

DRAFT



TOWN OF MOUNT DESERT

CLIMATE ACTION PLAN

FEBRUARY, 2022

ACKNOWLEDGEMENTS

This climate action plan would not have been possible without the dedication of town residents, selectboard, and staff.

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THANK YOU!



DECLARATION OF

CLIMATE EMERGENCY

In May 2021, the Town of Mount Desert passed a declaration of climate emergency and emergency mobilization effort to restore a safe climate. Through the declaration, the town committed to reduce town-wide greenhouse gas emissions as much as possible by 2030 and to **“prioritize zero-carbon solutions for local electricity, heating, and transportation systems with the goal of a zero-emission, energy-independent Mount Desert Island as quickly as possible and no later than December 31, 2030.”** The declaration also included a directive to collaboratively plan the Town's climate response for implementation and integration into the Town's comprehensive plan.

The Mount Desert Climate Action Plan is intended to provide an actionable pathway towards the goal of a zero emission and energy independent Mount Desert Island by 2030, as resolved in the Climate Emergency Declaration.

GOALS

- 1** Based on Town greenhouse gas inventory, establish an ambitious goal for true carbon reductions by 2030 that exceeds the global timeline for maintaining warming below 1.5°C with a high degree of confidence. Ideally, the town will set a goal of true zero carbon emissions by 2030.
- 2** Review true-zero goal annually and set a more ambitious target whenever possible due to developments in technology, other solutions, and funding, with the objective of ultimately mapping a pathway to zero town-wide emissions.
- 3** In the case that a true zero carbon goal is unattainable by 2030, the town will offset remaining emissions through transparent investment in meaningful carbon sequestration projects to reach net negative emissions by 2030 while actively planning and working towards true zero emissions as soon as possible.

While the Mount Desert Climate Action Plan focuses heavily on municipal infrastructure, it also highlights numerous ways in which the Town can encourage and support residents in transitioning to a clean energy future. This support for a town wide transition is essential if the Declaration of Climate Emergency's emphasis on town wide emissions reduction is to be met.

The Urgency of Ambitious Emissions Targets

The urgency of addressing climate change has never been greater. In 2018, the UN released a special report on the devastating impacts of surpassing 1.5 °C global warming. Staying under this threshold will require rapid reduction in global emissions before 2030.

The amount of carbon dioxide in the atmosphere is at its highest concentration in at least 2 million years.

Humans have warmed the climate at a rate unprecedented in 2,000 years or more.

The need for action is urgent; as emissions reductions are delayed, it becomes increasingly likely that global temperatures exceed 1.5° C.

We are currently on a trajectory for as much as 4.4° C temperature rise this century. Global warming will surpass the 1.5° C and 2° C targets this century unless deep reductions in greenhouse gas emissions occur. Reaching net zero carbon dioxide emissions globally will be required to stabilize warming. **Global leadership has not yet risen to this challenge; even if countries meet their Paris Agreement pledges, global warming would still exceed 1.5° C.**

Every ton of CO₂ emissions adds to global warming and each additional amount of warming causes larger impacts. Globally, changes to extreme temperatures, heavy precipitation, and drought will be larger in frequency and intensity with each additional increment of warming. **Because impacts get worse with each additional ton of CO₂ emitted, every ton of CO₂ emissions that can be prevented matters.**

This stark reality illustrates that stabilizing warming will require leadership from all levels of society and government. Small communities across the globe are rising to this unprecedented challenge by setting ambitious greenhouse gas reduction goals. The Town of Mount Desert will meet the urgency of this moment by setting ambitious goals for true emissions reduction by 2030.

EVERY BIT OF WARMING MATTERS.

EVERY YEAR MATTERS.

EVERY CHOICE MATTERS.

Through setting and acting towards ambitious, science-based goals, local communities demonstrate the action needed on a global scale and create scalable models, further contributing to needed solutions.



ECONOMIC IMPACT

As the town considers the economic impact of local climate action, two major considerations emerge, the costs and savings associated with climate actions, and the cost of inaction. These areas are explored below. Estimated costs for implementing each action are included in the Implementation Guide.

We can save money in the long term by strategically planning our transition to highly efficient, fossil fuel-free buildings and vehicles. The world in 2030 will look significantly different than it does today; for example electric vehicles are expected to make up over 50% of US car sales by 2030.¹ By developing a strategic plan, the Town can prepare for these changes and rapidly reduce emissions in a cost-effective manner.

Many climate actions are expected to save the Town and community members money in the long-term by improving efficiency and reducing the need to purchase energy. However, cleaner alternatives such as electric vehicles or heat pumps tend to have a higher upfront purchasing cost. Because the long-term savings of high efficiency, fossil fuel free alternatives are not accounted for in their upfront costs, it is critical to consider full lifetime cost and savings in purchasing decisions.

A low carbon economy is rapidly evolving. The availability of affordable clean energy, electric vehicles and other low carbon technologies has increased dramatically in the last several years. This shift will likely continue and make climate actions increasingly economical. The Town will continue to monitor rapidly evolving technologies and grant opportunities to meet emerging opportunities.

We often think about how much actions will cost us today. However, **inaction bears its own cost.** Some of the costs of inaction on climate change are already apparent, such as increased flooding and drought, heat, severe storms, and loss of livelihoods due to warming seas.

Some costs of climate inaction are less quantifiable. Water shortages, drought, and inundation of island nations elsewhere could drive mass migration, conflict, and increases in food prices.

Flooding is a clear example. In Maine, it's estimated that one-foot of sea level rise will lead to a 15-fold increase in the frequency of nuisance flooding and would change the probability of "100- year storm" floods to occur once every 10 years.² By 2100, 3-5 ft of sea level rise is likely.³ These changes could dramatically increase the frequency and severity of local flooding, causing costly damage to coastal infrastructure and property.

The cascading effects of these global trends could be felt locally, but are difficult to predict or quantify. However, an overall decline in human health and wellbeing is expected under high warming scenarios. In ["Worlds Apart,"](#) the IPCC's depiction of possible climate futures, in 2100 a world with unstabilized warming would be "no longer recognizable, with decreasing life expectancy, reduced outdoor labour productivity, and lower quality of life in many regions because of too frequent heatwaves and other climate extremes."

PROCESS OVERVIEW

The Climate Action Plan is being developed in two phases.

PHASE I

Outlines a strategic approach and detailed strategies for the next 2-3 years. Provides a framework for future actions. Based on best available information.

PHASE II

Updates plan to incorporate a greenhouse gas inventory. Sets specific emissions reduction goals by 2030. Reassesses top priorities based on greenhouse gas inventory findings. Hones in on actions for 2025-2030.



PATHWAY TO ZERO & ACTION AREAS

The Town of Mount Desert will strategically reduce greenhouse gas emissions by prioritizing high-impact greenhouse gas reduction strategies. This pathway will be further refined with data from the greenhouse gas inventory (to be completed in 2022-2023). In the meantime, statewide trends point to the greatest opportunities to reduce local emissions. **Statewide, the two leading sources of carbon dioxide emissions in Maine are the Transportation and Residential sectors.** Reducing carbon emissions from these sectors will be vital in the Town of Mount Desert. However, in order to reduce emissions as much as possible by 2030, the Town plan includes action in additional areas as well.

1

GREENHOUSE GAS INVENTORY

A greenhouse gas inventory shows the quantity and sources of greenhouse gasses produced in a community or organization. While we have data on statewide trends, a greenhouse gas inventory will allow the Town to understand what local activities are emitting the most greenhouse gases and choose the most effective strategies to reduce emissions over time. If for example, the inventory shows that most emissions are coming from transportation, the community could focus their efforts on transportation. An inventory also provides a baseline or starting point, from which the Town can set specific emissions reduction goals and monitor progress over time. This allows for a clearer understanding of how the Town is progressing towards its goals and greater transparency.

ACTION ITEMS 2022-2023

- Conduct a community-wide greenhouse gas inventory to refine future climate action strategies and monitor progress over time



Addressing climate change will require transitioning the two highest emitting sectors, vehicles and buildings, from fossil fuels to electricity.

Beneficial electrification will significantly increase electricity use; estimates indicate that electrification could double or triple Maine's electricity load.⁴ As we shift energy use from fossil fuels to electricity, however, it is critical to ensure that electricity is generated through 100% clean, renewable resources like solar and wind power. The technology trends enabling **decentralization, digitalization, and decarbonization** will simultaneously transform the way the electricity grid operates. Managing these transitions will require a careful, multi-faceted approach.

Unlike most commodities, electricity cannot yet be stored in any great amount. So, historically, the electricity grid has been managed by a centralized utility balancing instantaneous demand (or "load") by adjusting supply – throttling power plants up or down moment-by-moment.

What's Beneficial Electrification?

"Beneficial Electrification" refers to replacing fossil fueled end-uses (such as propane and fuel oil furnaces or gasoline and diesel vehicles) with electric alternatives (such as heat pumps and electric vehicles) in a way that accomplishes one or more of the following without adversely affecting the other two:

- (1) saves consumers money over the long run,
- (2) enables better grid management; and
- (3) reduces negative environmental impacts.

Because, clean energy resources like solar and wind are inherently variable, managing the grid in the future will require balancing instantaneous renewable supply by adjusting demand. Fortunately, trends that are already well underway will enable us to accomplish this transformation. They include distributed energy resources, demand flexibility, energy storage, and digitalization.

Distributed Energy Resources (DERs) provide electricity at or near where it is used. Examples include small-scale solar, wind, or battery storage. DERs reduce the need for and cost of transmission and avoid line losses over long transmission distances; 5% of electricity is lost during transmission and distribution nationally.⁵ Local energy resources can also improve electric reliability, especially within microgrid systems that are capable of sustaining some or all electricity supply during grid outages. Clean, local DERs will be key in supplying 100% clean energy for the Town by 2030.

Demand Flexibility, the ability to shift the time of electricity use, is an important tool to reduce peak electricity demand and shift electricity use to times of day when clean electricity from solar and wind is abundant. In essence, demand flexibility helps keep electricity demand and supply in balance. Electric vehicle chargers, water heaters, and heat pumps are just some examples of devices

"Demand flexibility uses communication and control technology to shift electricity use across hours of the day while delivering end-use services (e.g., air conditioning, domestic hot water, electric vehicle charging) at the same or better quality but lower cost." - Rocky Mountain Institute

Electric vehicle chargers, water heaters, and heat pumps are just some examples of devices that can be managed to meet customer needs using cheap, clean electricity from solar and wind. Demand flexibility is expected to reduce costs to the electricity system and increase clean energy supply.⁶ Demand flexibility can also reduce electricity prices for individual consumers, by shifting energy use to low-price times.

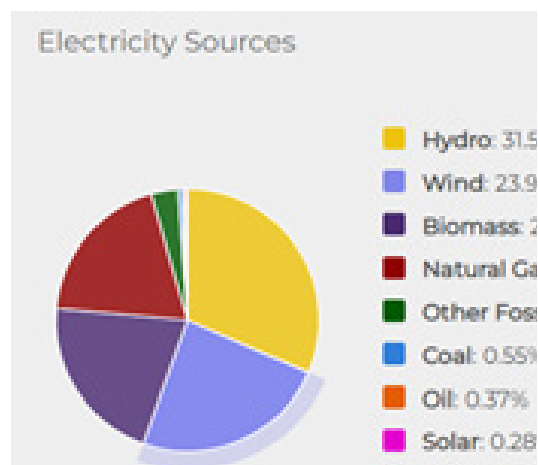
Demand flexibility will play a pivotal role in managing increased electricity demand and variable electricity production from clean sources.

Energy Storage supports the transition to clean electricity by facilitating the integration of solar and wind resources into the grid, reducing electricity costs, and improving reliability.⁷ Energy storage, typically batteries, can store electricity for later use. For example, a home with battery storage paired with a solar array can store excess electricity for use after sunset. At the grid level, energy storage can help mitigate peak energy demand by supplying electricity back to the grid during peak times. By reducing peak demand, energy storage can reduce the need to invest in costly additional electricity generation and transmission facilities as more energy end-uses are electrified. As a result, energy storage can lower costs for ratepayers, improve grid reliability, and boost the grid's ability to accept more clean, renewable electric generation..

Digitalization of grid sensors, management, and control systems enables the above three trends to integrate into a reliable, resilient electricity system. One of the best examples of this, being implemented today, is microgrids. Microgrids are self-sufficient electricity systems that operate cleanly and cost-effectively day-to-day, and can continue to operate locally even when disconnected from the grid by extreme weather or other events. Modern microgrids are typically at the campus or community scale, and include clean renewable electric generation and battery storage.

These capabilities are possible due to advancements in digital communications and control of the electricity grid. As the grid becomes “smarter” – even at a local community level – it can coordinate distributed energy resources and demand flexibility to provide clean, affordable, reliable, and resilient energy for its customers.

Currently, 79% of Maine's net electricity generation comes from renewable energy.⁸ The combustion of fossil fuels for electricity generation accounted for 7% of the state's CO₂ emissions in 2017.⁹ The State's goal is to produce 80% of its electricity through renewable generation by 2030 and 100% by renewables by 2050.¹⁰ To reach local goals, the Town of Mount Desert will move more quickly than the State and continue to push Maine to set more ambitious targets.



Together, distributed energy resources, demand flexibility, energy storage, and digitalization will enable Mount Desert to successfully transition to 100% clean electricity sources.

PATH TO ZERO

Greenhouse gas emissions reduction in energy will take place through:

- Development of local renewable energy supply resources and storage
- Demand flexibility
- Procurement of renewable energy for any demand that cannot be supplied locally

GOALS

- Achieve 100% clean energy for Town operations, with preference for locally generated, municipally owned clean energy, by 2030.
- Support interested residents in procuring 100% clean energy by 2030.
- Support the development of and accessibility of locally generated clean energy with ownership options for local citizens.
- Improve demand flexibility.

ACTION ITEMS 2022-2023

- Site and construct new Town buildings to enable and include solar arrays (or at least be solar-ready) and consider installing solar whenever roof replacements occur for existing buildings.
- Identify and prioritize near-term solar sites, conduct feasibility study for solar array(s), and develop RFP to be released in FY 2023-2024.
- Adopt one or more clean energy ordinance(s) that allow, enable, and encourage community-appropriate renewable energy, energy storage, microgrid, and related installations.
- Support the development of locally generated solar and energy storage that is accessible to all Mount Desert residents, including small businesses, nonprofits, and low-to-moderate income homeowners.
- Advocate for state policies and regional actions needed to support a transition to 100% renewable energy on Mount Desert Island.

ACTION ITEMS 2023-2024

- Advocate for state policies and regional actions needed to support a transition to 100% renewable energy on Mount Desert Island.

ACTION ITEMS 2024-2025

- Determine total capacity for locally generated, town-owned clean energy production and develop a plan for installations, with the goal of providing 100% of the Town's needs through clean energy.
- Explore opportunities to pilot an electricity demand flexibility program.



2 BUILDINGS

THE FUTURE OF OUR BUILDINGS

It is clear that rapidly reducing greenhouse gas emissions will require transitioning existing buildings to high efficiency heating and cooling, and building net zero energy new buildings. Essential to achieving the town's emissions goal is building electrification - transitioning building energy use from fossil fuels to electricity.

Currently, buildings are a significant contributor to climate change, accounting for 30% of greenhouse gas emissions in Maine.¹¹

This is largely due to petroleum consumption, which accounts for 95% of the carbon dioxide emissions from the residential sector.¹² Fuel oil is the primary source of home heating in 60% of Maine households, followed by propane.

As more and more of the State's electricity is generated by renewables, it becomes increasingly important to switch home energy use to electric.

In addition to reducing greenhouse gas emissions, transitioning to high efficiency electric heat pump technologies reduce operating costs and increase comfort. Electrification of space and water heating is generally cost effective, *even in cold climates*, for existing homes that are switching from propane and heating oil (the primary fuels used in Maine households).¹³ For new construction, electrification of space and water heating is generally expected to reduce homeowner costs over the lifetime of the appliances, as compared to fossil fuel heat sources.¹⁴

Currently, heat pumps provide the greatest potential for electric space and water heating. Heat pumps, which can be used for both heating and cooling, are extremely efficient. Heat pumps are typically the lowest cost option for new construction homes, because they can be used for both heat heating and air conditioning.¹⁵

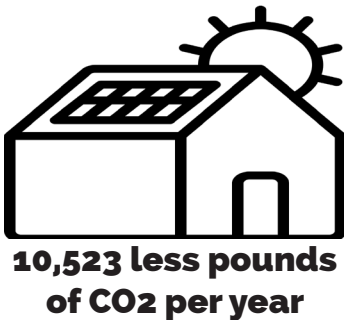
Heat pump water heaters, for instance, are 2-3 times more efficient than traditional electric resistance water heaters. The average Maine home would **save \$280 a year** by using a heat pump water heater as compared to a propane boiler.¹⁶

NEW CONSTRUCTION

New construction is the most cost-effective opportunity to reduce building carbon emissions. It is a lost opportunity when high-efficiency best practices are not employed at the time of new construction, because retrofits are much more difficult and expensive.

¹⁷

NET ZERO HOME



Net Zero Energy Homes

Net zero energy homes are highly efficient and meet their energy use through on or off site power generation.

New net zero single family homes have been found to be cost effective for this climate zone in Maine.¹⁸ As compared to the 2009 energy code, a net zero energy home in Bangor would reduce about 10,523 pounds of CO2 per year.¹⁹

EXISTING BUILDINGS

Educating community members about the benefits of weatherizing and electrifying existing buildings, and providing support and resources to do so, will be essential in reaching the town's climate goals. Education will be critical in preparing community members to take advantage of opportunities to weatherize their homes and replace old furnaces, gas stoves, and appliances with more efficient electric alternatives.

Weatherization can save home owners money while reducing energy use. Even for existing homes in cold climates, electrification of space and water heating is generally cost effective, when switching from propane and heating oil (the primary fuels used in Maine households).²⁰ In addition to energy costs and greenhouse gas emissions, transitioning from fossil fuel appliances like gas stoves, also make homes healthier. Studies have shown that gas stoves can emit pollutants, like nitrogen dioxide, to levels that exceed air quality standards.²¹

Path to Zero

Greenhouse gas emissions reduction in buildings will take place through:

- Electrification of heating, cooling, hot water, and appliances in existing buildings
- Development of highly efficient net zero new buildings
- Clean energy supply
- Energy efficiency upgrades and weatherization
- Leading by example through town buildings

Goals

- Construct new town buildings to be net zero, starting in 2022-23
- Install electric heat pumps or variable refrigerant systems, and heat pump water heaters, in all town buildings by 2030
- Encourage and support highly efficient or net zero new construction for businesses and residences
- Support and encourage electrification, weatherization, and efficiency upgrades for existing homes and businesses



ACTION ITEMS 2022-2023

- Construct new municipal buildings and major renovations to be net zero and EV ready.
- Adopt energy efficient “stretch” building code (currently IECC 2021).
- Transition heating and cooling in Town buildings to electric technologies including heat pumps, VFR systems, geothermal, and heat pump water heaters. All new purchases should be electric, with the goal of fully transitioning town buildings by 2030.
- Explore low carbon alternatives for backup power.
- Support existing residential homes and businesses in their transition from fossil fuel heating, cooling, and appliances.
- Enable PACE and C-PACE programs to support clean energy and efficiency projects.
- Conduct energy audits, and evaluate opportunities for deep energy efficiency retrofits, efficiency measures, electrification, and building envelope weatherization improvements, with the goal of transitioning existing town buildings towards all electric and net zero energy over time. Collaborate with the local school district for school building improvements as well.
- Encourage and incentivize fossil fuel free new construction and use of zero and low-carbon heating, cooling, and appliances.

ACTION ITEMS 2023-2024

- Help renters, homeowners, and businesses understand and reduce their energy use.

4 | TRANSPORTATION

THE FUTURE OF OUR TRANSPORTATION

Transportation is the sector responsible for the greatest amount of carbon dioxide emissions in Maine, making up 54% of the state's emissions²².

The State of Maine has identified transitioning cars to electric vehicles (EVs) as the most important, and technologically viable, strategy for reducing emissions from transportation.²³

Currently, a light-duty electric vehicle in Maine produces 92% less emissions than a gasoline-powered car.²⁴

Greenhouse gas emissions from EVs will continue to decline as Maine's electricity supply transitions to fully renewable resources.

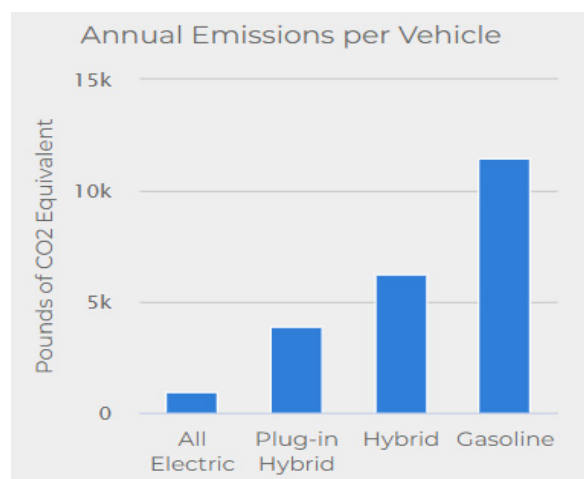
Electric vehicles today are well equipped to meet daily use needs. Rural residents in Maine drive an average of 30 miles a day, well within the 200-300 mile range of many electric vehicles on the market today.²⁵ Charging has also significantly improved, with fast chargers providing 80% charge in 20-30 minutes.



92% LESS CO₂ EMISSIONS

EVs are becoming increasingly economical and the average EV owner saves money over time due to lower fuel and maintenance costs.²⁸ **In fact, car owners can save as much as \$14,500 on fuel costs over 15 years by driving an electric vehicle rather than a comparable gas car.**²⁹

Transitioning to electric vehicles is a key part of ["Maine Won't Wait"](#), the State's climate action plan, which aims to put 219,000 light-duty EVs on Maine roads by 2030.



It is also well aligned with the Federal Government's goal that EVs make up 50% of new vehicle sales in 2030.²⁶

In addition to transitioning to electric vehicles, the State of Maine has identified reducing vehicle miles traveled and shifting trips traveled in personal cars, to alternatives such as bicycles, walking, and public transportation, as strategies to reduce emissions from transportation.²⁷

Path to Zero

Greenhouse gas emissions reduction in transportation will take place through:

- Electrification of town fleets
- Installing EV charging infrastructure
- Supporting the installation of chargers for businesses and residences
- Supporting and encouraging EV adoption by residents
- Developing clean energy supply for EV charging infrastructure
- Maximizing resilience of charging infrastructure through battery storage and solar

Goals

- Achieve 100% all-electric light-duty vehicles by 2030.
- To the greatest extent possible, replace medium and heavy-duty vehicles with all-electric by 2030.
- Ensure adequate charging infrastructure in public places to accommodate the use of electric vehicles by residents and visitors.
- Support EV adoption by Mount Desert residents and establish more specific goals for this adoption by 2025.
-

ACTION ITEMS 2022-2023

- All new Town vehicles (including boats) will be battery electric, unless no feasible electric option is available. Vehicle replacements will reflect the goal of a fully electrified fleet by 2030.
- Develop an electric vehicle charging plan to accommodate the town-wide community and visitor electric vehicle charging needs that will emerge in the next 10 years.
- Strategically plan and install charging stations to accommodate the electric vehicles that will be added to the town fleet in the next 10 years.
- Develop a permanent post-pandemic remote work policy and support employee carpooling.
- Adopt ordinances and simplify permitting to encourage EV charging infrastructure.
- Support a community-wide transition to electric vehicles.
- Begin tracking fuel consumption, miles traveled, and maintenance costs for Town vehicles.
- Evaluate the feasibility of a local incentive for electric vehicles.

ACTION ITEMS 2023-2024

- Evaluate the feasibility of a local incentive for electric vehicles.
- Collaborate with other island towns and Acadia National Park to develop strategies to engage visitors in MDI sustainability efforts and reduce emissions from tourism to the island.

MID TO LONG-TERM ACTIONS:

- Monitor funding for medium and heavy duty electric vehicle pilot programs (such as funding for dump trucks, snow plows, buses, etc.).
- Continue to monitor changes in technology and funding opportunities to stay ahead of the constantly evolving electric alternatives for medium and heavy-duty vehicles.
- Continue assessing vehicle use and maintenance cost to optimize the number of town-owned vehicles.
- Pass an anti-idling ordinance and provide education and enforcement.
- Pursue opportunities to install solar panels and/or energy storage with EV charging stations to improve resilience.
- Monitor emerging vehicle-to-grid technology and position the town to take advantage of technological advances.
- Coordinate with other island Towns to encourage the electrification of ferries that provide regional transportation.
- Consider opportunities to increase operational efficiencies within town departments and avoid unnecessary driving.
- Support the use of bikes and E-bikes for short trips within the town.
- Establish bike lanes or parallel routes for biking. (The road between Northeast Harbor and Seal Harbor is heavily used by bicycles and is probably the most dangerous stretch on the island.)

4 WASTE & WATER

Municipal Solid Waste landfills are the third largest source of methane emissions in the United States.

Methane is a potent greenhouse gas that traps 28-36 times more heat in the atmosphere over a 100-year period than carbon dioxide (CO₂).³⁰ Methane stays in the atmosphere less time than CO₂, but is much more effective at trapping heat in the short-term.³¹ *This makes methane a high impact contributor to near-term climate change, so reducing methane now can have an immediate benefit on climate change.*³²



Methane

28-36X
MORE HEAT IN THE
ATMOSPHERE THAN
CO₂

Food Waste

Much of the methane generated in landfills comes from food waste. **Food waste is the single largest category of landfilled material.**³³ This means that reducing food waste provides an enormous potential to reduce near term climate change. In the United States, 30-40% of food is wasted.³⁴ Much of this waste could be preventable. Donating excess food and composting will be two key strategies to divert food from the landfill.

Compost

Properly composting food significantly reduces methane emissions, as opposed to a landfill.³⁷ When applied to soil, it is a rich source of nutrients for plants and can eliminate the need to apply chemical fertilizers (which produce greenhouse gases and have other negative environmental impacts).³⁸

Wastewater

Wastewater treatment processes can produce direct emissions in the form of methane and nitrous oxide, and indirect emissions from the consumption of energy.³⁵ Determining the quantity of greenhouse gases produced by wastewater treatment in Mount Desert requires a thorough greenhouse gas inventory. Statewide, waste accounts for 2% of gross greenhouse gas emissions, this includes both waste and wastewater.³⁶

Path to Zero

Greenhouse gas emissions reduction in waste and waste will take place through:

- Composting
- Food waste diversion
- Recycling
- Renewable energy and energy efficiency for water and wastewater treatment facilities

Goals

- Reduce landfill waste from restaurants and businesses by encouraging food donations and composting.
- Increase residential composting.
- Improve the energy efficiency of water and wastewater facilities.
- Develop renewable energy to offset energy use at water and wastewater facilities.

ACTION ITEMS 2022-2023

- Pilot a composting program.
- Evaluate opportunities for enhanced energy efficiency at wastewater and water facilities.

ACTION ITEMS 2023-2024

- Encourage and support food waste diversion by local restaurants and grocery stores.
- Evaluate the feasibility of offering curbside recycling pick-up.
- Evaluate the feasibility of implementing a Pay-as-you-throw (PAYT) program.
- Assess wastewater treatment facilities for clean energy potential such as an anaerobic digester or solar. Consider opportunities to increase resilience through onsite power.
- Improve community recycling rates and proper disposal of refrigerants, such as air conditioners, refrigerators, freezers, etc.

7 SEQUESTRATION, NATURAL CARBON SOLUTIONS, AND OFFSETS

Natural ecosystems including forests, grasslands, and coastal habitats can store carbon from the atmosphere.³⁹ Measures to conserve and manage these ecosystems to improve carbon storage are called natural solutions. Meanwhile, deforestation and soil disturbance from agricultural practices can release carbon back into the atmosphere.

Carbon sequestration refers to the capture and storage of carbon dioxide from the atmosphere.

Worldwide, agricultural soils have already lost 50-70% of their original carbon.⁴⁰ Natural solutions are a vital component of addressing climate change; globally nearly a quarter of greenhouse gas emissions come from agriculture, forestry, and land use (mainly from agriculture and deforestation).

While agriculture is currently a significant source of global greenhouse gas emissions, improved agricultural practices can enhance the soil's ability to store carbon. Agricultural practices that build soil carbon are sometimes referred to as "carbon farming," a concept which has gained significant traction in California. Pursuing local carbon farming is one way that the town can improve carbon storage while supporting local food production.

Forests also play an important role, accounting for as much as 45% of carbon stored on land.⁴¹ This makes conserving forests an important climate strategy. Coastal ecosystems, including tidal salt marshes and seagrass meadows, also are significant carbon stores. Climate change makes preventing the destruction of these ecosystems more important than ever. In addition to improving carbon storage, intact ecosystems can also enhance resilience to climate change impacts, such as flooding.

All of the IPCC's pathways to limit warming to 1.5 °C rely on carbon dioxide removal to some extent.⁴² Increasing local carbon storage through natural solutions is one way that the town can contribute to the global effort to reduce atmospheric carbon. Even if the town reduces true carbon emissions to zero, natural solutions to sequester carbon should be pursued to reach net negative emissions.

In setting a goal for emissions reductions, the Town of Mount Desert will make every effort to set and achieve a real zero emissions goal (total reduction of emissions rather than offsetting continued emissions) by 2030. Where the Town meets limitations, it will make every effort to contribute to the structural shifts needed to make zero carbon targets more accessible, paving the way for other communities to do the same. However, it is also important to recognize that certain limitations exist beyond the Town's control. In the case that a true zero carbon goal is unattainable by 2030, the Town will transparently pursue meaningful offsets that more than compensate for the remaining emissions, effectively achieving a net negative goal, while also prioritizing shifting to a real zero goal as soon as possible after 2030.

Path to Impact

The Town of Mount Desert will:

- Invest in carbon sequestration and natural solutions
- Work with A Climate to Thrive and others to develop a set of meaningful offsets should the Town be unable to attain a goal of zero emissions by 2030 (see the Implementation Guide, pages 77-80 for more guidance on meaningful offsets).
- Develop programs to encourage local carbon sequestration and natural solutions, including through sustainable agricultural practices and the preservation of forests, tidal salt marshes, and seagrass meadows.
- Explore integrating local carbon sequestration and natural solutions into any offsets needed if the Town is unable to attain a goal of zero emissions by 2030.
- Develop a set of meaningful offsets should the Town need to use offsets to reach a net negative goal

ACTION ITEMS 2023-2024

- Map local potential for carbon sequestration and natural carbon solutions. Support realization of solutions through pilot programs.
- Develop a set of meaningful offsets should the Town be unable to reach a goal of zero emissions by 2030. Integrate local sequestration and natural carbon solution initiatives into these offsets if possible.

6 ADAPTATION & RESILIENCE

Maine is already experiencing the effects of climate change and will see increasing impacts over the next century.

Proactively planning for anticipated changes can save the town future losses and allow for smoother adaptation to unprecedented conditions and disruptions.

CLIMATE CHANGE IMPACTS ALREADY OCCURRING IN MAINE INCLUDE⁴³

- Sea levels in Maine have risen two times faster over the last century than during the past 5,000 years
- Annual average temperatures have risen by 3.2 F since 1895
- Annual precipitation has increased six inches since 1895
- Increased storm frequency and intensity
- Decreased thickness in winter ice

ANTICIPATED CLIMATE CHANGE IMPACTS IN MAINE⁴⁴

- Maine may warm an additional 2 to 4°F by 2050 and up to 10°F by 2100
- Likely sea level rise of 3-5 ft by 2100, depending on global emissions, with higher rise possible.
- Increased flooding; 1ft increase in sea level rise leads to a 15-fold increase in the frequency of "nuisance" flooding.
- Increased frequency and intensity of extreme precipitation events, coastal storms, and Nor'easters.
- More extreme heat, with 2 to 4 times as many extreme heat days by the 2050s.
- Extinction of species.
- Ocean acidification impacting New England Shellfisheries.
- Greater risk of coastal inundation and groundwater contamination from sea level rise.

PATH TO RESILIENCE

Adaptation to climate change will take place through:

- Assessing changing risks from climate change
- Taking actions to adapt

OBJECTIVES

- Understand the Town's vulnerabilities to climate change
- Identify actions to build resilience to anticipated and unforeseen changes
- New infrastructure is resilient to climate change impacts

ACTION ITEMS 2022-2023

- Assess town-wide climate change vulnerabilities and identify actions to improve resilience, for integration into the Town's Comprehensive Plan.
- Integrate future climate risk into consideration of all new capital improvement projects and the development of the annual budget.

7 GOVERNANCE

Governance strategies aim to mainstream climate action into the town's existing plans and processes.

Integrating climate action into existing town processes streamlines implementation, making more efficient use of budget, staff, and committee capacity. Applying a "climate lens" to decision-making and planning allows for a cost-effective transition and avoids decisions and projects that ultimately conflict with the town's climate action goals.

ACTION ITEMS 2022-2023

- Incorporate the cost of carbon emissions in financial decision-making and planning regarding new Town purchases and projects.
- Integrate community resilience and greenhouse gas emission reduction as pillars of future comprehensive plan updates.

8 COMMUNITY ENGAGEMENT

Community engagement will play a central role in successful implementation of this plan.

All community members should be aware of the town's climate action initiatives and understand how they can contribute to town-wide goals. Many of the actions in this plan, such as improving home efficiency and local solar generation, could save community members money. However, they will require transitioning to new technologies, such as heat pumps, electric vehicles, etc., that are less familiar to residents. Encouraging this transition community-wide, will require a strong educational effort to increase comfort with and acceptance of new technologies.

Special consideration should be given for reaching to low to moderate income households, the elderly, and vulnerable populations. Elderly populations may be less tuned in to online channels and require other forms of outreach such as mailed materials, door-to-door outreach, etc. Ensuring that solutions are accessible for low to moderate income households, and promoting available state and federal incentives, will also be key. Engaging with those who will be most vulnerable to anticipated changes will also be vital in developing strategies to prepare for the impacts of climate change.

To continue to engage the community, the town will:

- Hold educational events and listening sessions around the Climate Action Plan development, updates, and implementation
- Continue to share information about key topics including community greenhouse gas emissions and local climate solutions
- Share key successes with the community
- Update the community on implementation progress through the Annual Town Report
- Pursue funding and partnership opportunities to support local community engagement

MONITORING PROGRESS

This plan should be seen as a living document to be updated as new information becomes available. Being adaptable and keeping up with constantly evolving technology, data availability and best practices, will be essential in significantly reducing emissions in less than 8 years.

The Town of Mount Desert will include an annual progress update on climate action in the Annual Town Report. The progress update should include:

- a list of completed and initiated actions
- explanation if any actions are behind schedule
- Yearly performance on key metrics

The annual progress report will be an opportunity to assess progress towards the 2030 goal and identify what is working and where a change of approach is necessary. Annual progress updates are vital for keeping progress on track and ensuring transparency. Progress updates can also be encouraging for community members and sustain local self-efficacy and enthusiasm for climate action.

One staff person can be identified to lead the compilation of the annual progress, but the implementer of each action will be responsible for reporting their progress back to the lead.

Greenhouse gas inventory updates are another mechanism for monitoring progress over time. Inventory updates are an important check to ensure that actions are reducing emissions according to schedule. They are an important opportunity to right the course if progress is stalled or more aggressive action is needed. A timeline for inventory updates will be established after the first inventory is conducted in 2022-23. It's recommended that the first inventory update occurs no later than 2026 to assess interim progress towards the 2030 goal. It will be especially important that a greenhouse gas inventory is conducted in 2030 to ensure that all remaining, unavoidable emissions, are accounted for through offsets.

ROLES

Implementing the Climate Action Plan will require collaborative effort from a Climate Action Taskforce and town staff. Achieving town-wide carbon neutrality will require sustained engagement with the community, local businesses, and organizations.

TOWN ROLES

The Town will lead by example by pursuing zero emission municipal operations while supporting a community-wide transition from fossil fuels. Achieving ambitious real reduction of greenhouse gas emissions will require participation from town staff and committees. For each action, a staff position, committee, and/or department, is identified as the responsible party for implementation.

CLIMATE ACTION TASKFORCE

A Climate Action Task Force will support plan implementation, particularly in any initial phases before a Climate Action Coordinator is in place, and will provide a consistent channel of communication between the community and plan implementation. As this task is both distinct and requires a significantly greater commitment than the functioning of the Mount Desert Sustainability Committee and because the task will require specific knowledge and commitment, the Town will conduct an application period to fill positions on the Taskforce. The Climate Action Taskforce will be responsible for updating the Sustainability Committee on plan and implementation progress and with integrating suggestions from the Sustainability Committee whenever possible.

ISLAND WIDE COLLABORATION

Meeting the Declaration's goal of a "zero-emission, energy-independent Mount Desert Island," will require strong collaboration with other island towns, local organizations, businesses, and the greater island community. Emissions from tourism and seasonal visitors must also be collectively addressed with all island towns in collaboration with Acadia National Park to achieve a zero emission island. The town will collaborate with other island towns and Acadia National Park to create an island-wide task force focused on regional greenhouse gas emissions.



CLIMATE ACTION COORDINATOR

It is recommended that the town create a new Climate Action Coordinator position to coordinate the implementation of this plan and town sustainability initiatives. Having a dedicated staff person will increase town capacity to implement climate action projects. The position will coordinate with town staff, committees, community members, neighboring towns and local businesses and organizations. The position will build capacity for both Town and island-wide coordination, towards the goal of a zero emissions MDI.

SUSTAINABILITY COMMITTEE

The Mount Desert Sustainability Committee will continue with a mission and focus larger than the Town Climate Action Plan. The Committee will be on the lookout for intersection of efforts and pick specific plan elements to support in their larger work. The Sustainability Committee will stay updated on the planning process and implementation through biannual meetings with the Climate Action Taskforce.

COMMUNITY ROLES

Climate action is a community-based process. The Town's Climate Emergency Declaration was originally brought forward by the community and achieving the declaration's 2030 greenhouse gas reduction goals will only be possible with strong community-wide support.

The success of this plan will be dependent on community engagement and support. In most communities, government operations account for just a small portion of community-wide emissions, which largely come from the cumulative effects of private vehicles and buildings.¹ Transitioning town operations is an excellent way to lead by example, but community-wide participation will be absolutely essential in reaching the declaration's goals.

This plan aims to identify opportunities for the Town to support interested community members in transitioning to low carbon alternatives such as electric vehicles, heat pumps, and energy efficient homes. Much of this support will come in the form of education and outreach.

The community has played an active role in shaping the development of this plan and should continue to guide future plan updates. The community provided input for this plan through a community-wide listening session in January, 2022. Over fifty community members registered for this listening session. The initial community priorities gathered at the listening session are reflected in this plan. Future community engagement will further refine priorities for Phase II of the plan.

¹While this is a general trend, the exact breakdown of emissions sources in Mount Desert will be identified in the Greenhouse Gas inventory in Phase II.

ENDNOTES

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- 13 [https://rmi.org/insight/the-economics-of-electrifying-buildings/ \(This analysis was based on modeling for homes in Providence Rhode Island\).](https://rmi.org/insight/the-economics-of-electrifying-buildings/)
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- 16 [file:///C:/Users/naomi/OneDrive/Documents/RMI_Economics_of_Electrifying_Buildings_2018.pdf \(based on modeling in 4 communities across the country: Providence, RI; Chicago, IL; Houston, TX; and Oakland, CA\).](file:///C:/Users/naomi/OneDrive/Documents/RMI_Economics_of_Electrifying_Buildings_2018.pdf)
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