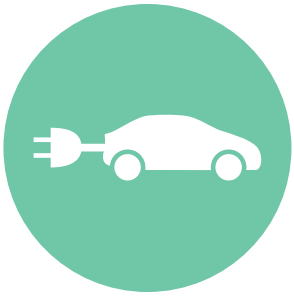
Acadia Center

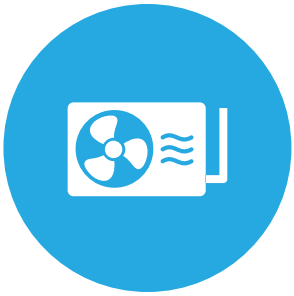
ACEEE
American Council for an Energy-Efficient Economy

Advancing Energy Efficiency in Maine

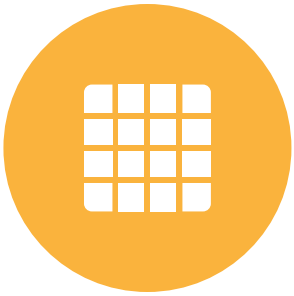
Introduction



Maine has charted an ambitious path on climate action in the past year. In 2019, Maine made major strides toward cultivating a clean and efficient economy, passing landmark legislation that will transition the state to 100% renewable energy, increase distributed generation deployment, and create a comprehensive process for engaging Mainers in work to address climate change.



Energy efficiency – the cleanest and least-cost energy resource – is a key tool for helping achieve the state's ambitious goals. Saving energy spurs economic development, improves public health, promotes innovation, and saves businesses and residents money. Energy efficiency is a powerful tool for helping reduce energy bills in rural and low-income households, where energy burdens are highest, and it is an important job creator, offering opportunities for the local workforce.



Clean energy is a rapidly expanding sector of Maine's economy, and energy efficiency makes up the bulk of these jobs. More than 8,600 Mainers work in energy efficiency today, constructing energy-efficient buildings, installing equipment and insulation, and providing the financing tools residents and businesses need to invest in efficiency projects.[1] Investments in efficiency support small business; about half of all businesses providing energy efficiency services employ 1-5 people. About a third of these jobs are in rural areas, providing important economic opportunities to those living outside of Maine's cities.

More work remains to be done to maximize the benefits of energy efficiency in Maine. By addressing key opportunities and adopting or revising policies, Maine can ensure a smoother, more affordable transition to a clean energy future.

Summary of Recommendations

SUPPORT EFFICIENCY MAINE TRUST PROGRAMS TO REACH CLEAN ENERGY GOALS

- Set energy savings targets to fully capture a broader definition of all cost-effective energy efficiency and increase investment accordingly
- Remove barriers to ensure program benefits reach underserved households and businesses
- Maximize program focus on beneficial electrification, specifically in oil-heated buildings
- Update cost effectiveness testing to include broader quantification of benefits

MODERNIZE CODES AND STANDARDS

- Update and expand enforcement of building energy codes, and establish state-specific appliance standards

UNDERTAKE REGULATORY REFORM FOR A CLEAN, RESILIENT GRID

- Update the enabling statues for the Public Utility Commission (and possibly other state agencies) to align with state climate policy and take into account the long-term costs and benefits of climate policy

SUPPORT EFFICIENCY MAINE TRUST PROGRAMS TO REACH CLEAN ENERGY GOALS

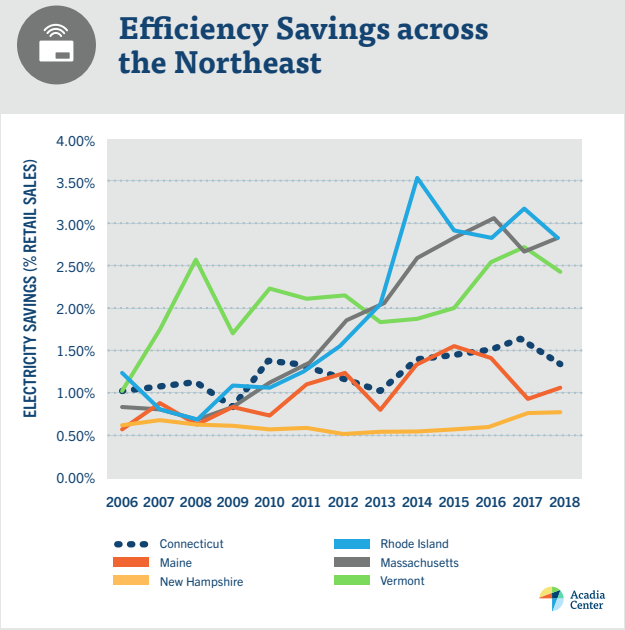
Energy efficiency programs operated by Efficiency Maine Trust are a critical component of the state's ambitious clean energy goals. The 2009 Efficiency Maine Trust Act requires the Trust to capture all cost-effective energy efficiency, but savings in recent years dropped noticeably as the Trust's budget was chipped away. As a result, states like Massachusetts and Rhode Island, which have similar policies regarding all cost-effective energy efficiency but where the statutory language has been backed up with sufficient funding, are achieving electricity savings more than twice those of Maine (see chart below). In 2018, savings in Maine increased somewhat, and passage of LD 1757 (ch. 313, Acts of 2019) should empower the Trust to build up funding levels and capture additional achievable efficiency. Maine should seize the opportunity to increase the savings goals and resources it needs to capture the maximum cost-effective efficiency in the state.

The Trust has a long and successful track record of delivering the efficiency programs that Maine's residents and businesses need to keep energy costs down, but it must be funded to fully capture all cost-effective energy savings. Policymakers should ensure that Efficiency Maine Trust is able to capture all cost-effective energy savings in the state by securing sufficient funding to meet those targets, designing programs that capture comprehensive savings, and increasing program impacts by targeting communities with the greatest need. Acadia Center has estimated that just one year of full investment in electric efficiency would give a substantial boost to Maine's economy.

BENEFITS FOR MAINE FOR ACHIEVING ALL COST-EFFECTIVE ENERGY EFFICIENCY

Higher efficiency savings targets and increased investment in energy efficiency would unlock immediate economic, consumer, and public health benefits in Maine:

- $306 million in economic growth from increased efficiency services, upgrades, renovations, and retrofits provided to thousands of residents and businesses
- $259 million in important consumer and energy system benefits, such as customer bill savings, water savings, less strain on the energy grid, and reduced pollution compliance costs
- Approximately 3,626 jobs, primarily in Maine's building performance industry, but also jobs created by new household and business spending



RECOMMENDATIONS

1. **Ensure program funding is sufficient to capture all cost-effective opportunities.** The mandate to capture all cost-effective energy efficiency provides additional opportunity to expand Efficiency Maine Trust programs and capture additional cost-effective energy savings. One measure is the level of savings being achieved. Maine can look to its neighbors for examples of ambitious but achievable energy savings goals. Rhode Island's 2018-2020 targets average about 2.5% electricity savings, and Vermont, which has demographics similar to Maine's, is targeting about 2.4% electricity savings each year. In Massachusetts, targets for 2019-2021 are equivalent to electricity savings of about 2.7% per year. Massachusetts has also introduced a specific target for active demand management and summer and winter peak savings to target the cost-driving factor of peak demand. Under the more aggressive carbon reduction scenario in Acadia Center's EnergyVision 2030 analysis, Maine should aim to achieve at least 2.7% annual electric savings through 2030.[2]

2. **Ensure program benefits are reaching all customer segments.** Efficiency Maine Trust also has an important role to play in ensuring the benefits of energy efficiency accrue to all residents and businesses, especially those with the greatest need. The Trust should be supported in expanding access to traditionally underserved markets, including low-income residents, middle-income homeowners and renters, and small businesses, and should be encouraged to spend the budgetary carve-out for low-income and small business customers. Because a large portion of Maine residents live and work in rural areas that have limited access to energy efficiency programs, the Trust should identify ways to improve program uptake in these areas. For example, the Trust could increase incentives for projects in rural areas that have been identified by an objective set of criteria as having challenging economic conditions.

   Additionally, a large portion of Maine's potential energy savings remains untapped because the state's largest energy consumers – large industry and businesses – can opt out of the Trust's programs. While Efficiency Maine Trust offers some services to these customers using funds collected from the Regional Greenhouse Gas Initiative (RGGI), the total amount available through RGGI has shrunk in recent years because of legislation

that diverted funding from the Trust. As a result, many of Maine's largest energy consumers, including the reviving papermaking industry, do not participate in programs that would both increase their competitiveness and reduce their emissions. Maine should seek to reverse the opt-out provision, or as a fallback measure, consider developing a framework that encourages these customers to self-direct an equivalent amount of funding toward efficiency projects that they identify.

3. **Expand funding for electrification of oil-fueled buildings.** States in the region – like Massachusetts and Rhode Island – have begun to expand their energy efficiency programs to capture additional efficiency benefits. For example, these states are looking beyond resource-specific savings toward a fuel-neutral approach to minimize energy usage and maximize carbon savings.[3] Maine has much to gain from adopting a similar strategy, expanding weatherization and heat pump conversion by embedding them in the energy efficiency programs, which will assist Maine residents and businesses with reducing their energy burden from costly fuel oil while also reducing greenhouse gas emissions.

   Recent advances in performance and cost reductions for heat pumps, as well as expansions to the Trust's charge to include beneficial electrification, can further Maine's efforts to electrify its buildings. LD 1766 (ch. 306, Acts of 2019), signed into law by Governor Janet Mills, sets a target to install 100,000 new high-performance air source heat pumps by 2025. Maine is a leader in the region in converting to modern electric heat pumps that offer highly efficient performance and zero on-site emissions,[4] but the state's building sector, which includes some of the oldest homes in the nation, still relies heavily on fossil fuels for its heating needs. Nearly two-thirds of households use home heating oil as their primary energy source.[5] Achieving large-scale electrification of these oil-heated buildings will require substantial additional funding, and the delivered fuel industry should be part of supporting the transition to cleaner fuels. With continued emphasis and investment, Maine can maintain its leadership role in claiming the economic and emissions benefits of high-efficiency electric heat pumps and ensure that consumers reduce their energy burden.

4. **Continue to improve the cost effectiveness test.** A comprehensive, balanced test for assessing the cost and benefits of energy efficiency programs can further optimize Efficiency Maine Trust's programs. LD 1757 takes a step in the right direction by clarifying the role of the Trust in calculating the avoided energy costs used to determine "maximum achievable cost-effective energy efficiency." In addition to capturing energy-related benefits in the form of avoided costs, cost-effectiveness tests should also include non-resource benefits that align with state policy goals, like reduced emissions and improved public health. Rhode Island recently updated its cost-effectiveness test to better align with key policy priorities. The state's new "Rhode Island Test," which builds on the standard Total Resource Cost test, adds economic development and environmental benefits to more fully reflect the state's policy objectives. For instance, Rhode Island's 2019 Annual Plan incorporated a nitrogen oxides (NOx) benefit and an increased reliability benefit for the first time.[6] A similar process could serve Maine well as it seeks to maximize the impact of the Trust's programs.

MODERNIZE MAINE'S BUILDING ENERGY CODES AND APPLIANCE STANDARDS

Advanced building energy codes that are regularly updated to reflect new technologies and design strategies are the most cost-effective way to achieve energy savings and ensure that new buildings are built well and equipped with the most advanced energy- and cost-saving equipment. Strong codes also contribute to the equitable distribution of the economic benefits of energy efficiency, including to sectors that may face barriers to participating in other types of efficiency programs, like low-income households. Advanced building energy codes accelerate market adoption

of leading building practices. Buildings in Maine are used and occupied for decades, if not hundreds of years. Advanced codes ensure that future generations will be able to share the benefits of more-resilient and -efficient construction practices.

RECOMMENDATIONS

1. **Provide financial and technical support to small communities newly enforcing an enhanced state building energy code.** Maine has a single, statewide building and energy code, the Maine Uniform Building Energy Code (MUBEC). Although the building code was updated by legislation in 2019, the energy requirements of the code remain equivalent to 2009 international codes. Maine should move closer to the modern international codes adopted by neighboring states.[7] Even after the 2019 updates, municipalities with fewer than 4,000 residents are not required to enforce the state codes, leaving rural and small-town residents without the assurance that their buildings will be built to the same standards as their urban counterparts. Getting buildings ready for a clean energy future means ensuring that all new construction in Maine meets up-to-date building energy codes and that all areas are treated equally in achieving that goal. One straightforward path is to require all communities to comply with and enforce the code. Because small communities have not previously been required to enforce the MUBEC, the state should provide financial and technical assistance, possibly including a pool of code enforcement professionals, to support small towns.

2. **Allow communities to adopt more-stringent code.** Maine should establish legislation that allows communities to voluntarily adopt and enforce a "stretch code" that sets energy savings requirements above and beyond the statewide mandatory base code. Stretch codes can be designed to deliver maximum energy savings, encouraging net-zero or net-zero-ready construction practices that enable the adoption of distributed renewable generation and electric vehicle infrastructure. Many Maine communities and residents from Portland to Bar Harbor have expressed interest in adopting building codes stronger than the state's code. Communities that wish to lead by example should be able to do so. Massachusetts was the first state to adopt a stretch code in 2008 as part of the Green Communities Act. As of October 2019, 276 of the 351 communities in that state had adopted the stretch code. An analysis found that Massachusetts homeowners see a positive cash flow when purchasing a home built to 2015 stretch code requirements compared to homes built to base code requirements, meaning that by adopting stretch codes, municipalities are delivering immediate energy savings to residents.[8]

3. **Implement state-level appliance standards.** Although the federal government plays a major role in developing standards for appliances and equipment, states have historically led the way and, when federal activity slows, surged ahead with more aggressive standards. Most often California has been the first state to set a standard for a given product, and in 2019, Washington, Colorado, and Hawaii also adopted state-level standards for a variety of appliances. According to the Appliance Standards Awareness Project, adopting a suite of state-level appliance standards could save Maine's residents and businesses $450 million between 2020 and 2035. An analysis estimates that the average Maine household would see annual utility bill savings of $48 by 2025 and $89 by 2035.[9] The same study estimates that every dollar invested in implementing the standards would deliver more than $8 in benefits. In 2019, LD 1750 was introduced, proposing energy and water standards for 16 categories of appliances. The bill was carried over to the next legislative session. In addition to pushing this legislation forward, Maine should consider streamlining appliance standards updates in the future by authorizing the Department of Environmental Protection to establish standards that are determined to be cost-effective for products not specifically incorporated into legislation.[10]

REGULATORY REFORMS ARE NEEDED TO ACHIEVE A CLEAN AND RESILIENT GRID

Maine has made substantive strides in addressing climate mitigation through legislative and executive action. However, the agencies charged with advancing these climate goals are often hampered by their out-of-date and misaligned enabling laws. In general, state agencies' enabling statutes are silent on climate change or give only weak prioritization to climate in agency decisions compared to more conventional priorities such as minimizing immediate costs. Such climate-blind regulatory frameworks limit the scope of state agency decision making in carbon-intensive sectors such as electric and gas utilities, transportation, and buildings and land use, and they often serve as a barrier to strong climate progress. To reorient agency actions to align with state goals, the state should update the missions of key state agencies to place societal costs and benefits, including emissions reductions, at the center of decision making. Regulatory processes could then act as a permanent screen against investments that contribute to climate change and its enormous longer-term costs.

For example, Maine's Public Utilities Commission (MPUC) is charged with ensuring "safe, reasonable and adequate service, to assist in minimizing the cost of energy available to the State's consumers and to ensure that the rates of public utilities subject to rate regulation are just and reasonable to customers and public utilities." The clause regarding minimizing the cost of energy was added in 2013 amid outcry about a new natural gas pipeline, marking the first time the PUC charter was amended in more than 100 years. As written, the charter mandates that the PUC prioritize the immediate rate impacts and a company's opportunity to earn a fair return, rather than the full suite of costs and benefits related to energy over a longer time horizon.

A view that considers only the short-term rate impacts misses the potential future costs of energy investments that lean heavily on fossil fuels. These costs will accrue to utilities and ratepayers in the form of more-expensive grid-hardening expenses and storm recovery from increasingly common extreme weather, and to all Mainers in the form of costs of disaster response and recovery. Maine's enabling statutes do not appropriately account for these continued impacts and are misaligned with the state's push for dramatic emission reductions.

These statutes are overdue for reform. Specifically, Maine should update its PUC enabling statutes to clarify the PUC's responsibility to regulate in alignment with state policy goals – with minimizing climate impacts as a mandate and considering the full costs of energy investments in all decisions. This would allow utility regulators to make decisions that support greenhouse gas reduction and consider climate change impacts, and that appropriately value health impacts, job creation, improved reliability, and other quantifiable costs and benefits. This screen could minimize long-term costs to ratepayers from climate and other impacts that now fall outside the scope of the PUC's prime responsibility in "minimizing the cost of energy." Implementation of this principle would require expansion of Maine's cost-benefit test to utilize a consistent set of total costs and benefits, including those borne or received by society, the environment, or consumers as described above. This can ensure that PUC decisions continue to benefit today's customers, but not at the expense of future customers.

> **While this recommendation focuses on the Public Utilities Commission, the principle of empowering state agencies to consider the full slate of societal costs and benefits could apply to all regulatory agencies. In its recently enacted "Climate Leadership and Community Protection Act," New York State required all relevant state agencies to incorporate the social cost of carbon into their decision making frameworks.**

CONCLUSION

Energy efficiency is a cornerstone of effective state energy policy. Energy efficiency programs that set high goals, are well-funded, and provide for investment in residential, commercial, and industrial improvements are successful at reducing both energy costs and consumption while reducing greenhouse gas emissions. This is particularly important relatively rural state with one of the nation's oldest aging populations and a median income below the national and regional levels. This roadmap provides policymakers with a clear and robust menu of options to take care of its most vulnerable populations while creating and maintaining more energy-efficient homes and businesses to mitigate the harmful impacts of climate change.

Contact:

Acadia Center
Jeff Marks
Senior Policy Advocate & Maine Director
p. 207-236-6470 x304
jmarks@acadiacenter.org

ACEEE
Maxine Chikumbo
Associate, Communications Program
p. 202- 507-4292
aceee.org/about/aceee-staff/maxine-chikumbo

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02 See p.2 https://2030.acadiacenter.org/wp-content/uploads/2017/05/Acadia-Center-EnergyVision-2030-Accelerated-Scenario.pdf

03 https://aceee.org/sites/default/files/publications/researchreports/u1905.pdf

04 https://2030.acadiacenter.org/wp-content/uploads/2018/02/Acadia-Center_EnergyVision2030_ME-Target-Summary_20180131.pdf

05 See Energy Information Administration fuel data for 2016.

06 See Attachment 4 in Rhode Island's 2019 Annual Energy Efficiency Plan for description of the Rhode Island Test: http://www.ripuc.org/eventsactions/docket/4888-NGrid-EEPP2019(10-15-18).pdf

07 Vermont, Massachusetts, and Connecticut have adopted the 2015 International Energy Conservation Code (IECC). The 2015 IECC code is expected to go into effect in Rhode Island beginning in the fall of 2019. See https://www.energycodes.gov/adoption/states.

08 https://www.mass.gov/info-details/building-energy-code

09 https://appliance-standards.org/sites/default/files/States%20Go%20First.pdf

10 https://appliance-standards.org/sites/default/files/2019_Model_Bill_ASAP_Jan_24_2018.pdf

acadiacenter.org • info@acadiacenter.org
8 Summer Street, Rockport, Maine 04856 • 860-246-7121, ext. 204

Boston, MA 617-742-0054 • **Hartford, CT** 860-246-7121 • **New York, NY** 212-256-1535
Providence, RI 401-276-0600 • **Rockport, ME** 207-236-6470

Acadia Center