

Via Electronic Mail
April 9, 2021

Michelle Turner, Administrative Secretary
Efficiency Maine Trust
168 Capitol Street, Suite 1
Augusta, ME 04330-6856
Via Email: comments@efficiencymaine.com

Subject: Acadia Center Comments re: Efficiency Maine Trust *Request for Information (RFI), Triennial Plan V (Fiscal Years 2023 – 2025)*

Dear Ms. Turner:

Acadia Center respectfully submits the attached comments on the Efficiency Maine Trust (the “Trust”) *Request for Information (RFI)* on its *Triennial Plan V (Fiscal Years 2023 – 2025)*.

Acadia Center advances bold, effective, and just clean energy solutions for a livable climate and a stronger, equitable economy. Through research and advocacy, it works to empower consumers and offer real-world solutions to the climate crisis that benefit all. Acadia Center achieves change through analysis, advocacy, coalition building, and public engagement in the Northeast and beyond. Acadia Center is a Maine non-profit organization headquartered in Rockport.

The Trust’s *Triennial Plan V*, the Maine Climate Council’s *Maine Won’t Wait: A Four-Year Climate Action Plan*, along with the State’s statutory commitment to reduce Maine’s greenhouse gas emissions 45% by 2030 and 80% by 2050, are all important steps that buttress energy efficiency as a critical component to reach these targets and goals. The Maine Climate Council Buildings, Infrastructure, and Housing (BIH) Working Group’s June 2020 *Strategy Recommendations to Mitigate Emissions and Support Resiliency in Maine Buildings* also provides critical guidance to the *Triennial Plan V* to reduce emissions and increase efficiency in new and existing buildings, publicly-funded buildings, industrial facilities, and the electricity grid. Acadia Center is a Member of the BIH Working Group and supports the recommendations in that report.

Acadia Center looks forward to working with the Trust to finalize this important Plan and advance strategies to implement beneficial electrification policies and programs in the buildings and transportation sectors.

Respectfully Submitted,

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Request for Information (RFI) on Triennial Plan V (Fiscal Years 2023 – 2025)



Response by Acadia Center to Efficiency Maine Trust

April 9, 2021

Acadia Center Response - Summary

Introduction

Acadia Center appreciates this opportunity to provide written comments in response to the Efficiency Maine Trust (the “Trust”) Request for Information (RFI) on its *“Triennial Plan V (Fiscal Years 2023 – 2025)”* (Triennial Plan V RFI).

Efficiency Maine Trust has helped Maine become a national leader in energy efficiency. But far more must be done to improve the efficiency of homes and businesses and to ensure that all communities reap the full benefits of energy efficiency. Despite this good work, there is still more that can be done to ensure that efficiency programs deliver benefits equitably across all communities and income levels. Underserved groups, including renters, low-and-moderate income communities, rural communities, and non-English speakers, often face the worst impacts of climate change and poor housing quality but have been unable to easily and effectively access the benefits of efficiency programs.

At the same time, efficiency programs must be better aligned with electrification efforts, and energy efficiency should be elevated as a key tool to reduce greenhouse gas emissions. Again, the Trust is a national leader in developing beneficial electrification to scale through its heat pump programs and was recognized as the Alliance to Save Energy 2020 Star of Energy Efficiency for its successes. Acadia Center is bringing together these complex but overlapping issues into its Next Generation Energy Efficiency initiative. Next Generation Energy Efficiency addresses these challenges through a new approach to energy efficiency – one that focuses on energy savings as a core energy system resource, but is also centered on meeting climate, environmental justice, and electrification goals. The four pillars of Next Generation Energy Efficiency are to:

1. Strengthen the role of efficiency in improving housing quality;
2. Address climate mitigation and GHG reductions through energy efficiency;
3. Better align energy efficiency and electrification; and
4. Sustain investments in energy efficiency as a leading energy resource.

Acadia Center’s comments on the Triennial Plan V RFI bring together these four priority areas.

Acadia Center recommends that the Trust:

- Expand program offerings to put greater emphasis on new construction, marginalized communities, and whole-home customer residential measures.

- Implement pilot programs around ground-source heat pumps, bring-your-own-battery home battery solutions, and the use of Advanced Metering Infrastructure data.
- Expand public outreach efforts to make information more accessible.
- Retain and continue its successful EM&V data collection and analysis activities.
- Take into account the full range of environmental avoided costs in its cost-effectiveness analysis.
- Increase energy efficiency job trainings and workshops as part of Maine's COVID-19 recovery efforts.
- Prioritize programs that deliver energy efficiency benefits to communities that face disproportionate environmental and energy burdens but have faced barriers in accessing programs to date.
- Continue to pursue active load management programs to reduce peak demand and optimize the use of grid infrastructure.
- Support Maine's participation in the regional Transportation and Climate Initiative Program (TCI-P) to further spur electric vehicles and infrastructure.
- Pursue opportunities to better align energy efficiency and electrification.

The Need for a Robust Triennial Plan

The Maine Department of Environmental Protection (DEP) released its *Eighth Biennial Report on Progress Toward Greenhouse Gas Reduction Goals* on January 13, 2020, providing a comprehensive analysis of Maine's greenhouse gas emissions (GHG) by fuel source and economic sector. While the DEP report showed progress toward reaching interim GHG emission reduction goals, it also demonstrated that more must be done to meet the State's statutory emissions reductions goals of reducing emissions by 45% from 1990 levels by 2030 and 80% by 2050. The DEP report found that:

- 90% of GHG emissions in Maine are the result of energy consumption, mostly produced by combustion of petroleum products.
- The transportation sector was responsible for 54% of Maine's carbon dioxide (CO₂) emissions in 2017, an increase from the 1990 contribution of 44%.
- The residential sector accounted for the next highest amount of emissions at 19% with the commercial sector at 11%.

Oil remains the primary heating fuel used by Maine households and businesses. There can be significant price volatility in oil markets due to circumstances out of consumers' control, including global market and political upheavals. Low-income households and small businesses are often most vulnerable to oil pricing shocks. Maine has no fossil fuel deposits and must import all it uses; therefore, most of the dollars spent on oil, natural gas, propane, and kerosene leave the State. Maine has some of the oldest housing and building stock in the country. Financial incentives for energy efficiency and replacement of oil heating systems are not always accessible to those who need them the most. Natural gas penetration into the State has increased, but it is still a fossil fuel that emits GHG emissions, and limited capacity and high prices in the winter when demand is high are challenges.

On the transportation side, Maine is nearly 100% dependent on petroleum to fuel rail, trucks, buses, planes, marine vehicles, snowmobiles, and automobiles. As with heating oil, gasoline and diesel prices can be extremely volatile due to global, national, and regional constraints. Transportation accounts for more than half of the State's energy use, emissions, and costs.

In a state where the home energy burden for low-income households is high at 19%, in the next Triennial Plan, the Trust must expand its focus on ensuring that our most vulnerable citizens are warm, safe, and healthy and

have more options to get to their jobs, doctors, and stores. Participation in residential energy efficiency programs and transportation programs by low-income Mainers is severely limited by higher upfront cost (even with incentives), split incentives between owners and renters, and insufficient informational outreach about efficiency and transportation programs. The Trust and other State entities will need to do more to help low-income customers and enhance programs to benefit hard-to-reach communities, including rural parts of the state.

In addition to alleviating energy burdens, such as enhancing energy efficiency programs to help low-income residents manage energy costs and promote customer equity, a robust Triennial Plan will also benefit the overall energy system by reducing ratepayer costs and environmental impacts of energy use. Acadia Center responds to the Trust's RFI questions below and believes the Trust is asking the right questions to arrive at a stronger Triennial Plan.

Responses to Triennial Plan V RFI Questions

Program Elements & Categories – Expand program offerings to put greater emphasis on new construction, marginalized communities, and whole-home customer residential measures.

The section on cost-effectiveness testing in the 2020-2022 Plan reads, “The Trust screens for eligibility at the measure or project level, rather than the program level. A project is defined as a bundle of related measures installed concurrently.”¹ This suggests that the initiative categories themselves are less important than the measures that comprise them. In general, Acadia Center supports program design and delivery processes that maximize per-building savings. The imperative² of addressing climate change demands that the Trust endeavor, within funding constraints, to displace as much fossil fuel as it can in each customer interaction. Higher savings per participant can also serve as a word-of-mouth recruitment tool, as still more Mainers discover the surprising benefits of invisible building shell improvements and modern electric heating.

Acadia Center research suggests three measure types that the Trust may find to be deserving of further examination and investment:

New construction. Maine's Climate Plan called for tightening Maine's building energy code.³ Because Maine's statewide building energy code remains relatively new, having been adopted in 2008, implementing this goal may be logistically difficult. Recognizing this, the Plan also calls for “enhance[d] existing training on building codes... to support ongoing education of contractors and code-enforcement officials.” Code compliance training will indeed be necessary to help the state's contractor workforce into these new requirements. The Trust may be able to claim savings from training and code enforcement program offerings, as certain other states have done. Additional programs that incentivize above-code new construction in the near term could employ HERS raters and other building energy professionals while demonstrating to contractors in the state that green building techniques are feasible, cost-effective, and marketable.

Marginalized communities. Low- and moderate-income households, people of color, rural, and English-isolated families tend to live in older and draftier housing units with higher heating bills. These buildings have the

¹ Efficiency Maine Trust. [“Triennial Plan for Fiscal Years 2020-2022.”](#) Page 4-9.

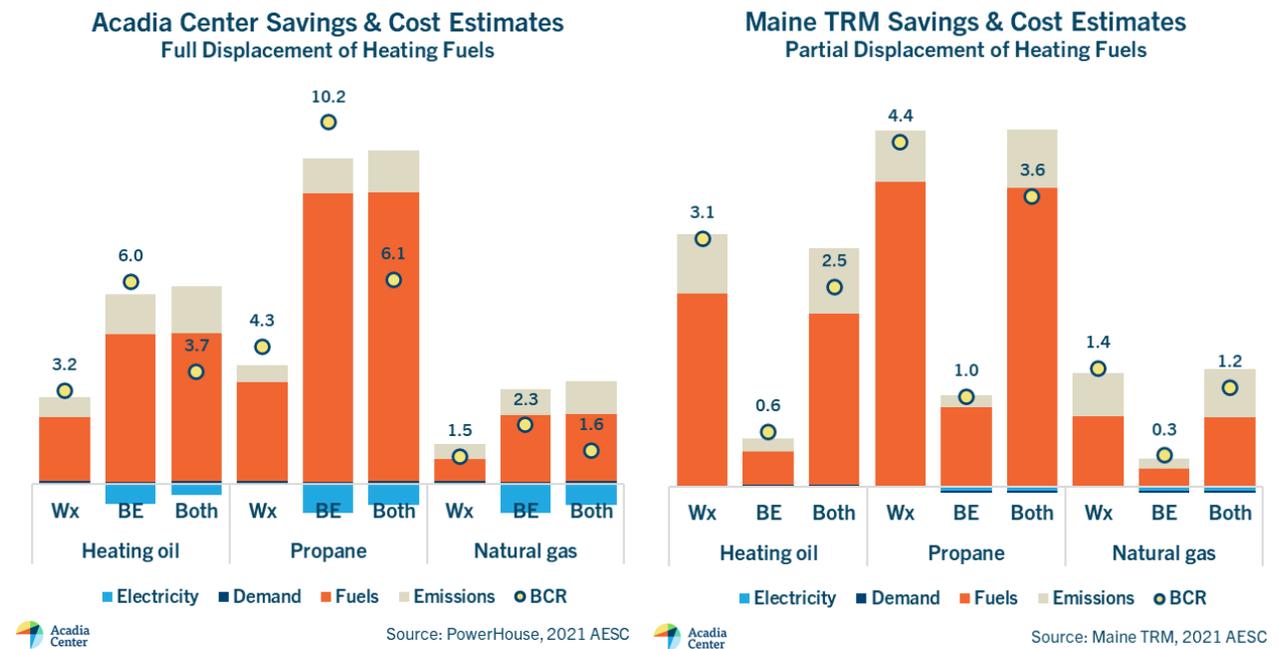
² 3-A M.R.S. §576-A.

³ “By 2024, develop a long-term plan to phase in modern, energy-efficient building codes to reach net-zero carbon emissions for new construction in Maine by 2035.” [Climate Action Plan](#), p. 49.

greatest potential for energy bill savings and emissions reduction, but they are occupied by the people who can least afford to shoulder the cost of energy upgrades. A detailed on-site study of the energy impacts of efficiency upgrades in low-quality housing could reveal important information about efficiency challenges in this market segment, which would help the Trust to claim greater savings commensurate with the greater difficulty of reaching and serving these ratepayers.

Whole-home custom residential measures. The Trust has proven in recent years that Mainers are ready to embrace electrification. More heat pump installations are supported by the Trust each year than by Massachusetts’ Mass Save programs,⁴ which offer higher incentive levels in a much larger state.⁵ Specifically promoting whole-home, “zero-carbon-ready” retrofits would be an excellent way to increase bill savings for participants while orienting the Trust’s programs even more explicitly toward achieving the state’s climate targets. This type of project would entail standard program-supported insulation and air sealing upgrades, along with full electrification of all fuel-fired equipment used for space heating, water heating, cooking, and laundry appliances. Acadia Center analysis of the 2021 AESC avoided costs shows that whole-home electrification and weatherization projects would generate more net benefits than current measure categories while remaining cost-effective for every fuel type. Meeting Maine’s climate targets will require displacing not just fossil fuels used for heat, but fossil fuels used for anything in a building. A whole-home electrification and weatherization offering from the Trust could go a long way toward demonstrating the value of this type of retrofit.

Figure 1: Net Benefits and Benefit-Cost Ratios for Whole-Home Projects in Maine



⁴ Massachusetts program administrators support about 12,750 heat pump installations per year, compared to Maine’s statutory target of 20,000 installations. In both cases, most installations partially displace fossil fuels.

⁵ The Trust offers a maximum incentive of up to \$1,500 per home for ductless mini-split installations, or \$2,500 for low-income participants. Massachusetts program administrators offer \$1,250 per ton for oil and propane-heated homes, a total incentive which can exceed \$6,250 for one home.

Innovation Program - Implement pilot programs around ground-source heat pumps, bring-your-own-battery home battery solutions, and the use of Advanced Metering Infrastructure data.

The Trust recognizes the benefits of innovation and the potential for new and emerging technology solutions to tackle difficult operational issues, lower emissions, and reduce consumer bills. The Northeast is a leader in national energy efficiency program design and development, including pilot and innovative deployment programs for new technologies. Maine can continue to lead by funding pilot programs that reduce technology costs and increase consumer adoption. Specifically, Acadia Center notes the following innovative technology pilots that the Trust should either continue to fund or consider funding.

Ground source heat pumps: The Trust already has a ground source heat pump incentive of \$3,000 per homeowner. Ground source heat pumps provide a number of consumer and system-wide benefits, including high efficiency at cold temperatures, reduced peak demand impacts relative to air-source models, and system longevity. In addition, many Maine households are on large plots of land which make installing ground source heat pumps even easier. By increasing the adoption of ground source heat pumps in Maine, the Trust can spur further business development in the state by supporting local installers. In addition, each system installed increases expertise and furthers wider adoption. The Trust should consider working with installers to increase customer uptake of ground source heat pumps through enhanced promotional and educational materials.

Bring-Your-Own-Battery home battery solutions: Green Mountain Power in Vermont has successfully piloted, then implemented, a full-scale bring-your-own-device residential battery storage program.⁶ The program provides homeowners with incentives of up to \$10,500 for a residential battery and allows the utility to charge and discharge the battery to provide grid services. Home battery storage serves to shave peak demand, increase flexibility of renewables by shifting generation and use, and increase homeowner and system-wide resiliency during outage events. Increasing battery storage could play a vital role in improving reliability by reducing the total number of customers who face an outage and the duration of outages for customers. The Trust should consider implementing a rebate pilot program similar to the program in Vermont to increase market adoption of battery technology while being battery-agnostic and incentivizing the widest array of batteries.

Advanced Metering Infrastructure: Although AMI technology is widely deployed in Maine, the technology could be used far more effectively as an efficiency resource. AMI technology provides valuable consumer insights, including customer energy use and behavior, energy and carbon content of energy used, and allows for multi-tariff functionality, such as time-varying rates. The Trust should ensure that as wide as possible benefits are being realized from the technology, including benefits to target energy efficiency and demand response opportunities more effectively to capture peak shaving benefits or carbon emission reduction benefits. The Trust should implement a pilot program that looks to incentivize customers who have already installed AMI technology to deploy it in new and innovative ways that benefit the grid and consumers.

Public Information & Outreach - Expand public outreach efforts to make information more accessible.

The Trust's website is a robust and accessible source of information on its programs and services. However, to better reach low-income homeowners, renters, rural residents, and ensure widespread access to information, the

⁶ See Green Mountain Power for more information: <https://greenmountainpower.com/rebates-programs/home-energy-storage/bring-your-own-device/>.

Trust should prioritize, for example, providing materials in multiple languages and hosting webinars and educational events during non-work hours. Increased and more targeted guidance from the Trust, along with utilities, energy efficiency professionals, local governments, NGOs, and others can make energy efficiency improvements more understandable, accessible, and easily implemented by both homeowners and businesspeople. The Trust can be helpful for consumers working through the available information about upfront costs, how to choose a contractor, quotes and pricing, available incentives, and resulting energy cost savings. Acadia Center supports more marketing and education to the consumer to help build a foundation of common knowledge to lead to greater public acceptance and adoption of energy efficiency programs.

As new technologies and programs are available in Maine, including from federal stimulus and appropriations, that improve heating systems, weatherization, lighting, and other efficiency measures, it is vital to educate the public and companies working in the sector to ensure that people are not only more educated on their use, but also so they are aware of the financial and other assistance available to them.

Acadia Center commends the Trust for its programs targeting underserved customer segments. As climate, weatherization, and electrification programs ramp up significantly in the wake of the Climate Action Plan and agency efforts to implement its priority strategies, the State needs to develop, market, and implement programs that markedly reduce energy burdens and make its housing more affordable, safe, and healthy for all people – especially low- and moderate-income households – through a comprehensive approach to new and existing homes. It is particularly important to dramatically accelerate low-income weatherization programs to tighten up leaky homes – which are also often unsafe and unhealthy – and reduce energy burden by transitioning to clean, cost-effective heating and cooling systems that rely on renewable electricity.

EM&V - Continue its successful Evaluation, Measurement, & Verification data collection and analysis activities.

Acadia Center finds the Trust’s existing evaluation schedule and funding practices to be a reasonable expenditure of time and resources. Evaluation research provides crucial information that helps program administrators design and deliver programs in a way that maximizes benefits. It is and will remain a wise investment.

Cost-Effectiveness Test - Take into account the full range of environmental avoided costs in its cost-effectiveness analysis.

Chapter 4 of the Trust’s rules states that the Trust should account in its cost-effectiveness testing for “non-resource benefits, including customer benefits such as... environmental benefits, to the extent such benefits can be reasonably quantified and valued.” The 2021 Avoided Energy Supply Components (AESC) study quantifies environmental avoided cost in various ways. Acadia Center recommends that the Trust take account of the full range of environmental avoided costs in its test.

The requirement that environmental benefits be included “to the extent such benefits can be reasonably quantified” is, on its face, vague. Often, requirements like this are interpreted in such a way as to limit environmental benefits to those which are directly reflected in the price of energy. However, the cost of inaction on climate change is far higher than embedded environmental avoided costs—the cost of compliance with RGGI or the state’s RPS—would suggest. At the same time, some decision-makers might not consider non-embedded environmental avoided costs—those which are external to the price of energy—to be “reasonably quantified and valued.”

The AESC considers a number of separate ways to account for non-embedded environmental avoided costs. One is a “social cost of carbon,” which is based on a cost estimate of future damages due to extreme weather caused by climate change. The 2021 AESC sets this avoided cost at \$128 per U.S. ton of carbon dioxide. By comparison, the Biden administration recently released guidance on this topic which set the federal government’s social cost of carbon at \$52 per ton. While some states have embraced this way of integrating climate into cost-effectiveness testing, others have found it too imprecise.

A more palatable way of accounting for environmental avoided costs might be a marginal abatement cost, which the 2021 AESC addresses in three different ways. Rather than basing environmental benefits on an estimate of future damages, a marginal abatement cost (MAC) is calculated in part by assessing the costs associated with other⁷ ways of reducing emissions. Energy efficiency and electrification measures can then be compared to this cost as a way of identifying which manner of reducing emissions is most cost-effective given current market conditions. The 2021 AESC suggests three types of MAC:

- A New England-specific value derived from the **electric sector**, which uses the cost of installing offshore wind as a point of comparison (\$125 per ton)
- A New England-specific value derived from an economy-wide analysis accounting for **multiple sectors**, which uses the cost of producing “renewable natural gas” as a point of comparison (\$493 per ton)
- A **global value** which uses the cost of carbon capture and sequestration technology as a point of comparison (\$92 per ton)

Maine has a statutory obligation to reduce economy-wide emissions by 80% relative to 1990 levels by 2050. To expeditiously achieve that target, the state may wisely choose to tackle the least costly ways of reducing emissions first, before moving on to more technically difficult segments of the economy. Far from a speculative way to approximate some unknown future cost, a MAC approach would allow the Trust to test its own programs against other emissions reduction pathways available to Maine today, and devote funding to programs and measures that compare favorably.

Acadia Center recommends that the Trust include one of the 2021 AESC’s New England-specific MAC values in its primary cost-effectiveness test for the 2023-2025 Plan.

Workforce Development - Increase energy efficiency job trainings and workshops as part of Maine’s Covid-19 recovery efforts.

A November 2020 report by the Governor’s Energy Office, entitled “*Strengthening Maine’s Clean Energy Economy*,” held up the State’s energy efficiency sector as a source of economic growth and workforce opportunities, a critical tool in Maine’s recovery from the COVID-19 pandemic and its resulting economic disruption. The report has several findings, including the following:

- A significant number of Maine’s energy workforce is within the energy efficiency sector.

⁷ Consistent with the name, these compare greenhouse gas abatement strategies to the “marginal” abatement strategy. “Marginal,” in this context, means the strategy that would be most likely to avoid a subsequent unit of emissions over and above what is currently emitted.

- An ongoing need to continue to weatherize Maine’s old housing and building stock, primarily through Efficiency Maine Trust (EMT) and MaineHousing programs, will drive a continued need for energy efficiency workforce and the associated supply chain.
- In combination with supportive energy efficiency policies and goals, this sector is primed for continued growth. According to the Trust, there are close to 550 registered heat pump vendors as of October 2020. To demonstrate the growth potential, around 80 new vendors have been added between July and October, averaging an increase of one new vendor per workday. Many of these companies are hiring, showing great potential for a growing workforce.

Since 2010 and the creation of the Trust, Maine’s energy efficiency policies have grown stronger. In the last two years alone, Governor Janet Mills and her Administration have set a goal for 100,000 new heat pumps by 2025; strengthened the Heat Pump Rebate Program for up to \$1500 in residential and commercial sectors; and enhanced electric vehicle and charging infrastructure rebate programs, including for qualifying low-income drivers and tribal governments. With supporting policies in place, the energy efficiency sector is poised for fast and high-quality job growth with benefits for supply chain, community, and public health.

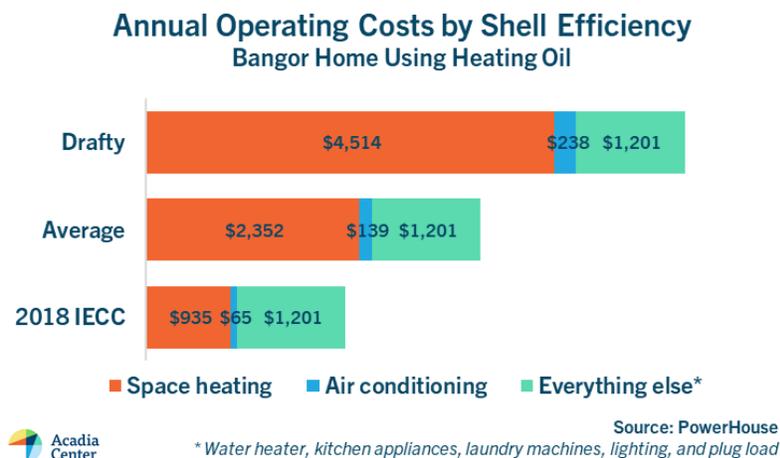
In the wake of the COVID-19 pandemic, there is opportunity for more, such as increasing training and workshops. Energy efficiency is the fastest-growing segment of U.S. energy-sector employment, now employing more than 2.3 million Americans, according to an analysis from E2 and E4TheFuture. Energy efficiency workers now account for 28% of all U.S. energy jobs, although the COVID-19 pandemic led to job losses in all energy industries. The report, [Energy Efficiency Jobs in America](#), finds energy efficiency jobs grew 3.4 percent in 2018 –more than double the rate of growth for overall jobs nationwide — with not a single state with declines in energy efficiency employment in 2018. In Maine, the report shows:

- 8647 total energy efficiency jobs;
- 1587 energy efficiency businesses;
- 20% of all construction jobs and 35% of all energy jobs are in energy efficiency.

Acadia Center supports expanding Maine’s energy efficiency workforce as a key component of the *Draft Triennial Plan V* and believes it is integral to helping the State’s businesses and homeowners save money while creating local jobs. Energy efficiency jobs include positions in manufacturing, construction, retrofitting buildings, professional services, as well as at the heating, ventilation and air conditioning (HVAC) companies that upgrade outdated inefficient HVAC systems, boilers, ductwork and other equipment.

Acadia Center urges the Trust to focus on hard-to-reach areas, including low-income and rural populations and supports a triennial plan that devotes resources to workforce development and recommends a greater focus on more vulnerable communities and workers who may not have equal access or opportunities available to them. These vulnerable communities include, but are not limited to, indigenous people, immigrant communities, communities of color, low-income communities, and youth and seniors. Each community has unique vulnerabilities and specific concerns and circumstances but should be a focus of workforce development initiatives. Maine’s workforce needs be well informed and trained in new and existing heating systems and technologies to ensure they are properly installed, maintained, and utilized most effectively. If Maine prioritizes workforce training in the energy sector, and provides proper training for space heating, cooling, and hot water, a plethora of benefits, including jobs, energy efficiency, enhanced indoor air quality, greater comfort, and reduction of emissions will follow. In turn, home and business owners will experience energy bill savings.

Equity - Prioritize programs that deliver energy efficiency benefits to communities that face disproportionate environmental and energy burdens but have faced barriers in accessing programs to date.



Acadia Center strongly commends the Trust for its work in serving a significant proportion of low-income households in a single fiscal year. To accelerate this good work even further, Acadia Center recommends that the Trust prioritize the treatment of buildings occupied by populations that are traditionally the most underserved, including rural, low- and moderate-income, renters, and non-English speakers.

Acadia Center recommends that the Trust consider the following recommendations:

- Carve out the cost of engaging low-income and renter participants from its cost-effectiveness test to eliminate the artificial cap that those costs place on the Trust's ability to reach underserved communities. By carving out a subset of administrative costs tied specifically to DEI (diversity, equity, inclusion, and justice) activity, the Trust can remove barriers to improving the delivery of efficiency services to those who need it the most. In order to successfully reach LMI households in this way, however, new sources of funding for finding and engaging LMI households would need to be made available.
- Qualify block groups. Means-testing individual households is costly for the Trust and participating households alike. Pre-qualifying households based on their Census tract or block group can help to surmount this barrier. Not only would this reduce the cost of verifying household income, but—much more importantly—it would eliminate the onerous forms, documentation, office visits, and other leg work that prospective participants must complete in order to secure eligibility. This bureaucracy is

⁸ Electric programs served 15,351 participants and thermal programs served 400.

⁹ See [HUD income guidelines for Maine](#) and U.S. Census American Community Survey (2019).

<https://data.census.gov/cedsci/table?t=Income%20and%20Poverty&g=0400000US23&tid=ACSST1Y2019.S1901&hidePreview=false>.

keeping qualified low-income or otherwise marginalized households from participating in programs, given the time limitations that many of them suffer.

- Offer low- or zero-cost upgrades to moderate-income households. While low-income households are eligible for zero-cost upgrades, moderate-income households are often left out of program offerings. Moderate-income households are those that make between 61-80% of Maine’s median household income for their family size. If the median household income for a family of four in Maine as of 2019 is \$54,101, a family making under between \$36,000 and \$47,000 should qualify for greater incentives. However, because participant costs are not calculated on a curve, a household with an income of \$32,000 qualifies for low-income incentives, while a similar household making \$38,000 would pay as much as a household making \$400,000. Offering better financial assistance to these near-low-income households would extend the benefits of energy efficiency to a group that has been sorely underserved to date.
- Fully incorporate the health and safety benefits of energy efficiency into program offerings and cost-effectiveness measurements. 11.2% of adults in Maine have asthma – among the highest rates in the country.¹⁰ Asthma is one of the main reasons for missing school and work, imposing significant health and lost productivity costs on Mainers. By valuing the non-energy benefits that energy efficiency provides and the role it can play in alleviating health and safety burdens, the Trust could help Maine save money and improve the health and comfort of its most vulnerable citizens.

Load Management - Continue to pursue active load management programs to reduce peak demand and optimize the use of grid infrastructure.

Energy efficiency can play an important role in reducing peak system demand and optimizing the use of grid infrastructure. Reducing peak demand on the coldest and hottest days can save ratepayers money and avoid running the most polluting and expensive generators. Active load management differs from passive demand reduction (i.e., many traditional energy efficiency programs) and refers to the dynamic management and control of energy demand. Measures such as demand response and direct load control can automate and control consumer demand, helping to shift, shape, and shed load.

Massachusetts’ 2019-2021 Energy Efficiency Plan offers helpful lessons for the Trust’s load management work. The MA 2019-2021 Plan introduced the program’s first full-scale active demand management (ADM) offering. The electric ADM offering included incentives for storage technologies in all three sectors (residential, low-income, and commercial & industrial), along with active demand savings targets for summer and winter. Permanent demand reductions through efficiency were also a focus on the Plan – setting demand savings targets for both summer and winter. Importantly, the Plan created a performance incentive tied to the electric program administrators’ achieving of the active demand management targets.

The battery storage component has been the most successful piece of the overall ADM program and has garnered considerable interest from industry because of the significant incentives offered for storage systems. However, the incentives for storage were not fully aligned with the broader Clean Peak Standard, so while industry stakeholders have been eager to participate, ratepayers may in fact be overpaying for the incremental storage additions that the state is achieving. Despite the success so far of Massachusetts ADM program, the state has been unable to establish a gas active demand management program. Although stakeholders have shown the technical feasibility of such a program, pushback from gas utility interests has slowed progress.

¹⁰ <https://www.maine.gov/dhhs/mecdc/population-health/mat/asthma-information/asthma-in-maine.shtml>

Electric Vehicle Program - Support Maine's participation in the regional Transportation and Climate Initiative Program (TCI-P).

Participation in the bipartisan, multi-state Transportation & Climate Initiative program (TCI-P) would provide an additional revenue stream to further Maine's EV program goals and wider state transportation goals. Analysis from MJ Bradley & Associates shows that Maine would generate \$586 million through 2032 (2021 dollars). Maine should participate in this program alongside other states in the region and determine, through an inclusive stakeholder process, how TCI-P proceeds could be deployed most effectively to support electric vehicle adoption and equitable electrification of the transportation sector.

Acadia Center commends the Trust for recently implemented EV program changes to accelerate EV deployment and to expand access to EVs. Specifically, we commend the Trust for increasing EV levels for qualified low-income consumers, for making used EVs eligible for rebates, and for continuing to make these rebates available at the point of sale. As a general principle for the deployment of EVs and EVSE, the Trust should prioritize the electrification of polluting vehicles that operate in overburdened communities and improved access to EVs for populations lacking low-carbon mobility options.

Beneficial Electrification - Pursue opportunities to better align energy efficiency and electrification.

In its RFI, the Trust notes that it expects a "significant funding gap between the funds the Trust is authorized to seek and the funds required to meet the Climate Action Plan's goals." The Climate Action Plan envisions:

- About 20,000 residential heat pump installations per year
- About 3,500 weatherization upgrades in homes and business each year
- Enhanced building energy code compliance training
- Programs to increase the use of climate-friendly Maine forest products.

The Trust's 2020-2022 Plan included about \$43 million in funding for HESP over the Plan term. These funds would be sufficient to install around 12,500 two-head ductless mini-split systems or weatherize about 2,444 homes per year¹¹ if HESP only supported one of these measure categories. Of course, the program supports a variety of measures. Using the Trust's costs estimates, reaching the Climate Action Plan's goals would cost the Trust around \$48 million per year¹²—three times the amount dedicated to HESP in fiscal year 2022. As the Trust's RFI notes, surmounting this funding gap will be a tall order. Below are some suggestions that may ameliorate this revenue crunch.

¹¹ The Trust's measure list documentation—Appendix L in the 2020-2022 Plan—suggests that it costs \$12,450 to insulate the walls, attic, and basement of a home and install air sealing measures. In many homes, it is not feasible or desirable to install all of these measures.

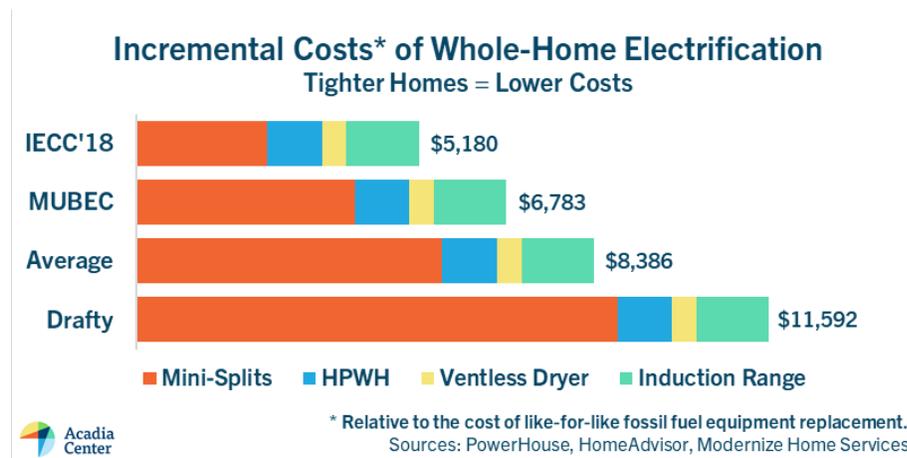
¹² This is an estimate based on the Trust's publicly available documentation. To know what the cost of delivering a given measure would be to the programs, one would need to know what the customer's cost share is. This information has not been made available. According to Appendix L, two ductless mini-split heads cost \$1,985, of which administrative costs account for some proportion. In other states, these other costs range from about 15% to more than 30% of total resource costs, depending on the initiative. We estimate the program costs of these heat pumps—incentives plus administration—to be about \$25 million for 20,000 units. Similarly, whole-home weatherization, including air sealing and all available insulation measures, costs \$12,450 overall, which we estimate would translate to a program cost of about \$23 million for 3,500 homes.

Electrification at scale requires a stick as well as a carrot. Efficiency Maine Trust delivers incentive programs. Over the years, these incentives have led to a tremendous amount of energy savings, as well as substantial economic benefits for Mainers. Yet it is in the nature of incentive programs that they can serve only those who are willing and able to participate.

While it is no stretch to say that Efficiency Maine is the most successful building electrification program in the country today, it may be that with every completed heat pump installation, finding the next participant gets a little harder. For this reason, the state should be prepared to intervene with regulations that nudge home and business owners to electrify their buildings when their current equipment reaches the end of its useful life. Leveraging stock turnover points requires close engagement with the state’s HVAC contractors, but could be a low-cost, high-reward emissions reduction strategy, giving the Trust a key assist as it works to enlist more Mainers in the state’s fight against climate change.

Anticipating this intervention, Acadia Center recommends that the Trust outline in its next Triennial Plan how it would meet the goals of the Climate Action Plan, while clearly noting the potential reality of a funding gap.

Weatherization enables more heat pumps for the same price. Acadia Center expects that well over half of Maine’s housing units could benefit from some kind of weatherization upgrade: 96% of units were built before the state adopted a statewide building energy code in 2008, and more than 40% were built before any state had adopted a building energy code. Even at the pace suggested in the Climate Action Plan, it would take nearly 40 years to provide weatherization services to just the oldest homes in the state.¹³



Yet weatherization is an important enabler of building electrification, in addition to being a cost-effective efficiency upgrade in its own right. Acadia Center analysis shows that program-supported insulation and air sealing has the potential to reduce a home’s heating load by up to two tons, which, for whole-home heat pump

configurations, could reduce installation costs by thousands of dollars in a given home. The potential for weatherization to act as a cost-containment strategy for Maine’s ambitious building electrification goals is an important factor for the Trust—and the state—to consider.

Currently, the maximum incentive for weatherization measures in gas-fired homes is greater than the maximum incentive for other homes: \$6,400 for gas homes compared to \$3,400 for others. Offering the higher incentive for any home that chooses to weatherize and install heat pumps within the same year could help to ensure that any extra weatherization funding results in this cost-containment effect.

¹³ Among occupied housing units in Maine, 129,467 were built before 1940, which is 23% of all units. Many of these have been renovated in the years since, but many have not.

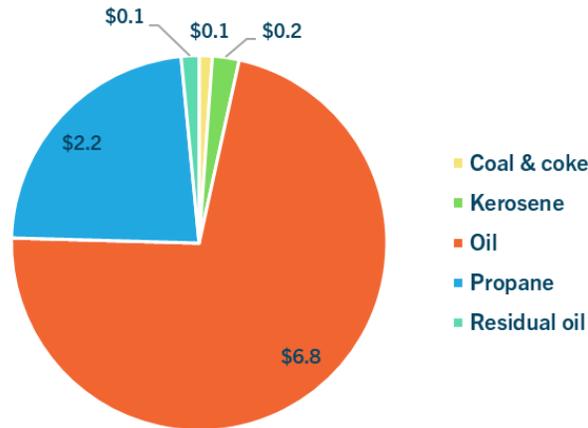
New funding sources. The Trust, acting alone, could not achieve a threefold increase in funding for HESP, and new sources of funding would require legislative approval. If it were approved by the Legislature, a new surcharge on delivered fuels could generate an amount of revenue commensurate with the weatherization target that the Trust has been asked to undertake. Acadia Center concurs with the recommendation from the Maine Climate Council’s Buildings, Infrastructure, and Housing Working Group pertaining to the adoption of a fuel-neutral funding mechanism. The Trust’s funding comes disproportionately from electric ratepayers, who contributed 61% of the Trust’s 2020-2022 Plan budget—68% in FY2022. This lack of diversity in funding sources hinders the Trust’s ability to meet the goals which the Legislature and Climate Council have set for it.

Seventy-two percent of occupied housing units in Maine use oil or propane for heat, yet only 19% of the HESP budget—the portion attributable to RGGI proceeds—can be used to weatherize these units. Acadia Center estimates that a conservation surcharge on delivered fuels, set at the same level as the current surcharge on natural gas,¹⁴ could generate more than \$9.4 million in the first year. This would cost an average oil-burning home in Maine around \$12 per year but could weatherize between 1,000 and 1,500 homes. A more aggressive surcharge of 50 cents per MMBTU, which would cost an oil-burning Maine home about \$40 per year, could generate \$30.6 million annually. This is enough to weatherize at least 3,200 additional homes each year—a number close to the Climate Action Plan’s target of 3,500.

¹⁴ Maine’s natural gas conservation charge is set at \$0.01487 per therm, which is equal to \$0.1542 per MMBTU. This would be the equivalent of 2.1 cents per gallon of heating oil or 1.4 cents per gallon of propane.

Figure 2: Potential Revenue from a Delivered Fuels Surcharge in Maine

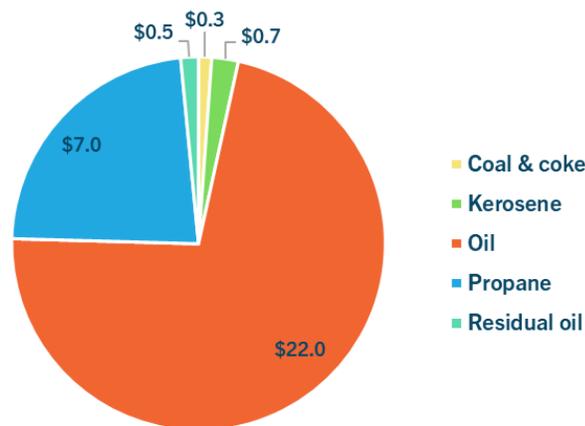
\$MM/Year at Level of Current Gas Charge*
15.4¢ per MMBTU or 2.1¢ per Gallon Heating Oil



Source: EIA (SEDS)

* Total potential = \$9,426,750 per year

\$MM/Year at 50¢ per MMBTU*
Equal to 6.9¢ per Gallon of Heating Oil



Source: EIA (SEDS)

* Total potential = \$30,566,258 per year

Conclusion

Energy efficiency is the cornerstone of effective state energy policy. State energy efficiency programs that are well-funded and provide the right mix of investment in residential, business, and industrial improvements are very successful at reducing both energy costs and consumption. An added benefit of a strong efficiency program is the increasing number of companies in the industry and the jobs they create and maintain. Acadia Center looks forward to working with the Trust to ensure the Triennial Plan V builds on the solid programs already in place and fulfills the goals and targets in the Maine Climate Action Plan.

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