC 2021).[33] The Synapse team developed AESC 2021 on behalf of a group of regional stakeholders, including the Trust, other program administrators, utilities, regulators, and advocates from across New England. These parties all provided input to the study through a collaborative and open process. The results of this study and the Maine Avoided Transmission and Distribution Costs Study establish the avoided costs used in the Trust's cost-effectiveness analysis.
- *Studies* – The Trust presented the results of the Whole-Home Heat Pump Metering study to the Board. This study demonstrated the ability of heat pumps to be the primary or sole heating system in existing Maine homes. The Trust also completed a refrigerant inventory and market analysis of stationary HVAC and refrigeration in Maine.
- *effRT 2.0* – The Trust continued to invest in improvements to effRT 2.0, the multiprogram database that supports the Trust's reporting and project activity tracking, to improve data accuracy and application processing.

FY2023 Plans

Following are some activities planned for FY2023:

- Publish the evaluation report for the Commercial and Industrial Heat Pump Impact Evaluation.
- Publish a preliminary report for the Residential Heat Pump Impact Evaluation.
- Publish periodic updates to the TRMs as new information becomes available.
- Roll out real-time, ongoing customer surveys on other programs.
- Seek opportunities to expand the use of utility interval data and modern analytics in the performance of the Trust's EM&V activities.
- Plan studies in support of Triennial Plan VI.

[33] Synapse Energy Economics, *Avoided Energy Supply Components in New England: 2021 Report* (March 2021) https://www.efficiencymaine.com/docs/G-2_AESC-2021_Synapse.pdf

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 GHG savings but are not yet well understood or established in the Maine marketplace. The measures piloted may or may not prove to be cost-effective or popular. 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.

FY2022 Activities

Following are some Innovation Program activity highlights for FY2022:

- Monitored and concluded a Phase Change Material Pilot.
- Monitored and concluded a Commercial Battery Storage Load Management Pilot.
- Monitored an ongoing Level 2 EV Smart Charging Pilot and launched a companion study exploring onboard managed EV charging.
- Monitored a Commercial Split-System Heat Pump Water Heater Demonstration Pilot.
- Monitored and concluded data collection for an Isle au Haut Thermal Energy Storage Load Management Pilot.
- Monitored a Heat Pump Optimization with Integrated Controls Pilot.
- Launched and monitored a Whole-Home Heat Pump Solutions Pilot.

FY2022 Results

In FY2022, the Trust monitored and completed the Phase Change Material Pilot. The pilot tested the potential of phase change material to reduce peak demand at four commercial sites. The pilot found that phase change materials installed in refrigerated spaces significantly reduced peak demand and improved the efficiencies of the existing cooling systems. As a result of the pilot, the C&I Custom Program will accept phase change project applications in FY2023.

The Commercial Battery Storage Load Management Pilot was also completed in FY2022. This pilot explored pairing dispatch signals to three businesses that have installations of solar-powered battery storage with different tariff-shifting strategies. The study found the systems to not be cost-effective when relying solely on tariff-shifting revenue with current electricity rate models. The findings informed some elements of the Demand Management Program, and the Trust will revisit tariff-shifting strategies as new, more sophisticated rates become available in Maine.

FY2022 Analysis

The Trust continued to monitor progress in the Level 2 EV Smart Charging Pilot testing the effectiveness of smart networked EV chargers with scheduled off-peak charging and simulated time-of-use rates. Preliminary results suggest that the managed charging interventions are successfully shifting EV charging

demand, but that widespread adoption of smart charging is hampered by technical constraints around the chargers themselves. While they are universally compatible with all EVs, installing the hardware and maintaining an internet connection present significant barriers to customer adoption of the technology. The charger must be installed and commissioned, which can be costly and time consuming, and it must remain connected to the internet. In many instances, the margin of possible savings is lost if the initial programming or internet connection are lost. To further explore how to minimize the technical limitations of the networked chargers, the Trust launched a second pilot to evaluate onboard charging management. Onboard charging uses the programming within the EV to schedule charging, eliminating the cost of installing "smart" chargers and reliance on a continuous internet connection. This pilot will continue through FY2023, and the customer experience and energy savings will be compared with those of the first smart charger pilot.

The Trust continued its Commercial Split-System Heat Pump Water Heater Demonstration Pilot. To explore which kinds of buildings or applications might benefit most from split-system heat pump water heaters with waste heat recovery, the pilot recruited participants to represent four different building types in FY2022—a brewery, a data center, a food processing facility, and a college dormitory. Each participating pilot installation required a significant amount of site-specific engineering. The extent of engineering required to fully capitalize on waste heat recovery suggests that these systems are unlikely to be suitable prescriptive measures but might be appropriately incorporated into the Trust's programs as custom measures; the Trust anticipates conducting a second commercial split-system pilot that focuses only on water heating (without heat recovery). This second pilot will focus on split-systems in multifamily buildings because of their significant and more predictable water heating demand.

Also in FY2022, the Trust continued the Isle au Haut Thermal Energy Storage Load Management Pilot. This pilot was designed to leverage the thermal storage capacity of various air-to-thermal storage heat pumps as a way to store the energy from daytime solar production and deploy it in evening and nighttime hours. After considerable delays associated with the COVID-19 pandemic, the project equipment was delivered and installed in FY2021, and the data collection period was extended through the entire FY2022 year. A final report from the pilot is expected in early FY2023; preliminary findings indicate that the systems are effective but there are site-specific issues with air-to-water thermal storage systems. These issues could likely be overcome in other installations with more system engineering.

The Trust continued two heat pump-related pilots in FY2022. First, it monitored the Heat Pump Optimization with the Integrated Controls Pilot to test whether heat pump usage can be increased, and overall heating costs decreased, by controlling both a heat pump and a central heating system with one integrated control. In FY2022, the Trust and the pilot partner monitored heat pump and central systems usage throughout the heating season and began analyzing results. The final report is expected in FY2023.

Also in FY2022, the Trust launched the Whole-Home Heat Pump Solutions Pilot. This pilot aims to identify and test a whole-home heat pump solution that can directly replace an existing heating system in a manufactured home or stick-built home. In its initial phase, the pilot included 10 manufactured

homes and 9 stick-built homes; all participants disabled or removed fossil-fuel heating systems and switched to heating with air-source heat pumps.[34] Preliminary results demonstrated that the heat pumps in ducted manufactured home installations worked at temperatures lower than -5°F. The pilot is the first known instance of retrofitting an existing mobile home's heating to heating exclusively with heat pumps. Preliminary results from the stick-built homes also indicate that the heat pumps were able to maintain interior temperatures and worked in temperatures as low as -20°F. The heating systems will continue to be monitored for another heating season, but pilot participants have already indicated a high level of satisfaction and comfort with the heat pump systems. Final meter and pilot analysis is expected in late FY2023.

FY2023 Plans

- Analyze and report on results from the Level 2 EV Smart Charging pilot, including the onboard charging pilot.
- Analyze and report on the results of Commercial Split-System Heat Pump Water Heater Demonstration Pilot with heat recovery, in addition to launching the Multifamily Split-System Heat Pump Water Heater Pilot.
- Analyze and report on results from the Isle au Haut Thermal Energy Storage Load Management Pilot.
- Analyze and report on the results of the Heat Pump Optimization with Integrated Controls Pilot.
- Analyze and report on the results of the Whole-Home Heat Pump Solutions Pilot and launch a second phase with additional manufactured home sites to more fully develop elements of a sustainable program.
- Launch the Hydronic Heat Pump with Thermal Storage Solutions Pilot.
- Identify ideas for new innovation pilots and issue solicitations, as appropriate.

[34] Electric resistance back-up heat was also installed in some participating homes where the capacity of the heat pump and the estimated heat load of the home indicated that the heat pump alone might not be sufficient to maintain the indoor set point temperature during extreme cold events.

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 and clean energy options. 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 and professional training 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.

FY2022 Activities

Following are some program activity highlights for FY2022:

- *Triennial Plan V* – Launched a stakeholder engagement process for Triennial Plan V. This process involved publishing a formal request for information before drafting the Plan, holding individual meetings, and convening a public meeting to discuss the Plan's initial draft. It further involved soliciting written comments on the Plan. All materials were made publicly available on a dedicated webpage that provided an ongoing means for stakeholders to submit questions, comments, recommendations, and supporting materials for the Trust's consideration. Staff also presented aspects of the plan and background studies at multiple Board of Trustee meetings and workshops.
- *National Recognition* – Won the Association of Energy Service Professionals' 2022 Groundbreaking Program Design and Implementation Award for Residential Programs. Also accepted three Viddy Awards for EV videos.
- *Events and Trainings* –
    - Hosted more than 180 attendees at the Efficiency Maine Annual Event 2022. Attendees of the workshops on Efficiency Maine's initiatives and energy efficiency trends included electricians, plumbers, heating systems installers, insulation technicians, distributors, manufacturers, business owners, and other stakeholders.
    - Presented on heat pumps, EVs, and beneficial electrification at several regional, national, and international conferences, including the Association of Energy Service Professionals' Awards webinar, the Communities Leading on Climate Conference, the IEEE Transactive Energy Systems Conference, the Getting to Zero Forum, the National Association of State Energy Officials' Annual Meeting, and the Maine Real Estate Association's spring conference.
    - Participated as panelists for a variety of gatherings of Maine businesses and residents. Hosts for these events included Maine professional associations, major Maine businesses, and local energy groups.
    - Expanded and continued to offer educational and training resources online and in person.

- *Website and Other Platforms* –
    - Enhanced informational web resources (available on the Efficiency Maine website – efficiencymaine.com) about heat pumps; EVs; and residential, commercial, and industrial solutions. During FY2022, the website averaged 30,179 visits per month.
    - Expanded support for the EV Program by launching a new EV educational video campaign on installing public EV chargers, an EV Home Charging "How to" Guidebook, and newly redesigned EV web resources for residential customers and businesses.
    - Leveraged digital and radio 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.
    - Supported the launch of Efficiency Maine initiatives funded by ARPA/MJRP with media and web resources.
- *Media Relations* – Participated in media interviews on energy efficiency issues and Efficiency Maine programs, including discussions and articles in *Associated Press, CleanTechnica, Energy News Network, Portland Press Herald, Bangor Daily News, Mainebiz, Maine Public, Sun Journal, The Maine Monitor, Grist, The Piscataquis Observer, Green & Healthy Maine HOMES, News Center Maine, WAGM-TV 8, WABI TV5*, *WGME TV13*, and more.
- *Call Center* – Answered customer inquiries related to the Trust's programs through the Trust's call center staffed by customer service agents. In FY2022, the call center averaged more than 2,466 calls and 1,851 letters per month. In addition, the call center schedules quality assurance inspections, conducts website testing, fulfills requests for print materials, 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.
- *Heat Pump Kits* – Shared heat pump tips and informational kits with heat pump rebate recipients. Over the course of FY2022, 14,049 kits were shipped to residential and commercial rebate recipients. The Trust also mailed and emailed seasonal heat pump tips to all heat pump rebate recipients.

FY2023 Plans

- Continue to participate in symposiums, conferences, and industry meetings to share program information and Efficiency Maine's data analysis with efficiency professionals and potential customers.
- 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.
- Continue to support the communications and information needs of new Triennial Plan V initiatives and new initiatives undertaken using MJRP and ARPA 2021 funding, as well as other state and federal funding.
- Continue to develop and provide educational resources on key solutions and technologies.

- Continue to provide and support industry training for the growing trade ally community to accelerate the adoption of energy efficiency technologies and to assist Maine contractors in the transition to updated building energy codes.
- 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.

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, 2022. 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 September 28, 2022.

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 and the major fund of the Efficiency Maine Trust, as of June 30, 2022, 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.[35]

As reported in the audit, the Trust's FY2022 revenues and expenditures are $92,966,967 and $71,794,546, respectively, plus another $99,167 sent to state agencies resulting in an increase to fund balance of $21,073,254. The Trust's governmental fund balance as of June 30, 2022 is $92,289,774, of which $66,478,389 is restricted for operations and programs and $25,811,385 is restricted for grant and revolving loan activity.

The Trust's revenues and expenditures for the 12 months of FY2022 are summarized in Table 21.[36]

[35] Efficiency Maine Trust, "Annual Financial Report for the Year Ended June 30, 2022," prepared by Runyon, Kersteen, Ouellette, Inc., October 7, 2022, p.1.
[36] Ibid., Statement 4, p. 18.

Table 21: Statement of Revenues and Expenditures – Governmental Fund

	Special Revenue Fund
Revenues	
Alternative Compliance Mechanism	$ 14,000
Interest income:	
Investments	$ 73,609
Loans	$ 910,814
Other Income	$ -
Electric Procurement	$ 48,647,484
Natural Gas Assessment	$ 169,485
Agricultural Fairs	45,909
Renewable Resource	$ 47,378
Maine Power Reliability Program settlement proceeds	$ 500,001
VW electric vehicle settlement proceeds	$ -
NECEC settlement proceeds	$ 7,625,000
Forward Capacity Market credits	$ 9,296,663
Regional Greenhouse Gas Initiative proceeds	$ 25,636,624
Total Revenues	**$ 92,966,967**
Expenditures	
Low-Income Initiatives	$ 10,053,644
Retail Initiatives	$ 7,658,913
Home Energy Savings Program	$ 20,611,557
Commercial and Industrial Prescriptive Program	$ 8,611,783
Commercial and Industrial Custom Program	$ 3,721,666
Commercial Small Business	$ 2,858,225
Distributor Initiatives	$ 9,458,334
Electric Vehicle Supply Equipment	$ 336,275
Electric Vehicle Rebates	$ 2,348,460
Agricultural Fair	$ 7,680
Lead by Example	$ 34,118
Renewables	$ 83,444
Administration and Strategic Initiatives	$ 6,010,447
Total Expenditures	**$ 71,794,546**
Excess of Revenues over Expenditures	$ 21,172,421
Other Financing Uses:	
Intra-entity grants - state agencies	$ 99,167
Net change in fund balance	**$ 21,073,254**
Fund balance, beginning of year	**$ 71,216,520**
Fund balance, end of year	**$ 92,289,774**

Administration

In FY2022, Governor Mills appointed Christopher Rauscher to the Efficiency Maine Trust Board of Trustees for a three-year term. Glenn Poole and Joan Welsh were both reappointed in FY2022 for another three-year term. Cycling off the Board was James Boyle.

The Board of Trustees elected the following officers in FY2022:

- Suzanne MacDonald, Chair
- Joan Welsh, Vice-Chair
- Glenn Poole, Treasurer
- Kenneth Colburn, Secretary

The Board of Trustees approved a change to the Trust's administrative policies to amend section 4.c. of the Trust's Loan Accounting Policy to extend the collection time frame from 90 days to 120 days. In addition, the Trust added several new staff members in FY2022 on the Strategic Initiatives, Program, and Public Information and Outreach teams.

Other Initiatives

In FY2022, the Trust spearheaded the implementation of several miscellaneous initiatives, some of which leverage or supplement the Trust's existing programs, and others that stand on their own with unique characteristics. The Trust also engaged in various state, regional, and national forums that advance the Trust's mission. A brief description of these initiatives and forums follows.

New Program Development

Demand Management Program

One of the Trust's new initiatives in the Triennial Plan V period is a Demand Management Program. The program will increase the efficiency of energy use in Maine by deploying measures and strategies that mitigate the impacts of peak demand on electricity utilities' transmission and distribution (T&D) systems and balance the increased penetration of intermittent renewables on the grid. As described in the Innovation section above, the Trust has explored various load-shifting measures and strategies to evaluate potential program design elements and offerings. Through these pilot projects, the Trust gathered insights into the savings, costs, and customer response to program designs for various load-shifting measures in Maine applications. The Trust used these findings as the basis for many aspects of the Demand Management Program.

In January 2022, the Trust launched the Demand Management Program's Demand Response Initiative through a program opportunity notice. By launching early in the calendar year, the program was able to operate during the ISO-NE 2022 summer capacity season and realize savings immediately at the start of the Triennial Plan period. This initiative is a traditional demand response program where participants are compensated for reducing their electricity usage when called upon to do so. This typically occurs during periods of peak demand that drive system costs. This program is open to all C&I customers in Maine. The initiative does not promote physical measures but instead the services offered through the Trust's collaboration with curtailment service providers, ISO-NE, and the utilities to incentivize the curtailment of a customer's load during peak demand events.

In FY2023, the Demand Management Program will continue to offer the Demand Response Initiative while fully rolling out the second of its two discrete initiatives: the Load-Shifting Initiative. The Load-Shifting Initiative will focus on both passive and active load-shifting strategies across fleets of devices. These measures will be programmable and, in some cases, networked, operating in response to internal or remote signals. The Load-Shifting Initiative will target multiple customer groups including residential, low-income, and commercial customers. Generally, the Load-Shifting Initiative will focus on "off-the-shelf" measures with replicable applications and consistent installation criteria. More complex projects involving site-specific engineering analyses (including thermal storage projects) will be offered through the C&I Custom Program.

Prescribed Initiatives

Renewable Energy Demonstration Grants

The Renewable Energy Demonstration Grants support the promotion, research, design, and demonstration of emerging clean energy technologies. The initiative is funded by 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.[37] 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.[38] Past projects have included solar photovoltaic installations, solar hot-air systems, biomass boilers, and district heating.

In FY2022, the Trust finalized one remaining project awarded under an FY2018 request for proposals (RFP). This RFP targeted cost-effective renewable energy technologies in affordable housing settings and sought to demonstrate models for transferring investment benefits to residents. As required by statute, the Trust also passed 35% of the EERRF annual revenues through to MTI to help promote businesses, whether non-profit or for-profit, engaged in research and development of renewables.

The Trust issued RFPs for Renewable Energy Demonstration Grants in FY2014 and FY2018. 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 once again allowed revenues to accumulate so that it may offer a larger solicitation for proposals in the future. The Trust plans to conduct this new project solicitation in FY2023.

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' T&D systems. The law established a formal, independent process for the consideration of NWAs by the Maine Public Utilities Commission, and an NWA coordinator (NWAC) position within the Office of the Public Advocate to review annual plans and individual project proposals.[39] As part of the process, the Trust was assigned to develop and deliver all customer-sited NWA resources (such as energy efficiency or energy storage) that are determined to be more cost-effective than the proposed T&D system investments.

[37] See 35-A MRS §10121.

[38] 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.

[39] 35-A MRS §3131-3134.

FY2022 was an active year for the Trust and the NWAC; the team worked jointly to implement and refine procedures to efficiently review the utilities' investment plans for their T&D systems. The NWA-related cases that were active in FY2022 included:

- Docket No. 2020-00125 – Commission Initiated Inquiry of the Nonwires Alternatives Investigation Process;
- 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.

The Trust and NWAC prioritized work on the alternative solutions to the Central Maine Power Company's proposed wires rebuilds of Section 80 in the Mid-Coast area and Section 31 in the Brunswick area. The PUC issued decisions on NWA proposals in both proceedings at the close of the year. The PUC's approval of the Section 31 NWA recognized the cost savings delivered under the NWAC and Trust's proposed non-wires solution. The installation of this NWA will begin in FY2023. In the Section 80 decision, the PUC's determination that a wires rebuild was more appropriate than NWAs highlighted opportunities to further improve the NWA process moving forward.

Other activities included:

- Continuing to improve data-sharing protocols among the utilities, the Trust, Office of the Public Advocate, and the NWAC;
- Refining a data digester to aggregate customer interval meter data into an hourly load shape for any given section of a utility's distribution system; and
- Working with the NWAC to review the utilities' annual plans for proposed wires upgrades filed under Docket 2020-00125.

Agricultural Fair Assistance Program

In 2019, the Legislature enacted 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 costs through the most cost-effective opportunities available. It also established the Agricultural Fair Assistance Program Fund to support this program.

In January 2022, the Trust submitted an interim report to the Legislature on its research findings and recommended next steps. In the last quarter of FY2022, the Trust met with the board of the Maine Association of Agricultural Fairs (MAAF) to discuss the details of a proposed promotion to help the fairs lower their use of electricity.

In collaboration with the MAAF, the Trust will launch a Funding Opportunity Notice in early FY2023. This FON will offer elevated incentives for the measures found to offer the greatest opportunity for efficiency upgrades on the fairgrounds: LED lighting and heat pumps. The FON will require these projects to be

complete by May 2023 to realize energy savings during the next fair season. Following the Trust's successful model of offering FONs targeted at particular customer segments, the program will direct marketing and outreach about the FON directly to the fairs and the electrical contractor community. The MAAF will actively promote the opportunity and review applications from the fairs.

After project completion, the Trust will review the actual hours of use and the fairs' utility bills to determine the impact of the measures and estimate their cost-effectiveness. The Trust will share those aggregated results with the MAAF. The law requires that the Trust submit a report on the initiative to the Energy, Utilities and Technology Committee before January 15, 2024. The law sunsets at the end of June 2024.

Energy Storage

In 2021, the Legislature enacted LD 528, An Act To Advance Energy Storage in Maine, establishing a goal for energy storage system development of 300 MW of installed capacity by 2025 and 400 MW of installed capacity by 2030.[40] The bill also required the Trust to evaluate options to expand opportunities to support storage measures that reduce or shift demand or balance load. The bill stated that the Trust shall consider expanding energy storage pilot projects and implementing any cost-effective pilot projects as statewide programs, "bring-your-own-device" programs, rebate or funding programs for energy storage, and customer education initiatives.

In FY2021, the Trust completed an energy storage pilot through the Aggregated Demand Energy Resource Load Management Pilot. In FY2022 the Trust also completed the Commercial Battery Storage Load Management Pilot, which is described above in the Innovation section. The bill also called on the Trust to conduct a pilot program beginning January 1, 2022, to provide energy storage systems to critical care facilities. The Trust launched the Critical Care Facility Energy Storage System Pilot Program in FY2022, seeking applications from participants to install and dispatch energy storage during the ISO-NE's peak summer load conditions. The Trust will report on activity and results from this pilot in future Annual Reports.

Based on the results to date of these pilots, the Trust will offer incentives for load shifting using batteries. These incentives will be offered during the Triennial Plan V period under the Trust's new Demand Management Program's Load-Shifting Initiative.

School Decarbonization Program

Prior to 2021, the statute required the Trust to administer the School Energy Savings Program, providing incentives and technical support for energy audits, as well as incentives for energy-saving measures at PreK-12 schools in Maine. In 2021, the Legislature enacted LD 815, An Act To Support School Decarbonization, expanding the scope of this program to provide a more comprehensive technical and financial support to help kindergarten to grade 12 schools become carbon neutral.[41] The bill renamed

[40] Public Law, Chapter 298, 130th Maine State Legislature, First Regular Session, LD 528, An Act To Advance Energy Storage in Maine.
[41] Public Law, Chapter 152, 130th Maine State Legislature, First Special Session, LD 815, An Act To Support School Decarbonization.

the initiative the School Decarbonization Program and allowed the Trust to facilitate access to, and cost-share, a variety of "professional services" beyond energy audits, including technical support, financing, and legal services. In FY2022, the Trust assigned a staff member to serve as the primary point of contact for schools. This person assessed each school's inquiry on a case-by-case basis, directing them to the Trust's existing program offerings where appropriate and facilitating access to professional services as requested. Late in FY2022, the Trust also launched a School Decarbonization Technical Assistance Program that provides a cost share for engineering studies and professional services to negotiate power purchase agreements on projects to electrify a school's heating system.

Commercial Property Assessed Clean Energy Program

C-PACE is a financing model that enables a commercial property owner to place a special assessment on their property to finance energy efficiency upgrades and renewable energy installations. This assessment is collected through the municipal property tax bill. In 2021, the Legislature enacted LD 340, An Act To Allow for the Establishment of Commercial Property Assessed Clean Energy Programs, enabling municipalities in Maine to establish this type of offering in their jurisdictions through passage of a local ordinance.[42] The legislation authorizes the Trust to administer a C-PACE program. It allows a C-PACE loan to cover up to 100% of the cost of an energy-saving improvement, including audits, project development, and application fees. In FY2022, the Trust began to research program design options, reading through materials from other jurisdictions, interviewing other stakeholders (e.g., program administrators, policymakers, lenders), and conferring with its attorneys. The Trust is on course to present an overview of its draft program materials and proposed process workflow at a stakeholder workshop, conduct a formal rulemaking, and launch this financing offering in FY2023.

Maine Clean Energy and Sustainability Accelerator

In 2021, the Legislature enacted LD 1659, An Act To Create the Maine Clean Energy and Sustainability Accelerator, establishing a dedicated, specialized finance program at the Trust to drive private capital into market gaps for goods and services producing low or zero GHG emissions.[43] The act directs the Trust to use the Accelerator to "combat the causes and effects of climate change through the rapid deployment of mature technologies and the commercialization and scaling of new technologies by maximizing the reduction of greenhouse gas emissions in this State for every dollar deployed by the accelerator…"[44] The legislation authorized the Accelerator to finance and invest in projects such as renewable energy generation, grid investments (including storage), energy efficiency, industrial decarbonization, and clean transportation (including vehicles and fueling/charging infrastructure). The Legislation authorized a range of financing tools that may be used to advance this mandate, including originating, underwriting, and closing financing and investment transactions; partnering with private capital providers and capital markets; managing a portfolio of assets; and providing capital in the form

[42] Public Law, Chapter 142, 130th Maine State Legislature, First Special Session, LD 340, An Act To Allow the Establishment of Commercial Property Assessed Clean Energy Programs.
[43] Public Law, Chapter 358, 130th Maine State Legislature, First Special Session, LD 1659, An Act To Create the Maine Clean Energy and Sustainability Accelerator.
[44] 35-A MRS §10129(3).

of debt financing, credit enhancements, aggregation and warehousing, equity capital, and other forms of financing approved by the Trust's Board.

During Fiscal Year 2022, the Trust commenced a "gap analysis" to identify sectors of the market (by customer sector and by type of energy improvement) that might benefit from expanded or alternative forms of financing. The Trust conducted an extensive range of interviews and discussions with a cross-section of experts and stakeholders, including:

- Leading state-based green banks (the Connecticut Green Bank and "Michigan Saves");
- Community banks and credit unions (including Androscoggin Bank, Bangor Savings Bank, cPort Credit Union, Gorham Savings Bank, Machias Savings Bank, Maine Credit Union League);
- National lenders (including Enervee, Leaf, Inclusive Prosperity Capital, National Energy Improvement Fund (NEIF), and Nuveen Green Capital);
- Loan service providers (including Inclusive Prosperity Capital and NEIF);
- Project developers (e.g., ReVision Energy);
- Federal and state agencies and quasi-state agencies (including the U.S. Department of Energy Loan Programs Office, Maine Municipal Bond Bank, Finance Authority of Maine, and Maine Department of Education); and
- Maine advocates (including Sierra Club and Union of Concerned Scientists).

The Trust hired a senior program manager for finance initiatives and started bringing the Trust's proliferation of financing efforts under one umbrella to be branded as the Efficiency Maine Green Bank. The Efficiency Maine Green Bank will house the Residential Revolving Loan Fund that the Trust has operated since 2011 and that has loaned out more than $52 million for home energy improvements, as well as the Small Business Loan Fund, the C-PACE Program, and the Accelerator. To build out this portfolio of offerings, the Trust spent part of FY2022 researching and developing new financial products that could be used to meet the needs of Maine's growing clean energy economy.

State Energy Initiatives

Within Maine, the Trust monitors and participates in other state forums with an eye to supporting policies and programs that will promote cost-effective energy conservation or GHG reductions, consistent with the purposes given to the Trust in the Efficiency Maine Trust Act.

Legislature

In FY2022, 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."[45] 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 GHG emissions reductions. A sampling of the bills that the Trust monitored or participated in discussing includes:

[45] 35-A MRS §10104(2)(B).

- LD 337, An Act Regarding the Powers of the Efficiency Maine Trust and the Maine Clean Energy and Sustainability Accelerator;
- LD 866, An Act Concerning Advanced Refrigeration Technology;
- LD 1350, An Act To Expand Maine's Clean Energy Economy;
- LD 1554, An Act To Provide Climate Change Transition Assistance for Maine's Energy-Intensive Businesses;
- LD 1579, An Act To Transition State and Local Motor Vehicle Fleets to Plug-in Hybrid Vehicles and Zero-emission Vehicles;
- LD 1634, An Act To Create the Maine Generation Authority;
- LD 1913, An Act To Create the Electric Ratepayer Advisory Council;
- LD 1995, An Act To Make Supplemental Appropriations and Allocations for the Expenditures of State Government, General Fund and Other Funds and To Change Certain Provisions of the Law Necessary to the Proper Operations of State Government for the Fiscal Years Ending June 30, 2022 and June 30, 2023; and
- LD 2017, Resolve, Regarding Monitoring of and Reporting on Energy.

Governor's Energy Office and Governor's Office of Policy Innovation and the Future

The Trust worked with GEO to report energy data and program results to the U.S. Department of Energy (DOE), Maine's federal delegation, ISO-NE, the American Council for an Energy-Efficient Economy, and other non-profit and academic initiatives seeking energy data from Maine. The Trust also conferred with GEO on legislation pending at the Legislature, certain dockets pending at the Public Utilities Commission, and potential investments of federal funds.

The Trust actively collaborated with both GEO and GOPIF on a variety of issues and initiatives. These collaborations included activities related to the Maine Climate Council (see description below), the Maine Climate Council's Industrial Innovation Task Force, the Clean Transportation Roadmap, the Lead by Example Initiative to spur energy upgrades at state properties, and proposals for the Trust's federally funded initiatives allocated pursuant to the Maine Jobs and Recovery Plan, as well as other potential funding opportunities.

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 and the HEAP Weatherization and Central Heating Improvement Program (CHIP) initiatives. As it does every year, in FY2022 MaineHousing briefed the Trust's Board, at a public meeting, on the elements of the coming year's weatherization plans. This briefing gave the Trust the opportunity to ask questions and provide input regarding lessons learned, best practices, and ways to ensure that similar initiatives at the Trust are complementary and not duplicative.

The Trust also continued to coordinate with MaineHousing on heat pump program design in FY2022. 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 HEAP funds for

heat pump installations in support of the state's 100,000 heat pump goal.[46] 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.[47]

The budgets and expenses of these initiatives are summarized in Table 22, which was prepared by MaineHousing.

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[46] 35-A MRS §10104(8).
[47] 35-A MRS §10104(5)(B)(4).

Table 22: MaineHousing Energy Efficiency and Weatherization Initiatives

MaineHousing
MAINE STATE HOUSING AUTHORITY

	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	**2018**	**10-01-17/03-31-22**	$ 3,420,535	$ 3,416,365	399 Completed	Production Closed
	2019	**10-01-18/03-31-22**	$ 1,925,416	$ 1,923,232	227 Completed	Production Closed
	2020	**10-1-2019/09-30-22**	$ 2,249,401	$ 2,019,210	252 Completed 278 Projected	Production in Process
	***2021**	**10-1-2020/03-31-23**	$ 2,003,976	$ 1,369,154	158 Completed 248 Projected	Production In Process
	2022	**10-1-2021/03-31-24**	$ 903,837	$ 13,991	1 Completed 261 Projected	Production in Process
DEPARTMENT OF ENERGY WEATHERIZATION						
Funding used in conjunction with HEAP Weatherization to maximize energy savings and reduce fuel burden.	**2021**	**04-01-2021/3-31-22**	$ 5,351,621	$ 2,812,285	281 Completed 497 Projected	Production Closed
	2022	**04-01-22/03-31-23**	$ 2,667,398	$ 456,060	35 Completed 242 Projected	Production in Process
HEAP CENTRAL HEATING IMPROVEMENT						
Central Heating Improvement Program is designed to repair or replace non-working or ineffective permantly installed home heating systems to increase efficiency and reduce household fuel burden.	**2018**	**10-01-17/03-31-22**	$ 5,460,461	$ 5,458,620	2111 Completed 1747 Projected	Production Closed
	2019	**10-01-18/03-31-22**	$ 3,695,043	$ 3,692,363	1176 Completed 727 Projected	Production Closed
HEAT PUMPS installed in Grant Year 2020 using CHIP funding are accounted for below	**2020**	**10-1-2019/09-30-22**	$ 3,914,541	$ 3,873,333	1271 Completed 855 Projected	Production in Process
	***2021**	**10-1-2020/09-30-23**	$ 4,186,652	$ 3,298,185	1065 Completed 1043 Projected	Production in Process
	2022	**10-1-2021/03-31-24**	$ 2,087,767	$ 299,936	94 Completed 647 Projected	Production in Process
HEAP HEAT PUMPS						
Pays for the purchase and installation of heat pump as a secondary heating system to help reduce households' overall energy burden. Eligible households must reside in an owner-occupied dwelling whose homes are a good candidate for effective usage of heat pumps. MaineHousing implemented a Heat Pump program in Grant Year 2021	**2020**	**10-1-2019/09-30-22**	$ 80,028	$ 80,028	29 Completed	Heat Pump portion of CHIP 2020 closed
	***2021**	**10/1/2020-9/30/2023**	$ 8,401,584	$ 6,454,015	1655 Completed 1983 Projected	Production in Process
	2022	**10-1-2021/03-31-24**	$ 2,843,166	$ 102,788	17 Completed 484 Projected	Production in Process

prepared by ss/MH 08.01.2022

*** Numbers are inclusive of Standard HEAP funding as well as a Supplemental Funding Award from the American Rescue Plan**

Public Utilities Commission

The Trust staff was active in proceedings at the PUC in FY2022. The Trust staff filed and presented necessary testimony, evidence, comments, briefs, and exceptions related to the development, review, and approval of the Trust's Fifth Triennial Plan, Annual Update (to the Fourth Triennial Plan), and related dockets. A selection of the relevant dockets that were active in FY2022 included:

- Docket No. 2021-00380 – Request for Approval of Fifth Triennial Plan for Fiscal Years 2023-2025 Pertaining to Efficiency Maine Trust;
- Docket No. 2018-00321 – Request for Approval of Fourth Triennial Plan for Fiscal Years 2020-2022 Pertaining to Efficiency Maine Trust; and
- Docket No. 2019-00117 – Public Utilities Commission Procurement of Electric Resources and Assessment for Natural Gas Resources for Fourth Triennial Plan FY 2020-2022.

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. Other cases that the Trust engaged with in FY2022 included:

- 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. 2020-00344 – Commission Initiated Inquiry Into Performance Metrics and Regulatory Mechanisms for Transmission and Distribution Utilities;
- Docket No. 2021-0039 – Commission Initiated Investigation of the Design and Operation of Maine's Electric Distribution System;
- Docket No. 2021-00325 – Commission Initiated Investigation into Transmission and Distribution Utility Rate Design to Promote State Policies;
- Docket No. 2022-00025 – Request for Approval of an Alternative Rate Plan (ARP) (1/1/23) Pertaining to Summit Natural Gas of Maine, Inc.; and
- Docket No. 2022-00160 – Commission Initiated Investigation into Stranded Cost Rate Design.

For more on the dockets related to Non-Wires Alternatives, please see the Non-Wires Alternatives section above.

Department of Environmental Protection

In FY2022, the Trust worked with DEP on multiple issues. DEP is Maine's administrative liaison to RGGI Inc., the non-profit entity that manages RGGI. In FY2022, the Trust and DEP, together with the PUC, continued their practice of preparing an annual report for the Legislature on RGGI activities and results in Maine. The Trust's executive director and the DEP commissioner also served as co-chairs of the Maine Climate Council's Industrial Innovation Task Force. (See the "Maine Climate Council" section below for more detail.)

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.[48] The Council and its six Working Groups are comprised of scientists, business leaders, environmental advocates, local and state officials, and engaged citizens. The Trust was named as an ex-officio member of the Council and was asked to serve as co-chair for the Buildings, Infrastructure, and Housing Working Group. The Trust was also actively involved in the Energy Working Group and the Transportation 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. The Council presented a four-year Climate Action Plan to the Governor and Legislature on December 1, 2020.

One strategy identified in the Climate Action Plan was for Maine to create an Industrial Innovation Task Force through which industry and stakeholders could collaborate to study and pilot innovations and incentives to reduce carbon emissions from Maine's industrial processes. The Trust worked with GEO and DEP to launch the Industrial Innovation Task Force in FY2021 and convened the group throughout FY2022. As noted above, the Trust's executive director and DEP's commissioner served as co-chairs of this group.

The Trust's executive director also continued to serve as co-chair of the Maine Climate Council's Buildings, Infrastructure, and Housing Working Group, convening two meetings to review implementation progress, suggest legislation, make updated recommendations, and foster ongoing research and discussion where appropriate.

Lead by Example

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, directs state agencies to meet or exceed the state's renewable energy and GHG reduction targets.[49] The Order names the Trust as a member of the Sustainability Leadership Committee, working with sustainability coordinators from GEO, GOPIF, DEP, the Department of Administrative and Financial Services, and the Department of Transportation to lead development and implementation of plans, seek consistency and cost efficiencies where appropriate, and track progress.

In FY2022, the Trust coordinated with GOPIF, the Bureau of General Services, and state facilities managers in the development of the Lead by Example Initiative to promote the increased installation and use of clean, cost-effective energy measures at state properties. Per a Memorandum of Understanding dated December 29, 2020, between the Trust and the Office of the Attorney General for the State of Maine, the Trust received approximately $3.7 million in Volkswagen settlement funds to support this initiative by providing project TA and financial incentives for energy upgrades at state

[48] Public Law, Chapter 476, LD 1679, 129th Maine State Legislature, An Act To Promote Clean Energy Jobs and To Establish the Maine Climate Council.

[49] Maine Executive Order No. 13, FY 19/20, An Order for State Agencies to Lead by Example Through Energy Efficiency, Renewable Energy and Sustainability Measures, November 26, 2019.

properties. During FY2022 the Trust developed and then launched its Lead by Example Initiative to provide technical support, project screening, and enhanced incentives to develop projects at Maine state buildings currently heated with oil or propane to convert to heat-pump-based systems.

Workforce Development

The Trust monitors workforce capacity and skillsets as part of its planning and implementation of efficiency programs. Where the Trust identifies educational topics related to designing, installing, and maintaining high-efficiency equipment, it may support targeted training and other means of promoting quality assurance. During FY2022, the Trust sponsored trainings for heat pump installers and provided scholarships for heat pump and Building Performance Institute training. It also hosted webinars for contractors to learn about the latest technology and building energy code developments.

Codes and Standards

State and local building codes and equipment standards are occasionally the subject of policy change. When this happens, it can impact energy efficiency programs in various ways. For example, in 2019 the Maine Legislature reformed Maine's regulatory framework for building codes. The reforms included establishing a requirement that the Maine Uniform Building and Energy Code (MUBEC) be updated and made effective in every municipality across the state. The statute placed the Trust's executive director as an ex officio member of the MUBEC Technical Board and mandated that the Board establish a "stretch code" that municipalities may elect to adopt. With the arrival of these new codes in FY2021, the Trust provided resources from its public information and outreach budget and its contacts across Maine's network of builders, electricians, plumbers, and insulation and HVAC technicians. The Trust provided ongoing training support in FY2022.

Equity

The Trust's work, and Triennial Plan V (FY2023-2025), reflect the priority of enhancing fairness and promoting equity. A degree of fairness in the Trust's programs is advanced by ensuring that statutory minimum funding levels are allocated to low-income customers and to small business customers. Equity and cost considerations factor into all of the Trust's budget allocations and program designs, but particularly those targeted at low- to moderate-income households and small businesses. For these customers, the barriers to accessing energy efficiency and clean energy upgrades tends to be greater, and they commonly need more support to participate in the Trust's programs.

The Trust also maintains a strong focus on geographic equity in its programs, informed in part by the analysis set forth in the Island Institute's 2018 *Bridging the Rural Efficiency Gap* report.[50] The Trust closely follows the federal Justice40 Initiative and the initiatives of the Maine Climate Council, including the guidance provided in the report. The Trust also relies on its Low-Income Advisory Group to help staff consider income-related equity issues in its program designs and implementation.

[50] Brooks Winner, Suzanne MacDonald, Lisa Smith, and Juliette Juillerat, *Bridging the Rural Efficiency Gap: Expanding Access to Energy Efficiency Upgrades in Remote and High Energy Cost Communities*, Rockland, Maine: Island Institute, 2018.

In FY2022, Trust staff formed an internal equity working group, with representatives across the organization—from Finance and Administration, Programs, Strategic Initiatives, and Public Information and Outreach. These staff members participated in a number of industry trainings around equity initiatives and concerns, as well as state discussions about equity and environmental justice. During FY2022, the working group reviewed recommendations, including those prepared by the Equity Subcommittee of the Maine Climate Council and those included in *Assessing the Potential Equity Outcomes of Maine's Climate Action Plan: Framework, Analysis and Recommendations*[51]; learned about industry best practices; researched equity metrics; and planned internal staff training activities. Moving into FY2023, the Trust will continue to engage in meaningful equity initiatives, including facilitating training for all staff and supporting the equity priorities as outlined in the Trust's federally funded MJRP initiatives.

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…"[52] Accordingly, the Trust engages with the following regional and national initiatives.

Independent System Operator for New England

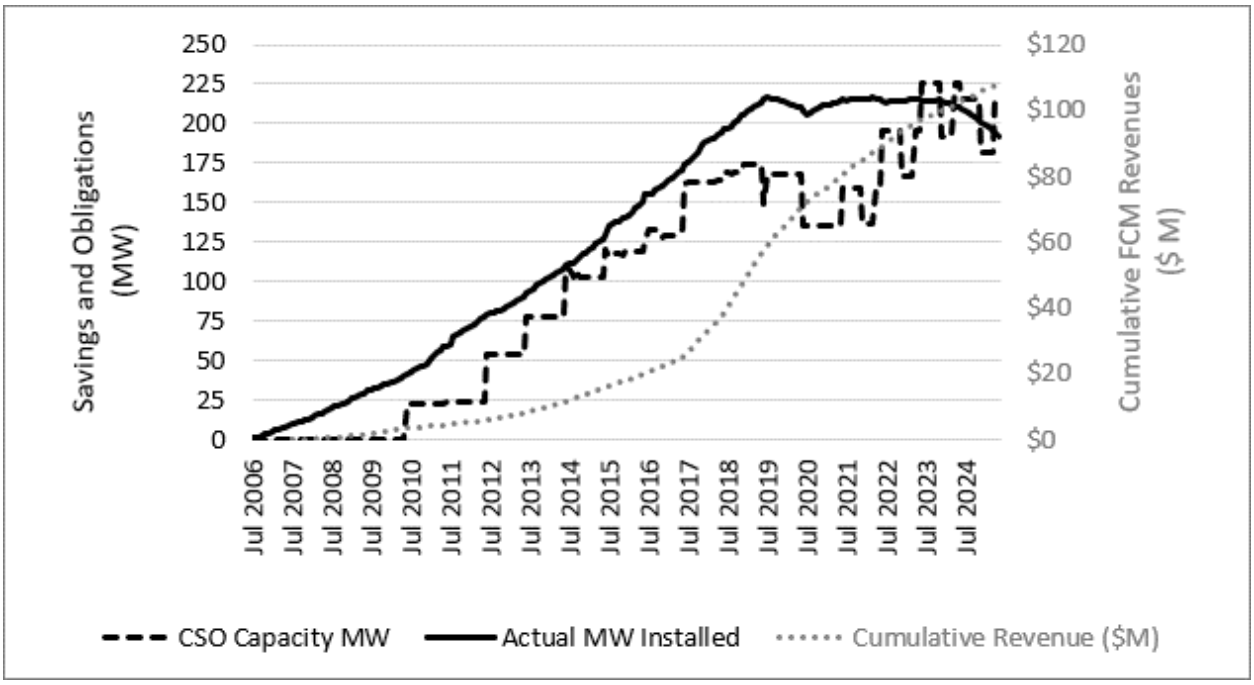
ISO-NE operates markets that serve New England's electricity customers. Among these is the Forward Capacity Market into which electricity generators, efficiency program administrators, and others may bid to supply qualifying "capacity" to serve the New England grid. The Trust is a participant in this 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 FY2022 the Trust's participation in the FCM has entailed collecting and providing data, making forecasts of future capacity savings, delivering certification of M&V protocols, providing financial assurance, and reporting to ISO-NE as required in the FCM rules. The Trust has also occasionally participated in planning and policymaking discussions at ISO-NE.

In FY2022, the Trust participated in the 16th Forward Capacity Auction (FCA). The Trust maintained its existing resources totaling 171 MW of summer peak demand savings, for which it will be paid a price of $2.531 per kW per month. The Trust also prepared for the 17th FCA, which will be held in March 2023. By the end of FY2022, the Trust's programs had delivered a total of 192 MW of new summer peak demand savings. This represents a decline from past years due in large part to the fact that 12 MW of measures from prior years reached the end of their expected life and expired out. Figure 1 summarizes the Trust's delivered savings and future obligations.

[51] Senator George J. Mitchell Center for Sustainability Solutions at the University of Maine, *Assessing the Potential Equity Outcomes of Maine's Climate Action Plan: Framework, Analysis and Recommendations*, Orono, Maine: University of Maine, September 2020.
[52] 35-A MRS §10110(2)(D) and (I).

Figure 1: Summary of the Trust's FCA Actions



CSO = Capacity Supply Obligation.

Regional Greenhouse Gas Initiative

Each year, the Trust contributes to 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 almost $6.6 million of RGGI funds in FY2021. The RGGI funds expended in that year are projected to result in annual savings of 84,376 MMBtu and 6,794 tons of carbon dioxide.

Other Related Initiatives

The Trust typically engages in initiatives and forums to discuss policies or advance programs relevant to the Trust's purpose and activities. As described in the Public Information and Outreach section, the Trust was invited to present its work at several regional and national conferences and workshops.

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."[53]

Based on its experience implementing programs authorized in the Efficiency Maine Trust Act and elsewhere in Maine statutes, the Trust respectfully asks the Legislature to consider the following recommendations for changes to these laws:

1. §10121. Energy Efficiency and Renewable Resource Fund

Section 10121 of Title 35-A of the Maine statutes establishes the Energy Efficiency and Renewable Resource Fund. The Fund receives revenues from two sources: (1) voluntary contributions from electric utility ratepayers and (2) alternative compliance payments (ACP) from electricity suppliers who fail to meet their obligations under the Renewable Portfolio Standard (RPS). Revenue streams from this fund have been extremely low in recent years (less than $50,000 per year) and when there has been revenue of any magnitude, its arrival has been sporadic and unpredictable. The resulting fund balance is often so small that for several years in a row the Trust had insufficient funds to make a competitive solicitation worthwhile. Moreover, since the mechanism for generating revenue for this fund was first established more than a decade ago, Maine's policies to promote renewable energy have evolved to dwarf what this Fund now offers. While it was originally conceived as a means to fund demonstration of small rooftop solar systems and micro wind turbines, these technologies have since far surpassed the point of needing small demonstration grants measured in the tens of thousands of dollars. Arguably, the costs of the Trust to administer these funds, and of the utilities to collect and remit them, outweigh the benefits of the program.

The Trust suggests that the Legislature consider reforming or repealing §10121 in its entirety, which would eliminate both the voluntary ratepayer contributions and the small demonstration projects. Additionally, since there are likely to continue to be sporadic revenues from the ACP, the Trust suggests that the RPS provisions in the statute (at 35-A MRS §3210(9)(b)) be amended to direct any future ACP revenues to a use that directly lowers future RPS compliance costs.

2. Nontransmission alternatives and Nonwires alternatives

Sections 3131 through 3132-D of Title 35-A of the Maine statutes describe the process by which electric utilities will plan and invest in the T&D system and establish the requirement to investigate (and invest in) cost-effective alternatives to traditional T&D solutions. Legislation updating this process was passed in 2019 through enactment of LD 1181 (An Act To Reduce Electricity Costs through Nonwires Alternatives), and since that time the Trust has been working closely with the Office of Public Advocate (OPA), the Non-Wires Alternative (NWA) Coordinator (housed at the OPA) and the investor-owned utilities to implement the new NWA process. In two extensive dockets before the PUC, these parties

[53] 35-A MRS §10104(4).

have worked diligently to identify and develop NWA resources, such as energy efficiency, batteries, or distributed generation, where they are a cheaper alternative to traditional T&D solutions.

Through these efforts, the Trust has discovered that the statute as drafted excludes from review under the NWA process any plans to develop or upgrade standalone substations. In effect, if a utility seeks to develop or upgrade a substation (together with any associated equipment) separate from any plan to expand or upgrade T&D "lines", they may proceed to do so without any investigation or consideration by the NWA Coordinator of whether an NWA might be able to achieve the desired reliability at a lower cost to ratepayers. Ironically, displacing or deferring the need for a substation is one of the simplest and most economical opportunities for NWAs. And yet the way the statute is now drafted, plans to build, expand or upgrade standalone substations, if not connected to other plans to upgrade or expand wiring or other parts of the grid, are exempt from the NWA provisions of the law. This can and should be fixed by making simple edits to certain definitions and triggering criteria in sections of Sections 3131 through 3132-D of Title 35-A to ensure that future utility plans to invest in substations (and any associated equipment) are subject to the same NWA processes as investments in any other part of the T&D system.

Appendices

Appendix A: Total Energy Savings and Lifetime Benefits

Tables A-1 and A-2 illustrate the total energy savings[54] and lifetime benefits associated with programs administered by the Trust in FY2022.[55] Each table also shows the summary of the Trust's costs. These figures include the financial incentives given to customers ("participants") and the participants' costs, including those associated with upfront costs and operational costs. 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 to the combined costs of the Trust and the participants.

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[54] Savings values reported in the program summary tables are "adjusted gross savings" unless otherwise indicated. Adjusted gross savings reflect the total 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. Adjusted gross savings are reported in the units of the primary energy impact (kWh for electric and MMBtu for fuels). Secondary impacts from fuel switching or interactive effects are converted into the units of the primary energy impact and added to, or subtracted from, the primary energy impact. 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 other assistance was received ("spillover" [SO]). Factoring in FR and SO 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 TRMs. The lifetime benefit is calculated using methodologies and assumptions approved by the PUC as part of the approval process for the Trust's Triennial Plan IV.

[55] The initiatives for which there were expenses but no associated savings may be found in Table B-3.

Table A-1: FY2022 Program Impacts – Electric Programs

Program	Annual kWh Savings	Lifetime kWh Savings	Efficiency Maine Costs	Participant Costs	Lifetime Benefits	Cost/kWh (Lifetime)	Benefit-to-Cost Ratio
Commercial and Industrial Custom Program – Electric	7,481,052	94,190,814	$2,360,417	$2,321,243	$9,713,816	$0.050	2.07
Commercial and Industrial Prescriptive Program – Electric	19,318,286	267,422,578	$7,271,646	$6,754,808	$30,841,268	$0.052	2.20
Small Business Initiative – Electric	1,341,650	24,450,399	$1,551,801	$850,754	$3,954,372	$0.098	1.65
Distributor Initiatives – Electric	22,574,610	311,315,932	$9,246,453	$2,618,710	$35,458,041	$0.038	2.99
Retail Initiatives – Electric	36,512,797	159,004,292	$7,659,593	$4,853,887	$30,710,581	$0.079	2.45
Home Energy Savings Program – Electric	73,607,540	1,324,935,718	$13,564,151	$65,863,328	$134,364,892	$0.060	1.69
Low-Income Initiatives – Electric[56]	12,113,005	120,360,482	$3,336,522	$324,102	$16,421,789	$0.030	4.49
Strategic Initiatives – Electric	-	-	$1,637,645	-	-	-	-
Administration – Electric	-	-	$780,677	-	-	-	-
Total	172,948,938	2,301,680,215	$47,408,904	$83,586,834	$261,464,760	$0.057	2.00

[56] In Triennial Plan IV, the Trust directed a portion of the Low-Income Initiatives electric budget for investment through the Retail Initiatives and Distributor Initiatives to fund 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: FY2022 Program Impacts – Thermal Programs

Program	Annual MMBtu Savings	Lifetime MMBtu Savings	Efficiency Maine Costs	Participant Costs	Lifetime Benefits	Cost/ MMBtu (Lifetime)	Benefit-to-Cost Ratio
Commercial and Industrial Custom Program – Natural Gas	13,607	257,977	$156,447	$402,763	$1,872,580	$2.17	3.35
Commercial and Industrial Custom Program – Unregulated Fuels	61,343	1,202,935	$671,729	$557,304	$4,652,487	$1.02	3.79
Commercial and Industrial Prescriptive Program – Natural Gas	15,030	323,837	$292,331	$131,521	$2,294,799	$1.31	5.41
Commercial and Industrial Prescriptive Program – Unregulated Fuels	24,043	491,386	$1,052,055	$1,927,023	$12,882,764	$6.06	4.32
Small Business Initiative – Unregulated Fuels	14,716	261,072	$1,307,936	$3,619,641	$7,781,431	$18.87	1.58
Distributor Initiatives – Natural Gas	7,249	102,166	$211,527	$248,832	$839,936	$4.51	1.82
Home Energy Savings Program – Unregulated Fuels	36,839	859,107	$6,468,138	$12,287,958	$22,025,617	$21.83	1.17
Low-Income Initiatives – Natural Gas	18	182	$409	$67	$1,630	$2.61	3.43
Low-Income Initiatives – Unregulated Fuels	38,812	665,427	$6,716,231	$7,720,736	$18,915,112	$21.70	1.31
Electric Vehicle Initiatives – EV Rebates[57]	59,308	580,807	$2,348,460	$15,560,096	$24,159,320	$30.83	1.35
Strategic Initiatives – Thermal	-	-	$734,304	-	-	-	-
Administration – Thermal	-	-	$2,296,301	-	-	-	-
Total	270,966	4,744,896	22,255,869	$42,455,940	$95,425,677	$13.64	1.47

Two different cost tests are used to assess a program's cost-effectiveness: the Primary Benefit-Cost test, from the perspective of all utility customers (participants and non-participants), and the Program Administrator Cost Test (PACT), from the perspective of the program administrator (utility, government agency, or third-party implementer). 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, costs incurred due to increased energy use, and 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.

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.

[57] For the Electric Vehicles Initiatives – EV Rebates, lifetime energy savings reflect gasoline savings associated with rebated EVs, net of the increased electricity use associated with charging those EVs (converted to MMBtu). Monetized impacts of gasoline savings and estimated avoided maintenance costs for EV ownership are included in the benefits. Participant Costs reflect those associated with EV rebates; they reflect both the customers' share of the incremental costs to purchase the vehicle and new electricity costs associated with charging those EVs.

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	2.07	4.12	2017, Note 3	93%	2.06	4.03
Commercial and Industrial Prescriptive Program – Electric	2.20	4.24	2018, Note 1	71%	2.10	3.92
Small Business Initiative – Electric	1.65	2.55	2021	91%	1.62	2.49
Distributor Initiatives – Electric	2.99	3.83	2021	65%	2.74	3.29
Retail Initiatives – Electric	2.45	4.01	2021	43%	2.37	3.17
Home Energy Savings Program – Electric	1.69	9.91	Note 1	69%	1.67	9.23
Low-Income Initiatives – Electric	4.49	4.92	2020	96%	4.62	5.08
Total	**2.00**	**5.52**		**68%**	**1.94**	**4.98**

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	3.35	11.97	Note 2	93%	3.34	11.85
Commercial and Industrial Custom Program – Unregulated Fuels	3.79	6.93	2017, Note 3	93%	3.72	6.72
Commercial and Industrial Prescriptive Program – Natural Gas	5.41	7.85	2018	50%	5.26	7.53
Commercial and Industrial Prescriptive Program – Unregulated Fuels	4.32	12.25	2018	57%	3.42	10.24
Small Business Initiative – Unregulated Fuels	1.58	5.95	Note 1	75%	1.56	5.66
Distributor Initiatives – Natural Gas	1.82	3.97	Note 2	75%	1.75	3.64
Home Energy Savings Program – Unregulated Fuels	1.17	3.41	2019	72%	1.02	3.17
Low-Income Initiatives – Natural Gas	3.43	3.99	2016, Note 2	100%	3.43	3.99
Low-Income Initiatives – Unregulated Fuels	1.31	2.82	Note 2	100%	1.31	2.82
Electric Vehicle Initiatives – EV Rebates[58]	1.35	10.29	Note 2	80%	1.27	5.33
Total	**1.47**	**4.29**		**79%**	**1.33**	**3.54**

Note 1 Currently being evaluated.

Note 2 Evaluation not scheduled.

Note 3 Evaluation to begin in 2023.

[58] The Benefit-to-Cost ratios for EV Initiatives reflect cost and savings associated with EV rebates only (not EVSE).

Appendix B: Program Expenditures

Table B-1: Electric Program Expenditures

Program	Incentive	Delivery	Total
Commercial and Industrial Custom Program – Electric	$1,748,533	$611,884	$2,360,417
Commercial and Industrial Prescriptive Program – Electric	$6,110,716	$1,160,930	$7,271,646
Small Business Initiative – Electric	$1,194,765	$357,036	$1,551,801
Distributor Initiatives – Electric	$8,120,728	$1,125,725	$9,246,453
Retail Initiatives – Electric	$6,192,811	$1,466,782	$7,659,593
Home Energy Savings Program – Electric	$11,357,950	$2,206,201	$13,564,151
Low-Income Initiatives – Electric	$2,564,396	$772,126	$3,336,522
Strategic Initiatives – Electric	$0	$1,637,645	$1,637,645
Administration – Electric	$0	$780,677	$780,677
Total	**$37,289,899**	**$10,119,006**	**$47,408,904**

Table B-2: Thermal Program Expenditures

Program	Incentive	Delivery	Total
Commercial and Industrial Custom Program – Natural Gas	$136,458	$19,989	$156,447
Commercial and Industrial Custom Program – Unregulated Fuels	$423,136	$248,593	$671,729
Commercial and Industrial Prescriptive Program – Natural Gas	$280,072	$12,260	$292,331
Commercial and Industrial Prescriptive Program – Unregulated Fuels	$1,007,203	$44,853	$1,052,055
Small Business Initiative – Unregulated Fuels	$1,102,400	$205,536	$1,307,936
Distributor Initiatives – Natural Gas	$153,027	$58,500	$211,527
Home Energy Savings Program – Unregulated Fuels	$5,187,921	$1,280,217	$6,468,138
Low-Income Initiatives – Natural Gas	$389	$20	$409
Low-Income Initiatives – Unregulated Fuels	$5,055,338	$1,660,894	$6,716,231
Electric Vehicle Initiatives – EV Rebates	$2,218,700	$129,760	$2,348,460
Strategic Initiatives – Thermal	$0	$734,304	$734,304
Administration – Thermal	$0	$2,296,301	$2,296,301
Total	**$15,564,642**	**$6,691,227**	**$22,255,869**

Table B-3: Other Program Expenditures

Program	Incentive	Delivery	Total
Agricultural Fair Assistance Program	$0	$7,680	$7,680
Electric Vehicle Initiatives – EV Supply Equipment	$90,468	$245,807	$336,276
Lead by Example	$0	$34,118	$34,118
Renewable Energy Demonstration Grant Program	$83,444	$0	$83,444
Administration – Other	$0	$542,080	$542,080
Total	**$173,912**	**$829,685**	**$1,003,597**

Appendix C: Amended Budget

Table C-1: Efficiency Maine Trust FY2023 Budget as Approved by the Board of Trustees 10/26/2022

	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	NECEC SETTLEMENT FUNDS	AMERICAN RESUCE PLAN FUNDS	LD 1955 FUNDS	REVOLVING LOAN FUNDS	FY 2023 TOTAL BUDGET
TOTAL REVENUES AND USE OF FUND BALANCE	**4,734,517**	**38,180,638**	**68,007,029**	**645,827**	**1,536,087**	**14,097,416**	**2,660,172**	**414,637**	**524,480**	**4,903,724**	**6,857,919**	**18,000,000**	**3,500,000**	**950,100**	**165,012,547**
C&I CUSTOM PROGRAM	**-**	**5,366,312**	**8,919,356**	**642,310**	**1,536,087**	**-**	**951,182**	**-**	**-**	**-**	**-**	**2,425,000**	**-**	**-**	**19,840,247**
C&I PRESCRIPTIVE PROGRAM	**-**	**5,087,959**	**16,552,073**	**-**	**-**	**-**	**779,521**	**-**	**-**	**-**	**629,130**	**4,850,000**	**-**	**25,000**	**27,923,683**
Commercial Small Business	-	5,087,959	16,552,073	-	-	-	779,521	-	-	-	629,130	4,850,000	-	-	27,898,683
Commercial Loan Support	-	-	-	-	-	-	-	-	-	-	-	-	-	25,000	25,000
DEMAND MANAGEMENT	**-**	**-**	**681,773**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**681,773**
INDUSTRIAL CLIMATE INITIATIVE	**-**	**500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**500,000**
DISTRIBUTOR INITIATIVES	**-**	**-**	**13,230,950**	**-**	**-**	**-**	**143,382**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**13,374,332**
RETAIL INITIATIVES	**-**	**1,000,000**	**12,468,336**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**13,468,336**
HOME ENERGY SAVINGS PROGRAM	**-**	**9,566,709**	**6,515,928**	**-**	**-**	**11,189,408**	**585,481**	**-**	**-**	**-**	**-**	**-**	**-**	**760,100**	**28,617,626**
Home Energy Savings Program	-	9,566,709	6,515,928	-	-	11,189,408	585,481	-	-	-	-	-	-	-	27,857,526
Revolving Loan Support	-	-	-	-	-		-	-	-	-	-	-	-	510,100	510,100
Loan Loss Reserve	-	-	-	-	-		-	-	-	-	-	-	-	250,000	250,000
LOW-INCOME INITIATIVES	**-**	**4,628,800**	**2,852,489**	**-**	**-**	**2,308,542**	**17,264**	**-**	**-**	**-**	**319,915**	**6,305,000**	**-**	**-**	**16,432,010**
AGRICULTURAL FAIR INITIATIVES	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**524,480**	**-**	**-**	**-**	**-**	**-**	**524,480**
RENEWABLES	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**397,137**	**-**	**-**	**-**	**-**	**-**	**-**	**397,137**
ELECTRIC VEHICLE SUPPLY EQUIPMENT	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,305,999**	**1,450,701**	**3,880,000**	**-**	**-**	**6,636,700**
ELECTRIC VEHICLE ACCELERATOR PROGRAM	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**4,458,173**	**-**	**3,500,000**	**-**	**7,958,173**
LEAD BY EXAMPLE INITIATIVE	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3,597,725**	**-**	**-**	**-**	**-**	**3,597,725**
INNOVATION	**-**	**7,131,000**	**930,164**	**2,667**	**-**	**130,306**	**15,278**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**8,209,415**
PUBLIC INFORMATION	**-**	**249,000**	**242,400**	**-**	**-**	**-**	**7,639**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**499,039**
EM&V	**-**	**465,358**	**1,735,160**	**850**	**-**	**388,558**	**38,196**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2,628,122**
ADMINISTRATION	**4,722,811**	**849,000**	**3,393,600**	**-**	**-**	**-**	**106,949**	**-**	**-**	**-**	**-**	**540,000**	**-**	**76,880**	**9,689,240**
INTER-AGENCY TRANSFERS	**11,706**	**284,000**	**484,800**	**-**	**-**	**80,602**	**15,278**	**17,500**	**-**	**-**	**-**	**-**	**-**	**-**	**893,886**
Public Utilities Commission	-	169,600	484,800	-	-	80,602	15,278	-	-	-	-	-	-	-	750,280
RGGI Rate Relief	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RGGI Inc Operating Costs	-	85,000	-	-	-	-	-	-	-	-	-	-	-	-	85,000
Department of Environmental Protection	-	29,400	-	-	-	-	-	-	-	-	-	-	-	-	29,400
Governor's Energy Office	11,706	-	-	-	-	-	-	-	-	-	-	-	-	-	11,706
DECD (Maine Technology Institute)	-	-	-	-	-	-	-	17,500	-	-	-	-	-	-	17,500
TOTAL EXPENDITURES	**4,734,517**	**35,128,138**	**68,007,029**	**645,827**	**1,536,087**	**14,097,416**	**2,660,172**	**414,637**	**524,480**	**4,903,724**	**6,857,919**	**18,000,000**	**3,500,000**	**861,980**	**161,871,926**
RESERVED FUND BALANCE	**1,097,602**	**4,000,000**	**2,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		**21,811,385**	**28,908,987**

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 2022					
Electric Efficiency Procurement					
Procurement Quarter:	**Jul-Sep 2021**	**Oct-Dec 2021**	**Jan-Mar 2022**	**Apr-Jun 2022**	**Total - FY 2022**
Billing Date:	**1-Jul-21**	**31-Oct-21**	**1-Jan-22**	**1-Apr-22**	
Name					
Central Maine Power Co	$ 9,638,246	$ 9,638,246	$ 9,638,246	$ 9,638,246	$ 38,552,983
Eastern Maine Electric Coop	117,238	117,238	117,238	117,238	468,952
Versant (formerly Emera)	2,139,676	2,139,676	2,139,676	2,139,676	8,558,705
Fox Island Electric Coop	12,785	12,785	12,785	12,785	51,140
Houlton Water Co	88,654	88,654	88,654	88,653	354,614
Kennebunk Light & Power	114,694	114,694	114,694	114,694	458,777
Madison Electric Works	32,902	32,902	32,902	32,902	131,606
Van Buren Light & Power Co	17,676	17,676	17,676	17,676	70,706
Totals	**$ 12,161,871**	**$ 12,161,871**	**$ 12,161,871**	**$ 12,161,871**	**$ 48,647,484**

Revenue Forecast	**FY 2023**
Central Maine Power Co	$ 37,360,506
Eastern Maine Electric Coop	442,347.12
Versant (formerly Emera)	8,240,590.04
Fox Island Electric Coop	50,013.20
Houlton Water Co	358,041.24
Kennebunk Light & Power	450,645.48
Madison Electric Works	130,130.76
Van Buren Light & Power Co	65,325.72
Total	**$ 47,097,600**

Natural Gas Efficiency Procurement		
	Total - FY 2022	**Revenue Forecast - FY 2023**
Name		
Northern Utilities - Unitil	$ 65,522	$ 667,060
Bangor Natural Gas	7,947	277,297
Maine Natural Gas	84,009	176,749
Summit Natural Gas	12,007	51,825
Totals	**$ 169,485**	**$ 1,172,931**

Alternative Compliance Mechanism (ACM)		
Assessment Timeframe:	**Jul '21- June '22**	**Total - FY 2022**
Billing Date:	**N/A**	
Name		**Total - FY 2022**
Mega Energy Holdings, LLC	$ 14,000	$ 14,000
Totals	**$ 14,000**	**$ 14,000**

As Ordered by the PUC on 6/13/2022 in Docket 2022-0039 –PROCUREMENT OF ELECTRIC RESOURCES AND ASSESSMENT FOR NATURAL GAS RESOURCES FOR FIFTH TRIENNIAL PLAN FY2023-2025. Note: these revenue forecasts reflect the use of FY2022 carryforward funding to reduce the need for assessments.

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 Supply 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 T&D (but not the retail cost of T&D).

Benefit-to-Cost Ratio: The ratio of the net present value of the quantifiable financial benefits 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 Primary Benefit-Cost Test, Program Administrator Cost Test, and Modified Participant Cost Test.

Community Action Agencies: 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, as determined through surveys and market analysis, would have installed equivalent efficiency measures independent of the Trust's program or its incentives.

Lifetime Benefit: The net present value of the avoided energy supply cost of energy and demand savings, and avoided operation and maintenance costs, 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 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).

Primary Benefit-Cost Test: This cost-effectiveness test captures the perspective of all utility customers—both participants and non-participants. 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 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, costs incurred due to increased energy use, and 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.

Program Administrator Cost Test: This cost-effectiveness test compares Efficiency Maine'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.

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 TA was received.