Energy Audit Report

Homeowner(s): Lance

Address: 62 Passamaquoddy Road, 04667

Auditors: NA

Contact: mdicommunityenergy@coa.edu, (802) 266-0301

Date: May 5 2025

We conducted an energy assessment of your home on NA. This report will tell you what we did, what we found, and what we suggest for your home. These suggestions include information on incentives and financing to make improvements more affordable.



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## 1 Summary of your Audit

### 1.1 Visual Inspection and Measurements

We started with a tour and visual inspection of the inside and outside of the home. We identified any visible damage to the building, moisture control strategies, major appliances, and insulation. We measured square footage and volume of the home, as well as the area of all exterior windows and doors. We used a kill-a-watt meter to measure the electricity use of some appliances. During your audit, we used a carbon monoxide meter to measure the ambient carbon monoxide levels throughout the home.

### 1.2 Attic

We entered the attic to check for insulation, air sealing, ventilation, and potential hazards such as mold. Additionally, we visually inspected the attic ventilation and any duct and pipework passing through the attic.

### 1.3 Basement

We visually inspected any appliances in the basement and noted insulation levels, moisture, rodents, and any other concerns.

### 1.4 Blower Door / Air Leakage Test

A blower door test measures the air tightness of a building. We used a specialized fan in an exterior door to generate negative pressure inside your house. The resulting pressure difference between the inside and outside of the house allows us to measure air leakage. To locate the leaks, we used an infrared camera to check for unusually hot and cold spots. We also checked the pressure differences of the rooms to help determine major air leak locations.

### 1.5 Combustion Appliance Safety

We assessed combustion appliances that burn fossil fuels such as propane, heating oil, or kerosene. These include furnaces, boilers, water heaters, and gas ovens. We visually inspected the combustion appliance(s) in your home, but we were unable to perform combustion safety tests. We also performed gas leak detection tests on your propane appliance(s).

## 2 Summary of Recommendations

We recommend the following upgrades for your home. Detailed information about these recommendations and financial resources can be found in other sections of this report. These are organized from the least expensive/most cost-effective and easiest interventions to ones that are more challenging to implement.

| Recommendations | Description |
| --- | --- |
| Furnace/Boiler Tune-up | Have the furnace/boiler and flue inspected and adjusted by a licensed professional. This should be available from your fuel delivery company. |
| WindowDressers | WindowDressers insulating window inserts help air-seal windows and reduce heat loss and gain. |
| Gutters | Install gutters and downspouts that divert water at least six feet away from the foundation and to where the ground slopes away from the house. |
| Pipe Insulation | Insulate both hot and cold water pipes that are uninsulated in the basement/crawlspace. This will save energy and prevent condensation. |
| Heat Pump Water Heater | Install a heat pump water heater to provide your hot water for cooking and bathing. This is the most efficient way to heat water and will save hundreds of dollars a year compared to electric resistance, heating oil, or propane hot water. It will also help to dehumidify while it's running. If your current water heater burns oil or propane, this will also remove a source of combustion gases from your home. |
| Attic Air Sealing and Insulation | Air seal the attic and insulate it to at least R-60 (18” of loose-fill cellulose insulation). |
| Air Source Heat Pump | Install air source heat pumps and whole-house surge protection. |
| Electrical Panel Upgrade | Consult with an electrician about replacing your existing electrical panel with a 200 amp panel as you add electrical appliances to your home. |
| Whole-House Surge Protection | Upgrade your electrical panel to add whole-house surge protection. |
| Replace Windows | Replace single-paned windows with double- or triple-paned windows and ensure the frames are airsealed. We recommend installing windows that are Energy Star certified for 'Northern' climate. |
| Replace Doors | Replace uninsulated exterior doors and ensure new doors are insulated and properly weatherstripped. We recommend installing doors that are Energy Star certified for 'Northern' climate. |
| Vapor Barrier | Install a vapor barrier on the basement floor to stop moisture from entering the basement and house. |
| Spray Foam Basement/Crawlspace Walls | Install spray foam on the basement/crawlspace walls to prevent moisture infiltration and reduce heat loss. |
| Continuous Exterior Wall Insulation | Add a continuous layer of insulation and potentially replace the air and moisture barrier once it becomes time to replace the siding. |

## 3 What We Found

### 3.1 Basics

|  |  |
| --- | --- |
| Date Built | NA |
| Attic | NA , NA inches |
| Number of floors | NA |
| Square footage of conditioned space | NA |
| Volume of conditioned space (cubic feet) | NA |
| Ambient Carbon Monoxide reading (ppm) | NA |

### 3.2 Exterior

|  |  |
| --- | --- |
| Roof age: | NA |
| Orientation: | NA |
| Roof type: | NAin NAcondition. NA |
| Moisture control: | Current moisture control strategies: NA. These were in NA condition .NA |
| Siding: | NA in NA condition. NA |
| Exterior doors: | There are no exterior doors |
| Exterior windows: | There are no exterior windows |

### 3.3 Interior/Living space

|  |  |
| --- | --- |
| Walls: | NAThere is NA insulation NA inches thick in NA condition. NA |
| Living room: | NA |
| Bathroom(s): | NA |
| Kitchen: | NA used NA kWh in NA minutes. NA used NA kWh in NA minutes. NA |

### 3.4 Blower Door / Air Leakage Test

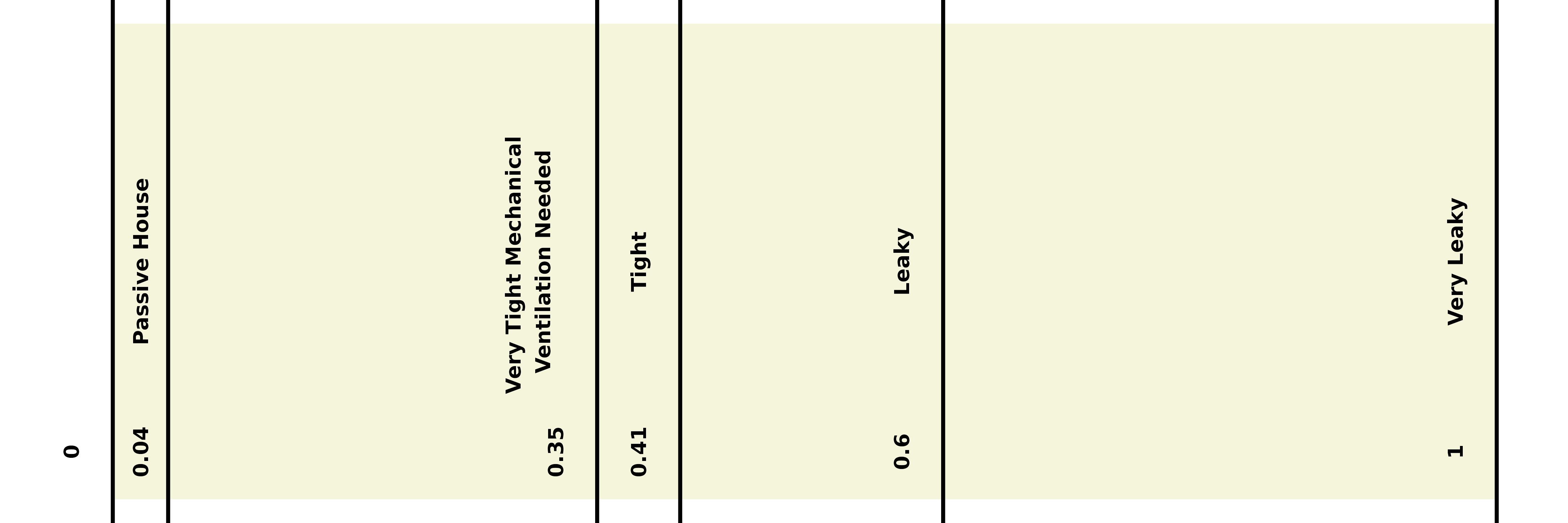
A blower door test simulates a 20mph wind hitting your house from all sides.

To run the test, we used a large fan in an exterior door to depressurize your house. As air is pulled out through the fan, an equal volume of air is pulled in through all of the gaps, cracks, and air leaks throughout the house. This allows us to determine the volume of air leakage into the house and to locate bigger air leaks.

To find leaks, we used an infrared camera to check for unusually hot and cold spots. We also checked the pressure differences of the rooms to help determine major air leak locations.

Air leaks are a big source of heat gain in warm weather and heat loss in cold weather. They also allow moisture to get into the home. Below are some numbers, pictures, and descriptions explaining what we found.

|  |  |  |
| --- | --- | --- |
| CFM50: | NA | CFM50 describes how many cubic feet per minute of air are leaving the house at 50 pascals of pressure difference (while the blower door is running). For every cubic foot of air that leaves the house, a cubic foot of air enters the house as well. The higher the number, the leakier the house. |
| ACH50: | NA | ACH50 tells us how many air changes per hour are taking place in the house at 50 pascals of pressure difference. This value is normalized for the volume of the house and thus allows for comparison between different houses. The higher the number, the leakier the house. |
| Equivalent leakage area: | NA under natural conditions. TEST | This is the area (in square inches) equivalent to all of the air leaks in the house combined. |
| ACHnatural: | NA | Accounting for the volume of the home, this means that the house exchanges –% of its air every hour. Over one day, the house goes through – complete air changes. |



Using a thermal imaging camera, we looked for major air leakage locations and thermal bridging, where heat is bypassing the insulation. There was evidence of ….

### 3.5 Attic

|  |  |
| --- | --- |
| Area (sq ft): | NA |
| Insulation type: | NA |
| Insulation condition: | NA |
| Air sealing: | There is NAair sealing. NA |
| Other observations: | NA NA NA |
| Ventilation: | NA |
| Ducts: | NA |

### 3.6 Basement

|  |  |
| --- | --- |
| Area (sq ft): | NA |
| Inuslation type: | NA |
| Insulation condition: | NANA |
| Insulation of appliances: | NA |
| Moisture Control: | NAin NAcondition. NA |
| Ducts: | NANA |
| Other observations: | There is NANA |

### 3.7 Electrical and Mechanical Systems

|  |  |
| --- | --- |
| Electrical panel: | The electrical panel has and amperage of NA. There are NA unused breaker spaces. NA |

### 3.8 Energy Bills

| Type | kWh/gallons/cords/tonns | Type2 | Cost (USD) |
| --- | --- | --- | --- |

## 4 Recommendations

These recommendations are organized from the least expensive/most cost-effective and easiest interventions to ones that are more challenging to implement.

### 4.1 Furnace/Boiler Tune up

*Problem*

**Auditor to describe**

*Recommendation*

Have the furnace/boiler and flue inspected and adjusted by a licensed professional. This should be available from your fuel delivery company.

*Estimated Cost/Benefits/Incentives*

Test 1 A tune-up can improve the efficiency of your furnace/boiler, confirm that it is exhausting properly, and identify areas of concern before they become urgent. If you have a service contract with your fuel delivery company, an annual tune-up is usually included.

### 4.2 Window Dressers

*Problem*

Your windows are a source of heat loss, reduce your comfort due to cold surface temperatures, and may also cause moisture condensation or frost in the winter.

*Recommendation*

WindowDressers insulating window inserts help air-seal windows and reduce heat loss and gain. *Estimated Cost/Benefits/Incentives*

Insulating window inserts save 5-10% of your heating costs at less than 1/10th the cost of replacement windows. The overall project cost will depend on the number and size of window inserts. Example prices for the 2024 season were: small (20 x 36”) - $36 for natural pine frame, $46 for white; medium (30 x 52”) - $50 for natural pine frame, $64 for white; large (44 x 68”) - $67 for natural pine frame, $88 for white. Adjusted pricing for lower-income households is available from WindowDressers upon request. If plastic is damaged, it can be replaced for $15.

Households that order inserts are expected to participate in the Community Build where the inserts are made. You can sign up for a 4-hour shift and learn the simple steps in the insert-building process (no previous experience required, no power tools). Each job has “jigs” that make the job easier to do and ensure uniform quality. You will be trained at the beginning of your shift on how to do your task. Volunteering for multiple shifts is encouraged! Mid-shift snacks and a meal are provided to all participants.

If you would like to participate, please contact us so we can discuss how the program works and which windows you’d like inserts for.

### 4.3 Heat Pump Water Heater

*Problem*

**Auditor to describe depending on what their current system is**

*Recommendation*

Install a heat pump water heater to provide your hot water for cooking and bathing. This is the most efficient way to heat water and will save hundreds of dollars a year compared to electric resistance, heating oil, or propane hot water. It will also help to dehumidify while it’s running. If your current water heater burns oil or propane, this will also remove a source of combustion gases from your home.

*Estimated Cost/Benefits/Incentives*

A heat pump water heater uses 70% less electricity than a standard electric water heater. Efficiency Maine offers a rebate of up to $950, making the equipment cost as little as $400 plus installation. The rebate can be combined with a nonrefundable federal tax credit of 30% of the remaining cost of the unit and labor, subject to an annual maximum benefit of $2,000 (shared with other energy property, like heat pumps). For more information, you can call Efficiency Maine at 866-376-2463 (Monday to Friday, 8:00 am to 5:00 pm) or visit their website: https://www.efficiencymaine.com/at-home/heat-pump-water-heater-program/

### 4.4 Gutters

*Problem*

The house has no gutters, so water runs off your roof and directly onto the ground next to your house. Water that splashes off the ground can damage the exterior of your house. Runoff that is absorbed into the ground can seep into the basement/crawlspace, causing moisture issues there and throughout your house.

*Recommendation*

Install gutters and downspouts that divert water at least six feet away from the foundation and to where the ground slopes away from the house.

*Estimated Cost/Benefits/Incentives*

Adding gutters would mitigate moisture damage and save you from having to replace/fix other parts of the house.

### 4.5 Vapor Barrier

*Problem*

There is excess moisture in the basement/crawlspace, which is evaporating out of the ground. This moisture can enter the house and cause mold, mildew, rot, and air quality issues.

*Recommendation*

Install a vapor barrier on the basement floor to stop moisture from entering the basement and house.

*Estimated Cost/Benefits/Incentives*

Efficiency Maine rebates will cover vapor barriers up to 25% of a weatherization project cost, if done as part of a larger insulation project. Most insulation companies can install spray foam and vapor barriers together. Efficiency Maine rebates and other incentives for insulation work can fund up to 80% of the overall cost to weatherize your home (subject to a lifetime limit per building), up to $9,200 when combined with nonrefundable federal tax credits. You can call them at 866-376-2463 (Monday to Friday, 8:00 am to 5:00 pm) or visit their webpage about insulation rebates: https://www.efficiencymaine.com/at-home/insulation-rebates/

### 4.6 Spray foam Basement Walls

*Problem*

The basement/crawlspace is uninsulated and used for mechanical equipment and plumbing. The walls are porous and allow moisture into the house and rapidly conduct heat out of the space.

*Recommendation*

Install spray foam on the basement/crawlspace walls to prevent moisture infiltration and reduce heat loss.

*Estimated Cost/Benefits/Incentives*

Installation of spray foam insulation will cost around $5-7 per square foot. Efficiency Maine rebates and other incentives for insulation work can fund up to 80% of the project cost (subject to a lifetime limit per building), up to $9,200 when combined with nonrefundable federal tax credits. You can call them at 866-376-2463 (Monday to Friday, 8:00 am to 5:00 pm) or visit their webpage about insulation rebates: https://www.efficiencymaine.com/at-home/insulation-rebates/

### 4.7 Attic Insulation and Air Sealing

*Problem*

The attic is uninsulated or is missing insulation and the attic could also benefit from air-sealing. These upgrades will reduce draftiness and heat loss in the winter and heat gain in the summer.

*Recommendation*

Air seal the attic and insulate it to at least R-60 (18” of loose-fill cellulose insulation).

*Estimated Cost/Benefits/Incentives*

Efficiency Maine rebates and other incentives for insulation work can fund up to 80% of the overall cost to weatherize your home (subject to a lifetime limit per building), up to $9,200 when combined with nonrefundable federal tax credits. You can call them at 866-376-2463 (Monday to Friday, 8:00 am to 5:00 pm) or visit their webpage about insulation rebates: https://www.efficiencymaine.com/at-home/insulation-rebates/

### 4.8 Continuous exterior wall insulation

*Problem*

There isn’t continuous insulation between the siding and the exterior walls of the house. Continuous insulation helps create a complete thermal boundary for your house, and it is now an energy code requirement for new houses.

*Recommendation*

Add a continuous layer of insulation and potentially replace the air and moisture barrier once it becomes time to replace the siding.

*Estimated Cost/Benefits/Incentives*

Efficiency Maine rebates and other incentives for insulation work can fund up to 80% of the overall cost to weatherize your home (subject to a lifetime limit per building), up to $9,200 when combined with nonrefundable federal tax credits. You can call them at 866-376-2463 (Monday to Friday, 8:00 am to 5:00 pm) or visit their webpage about insulation rebates: https://www.efficiencymaine.com/at-home/insulation-rebates/

### 4.9 Electrical Panel Upgrade

*Problem*

**Auditor to describe**

*Recommendation*

Consult with an electrician about replacing your existing electrical panel with a 200 amp panel as you add electrical appliances to your home.

*Estimated Cost/Benefits/Incentives*

Costs of electrical components needed to support residential energy upgrades – including panels, sub-panels, branch circuits, and feeders – qualify for a 30% nonrefundable tax credit (up to $600 per item) if they have a capacity of 200 amps or more. An electrical panel upgrades also provides a good opportunity for an electrician to install whole-house surge protection, which costs $100-$400. Here are some options: https://www.popularmechanics.com/home/interior-projects/g43140886/best-whole-house-surge-protectors/

### 4.10 Air Source Heat Pump

*Problem*

Combustion heating equipment is expensive, inefficient, and has the potential to release harmful combustion gases like carbon monoxide into the home.

*Recommendation*

Install air source heat pumps and whole-house surge protection.

*Estimated Cost/Benefits/Incentives*

Efficiency Maine rebates can fund $1,000 to $3,000 per unit up to a lifetime limit per housing unit for $3,000 to $9,000 (depending on income level) to install heat pumps. The rebate can be combined with a nonrefundable federal tax credit of 30% of the remaining cost of the unit and labor, subject to an annual maximum benefit of $2,000 (shared with other energy property, like a heat pump water heater). You can call Efficiency Maine at 866-376-2463 (Monday to Friday, 8:00 am to 5:00 pm) or visit their website: https://www.efficiencymaine.com/at-home/residential-heat-pump-incentives/

### 4.11 Pipe Insulation

*Problem*

Uninsulated water pipes are responsible for heat loss and excess moisture (from condensation) in your basement/crawlspace.

*Recommendation*

Insulate both hot and cold water pipes that are uninsulated in the basement/crawlspace. This will save energy and prevent condensation.

*Estimated Cost/Benefits/Incentives*

Insulating water pipes can save 2%-4% on hot water bills and increase the temperature of the water while reducing the time it takes for hot water to reach your tap. Materials cost around $100-200, depending on the length of pipe to insulate. Many people find this to be an easy project to do themselves.

### 4.12 Whole House Surge Protection

*Problem*

Your house does not have whole-house surge protection. This will protect your large electrical appliances from damage in the case of an electrical surge. Heat pumps, heat pump water heaters, and other electronics are particularly sensitive to electrical surges.

*Recommendation*

Seal easy-to-access air leaks and weatherstrip exterior doors. *Estimated Cost/Benefits/Incentives*

The device costs $100-$400 and needs to be installed by an electrician. Here are some options: https://www.popularmechanics.com/home/interior-projects/g43140886/best-whole-house-surge-protectors/

### 4.13 Replace Windows

*Problem*

**Need to get the description of the problem**

*Recommendation*

Replace single-paned windows with double- or triple-paned windows and ensure the frames are airsealed. We recommend installing windows that are Energy Star certified for ‘Northern’ climate.*Estimated Costs/Benefits/Incentives*

New windows are eligible for a nonrefundable federal tax credit of 30% of the cost of the window units up to $600, subject to an annual maximum benefit of $1,200 (shared with other home envelope improvements, like attic and basement insulation).

### 4.14 Replace Doors

*Problem*

**Need to get the description of the problem**

*Recommendation*

Replace uninsulated exterior doors and ensure new doors are insulated and properly weatherstripped. We recommend installing doors that are Energy Star certified for ‘Northern’ climate.*Estimated Costs/Benefits/Incentives*

New doors are eligible for a nonrefundable federal tax credit of 30% of the cost of the door units up to $250 per door and $500 total, subject to an annual maximum benefit of $1,200 (shared with other home envelope improvements, like attic and basement insulation).

## 5 Additional Resources

Many home efficiency upgrades are eligible for Efficiency Maine rebates and federal tax credits. Financial incentives vary based on income level and type of occupancy. An overview of all state rebates and federal tax credits can be found here: https://www.efficiencymaine.com/at-home/

You can search for Efficiency Maine registered contractors here: https://www.efficiencymaine.com/at-home/vendor-locator/

We recommend discussing a whole-home plan for insulation and air sealing work in the basement, walls, and attic with contractors to determine how to best sequence the work to take full advantage of the Efficiency Maine rebates (which are subject to lifetime maximums) and nonrefundable federal tax credits (which are subject to annual maximums).

Efficiency Maine also offers home energy loans to help homeowners who are Maine residents pay for energy and related health and safety upgrades. There are no fees and interest rates for multi-year loans are between 5.99% (max $7,500) and 7.99% (max $25,000), depending on income level. Low- and moderate-income homeowners who borrow the full $7,500 and pay it back over 10 years will pay a monthly cost of $83. There is also a 1-year, 0% APR option. To learn more or apply, call 866-376-2463 or visit https://www.efficiencymaine.com/home-energy-loans/

Our Maine Energy Upgrade Program team is willing and able to help you sort out the details of incentives and recommend contractors who have done quality work. As part of our program, we are coordinating with homeowners and contractors to bundle multiple projects to reduce costs. To qualify for our program, homes must install either a heat pump or heat pump water heater in addition to any other improvements.