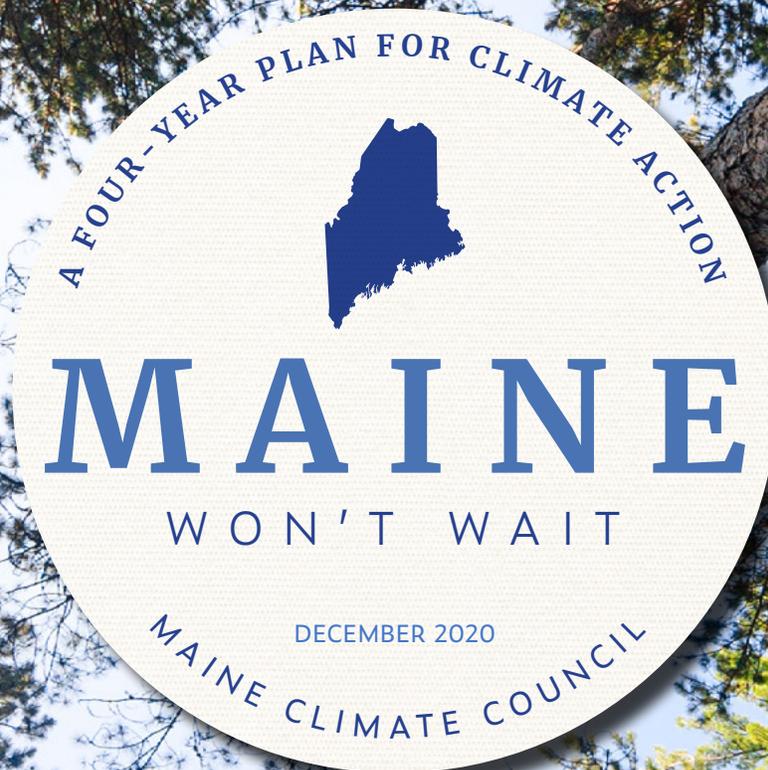


# EXECUTIVE SUMMARY



## EXECUTIVE SUMMARY

In June 2019, Governor Janet Mills signed LD 1679 into law, with strong support from the Maine Legislature, to create the Maine Climate Council. The Council — an assembly of scientists, industry leaders, bipartisan local and state officials, and engaged citizens — was charged with developing this four-year Climate Action Plan to put Maine on a trajectory to decrease greenhouse gas emissions by 45% by 2030 and 80% by 2050, and achieve carbon neutrality by 2045.

Starting in September of that year, the Council and six working groups and a subcommittee — totaling more than 200 Maine people with a diverse set of experiences and backgrounds — began this work. This four-year Climate Action Plan, *Maine Won't Wait*, is the consensus result of those months of painstaking study, dialogue, discussion, and public deliberation to determine the steps Maine must take to combat climate change.

Backed by the first comprehensive scientific and technical assessment about climate change in Maine in a decade, *Maine Won't Wait* outlines the urgency with which Maine must slow the effects of climate change to make a meaningful contribution to global efforts, while also taking bold action to prepare Maine people, communities, and environment for climate-related harms to come.

At the same time, *Maine Won't Wait* details how addressing climate change presents transformational economic opportunities, such as from the growth of clean-energy sources and incentives for significant consumer, business and industrial investment in energy efficiency through weatherization, cutting-edge building materials, and alternative energy sources. These considerations take on added importance given the economic disruption caused by COVID-19.

Staving off climate change also protects the character of Maine — the pristine forests, rugged coastlines, and local farms that depend on strong, healthy, and vibrant natural ecosystems. These important natural and working lands are most at risk from climate change, and yet their ability to store carbon is a powerful tool against the harmful effects of climate change.

The failure to act against the effects of climate change carries a great risk for Maine, as doing nothing will cause costly damage to Maine's buildings and infrastructure, vulnerable ecosystems, iconic species, and public health.

This is why Maine won't wait, and why hundreds of volunteers gave their time and talents to develop this Climate Action Plan, and countless more Maine people offered insights, opinions, and inspiration during the process to inform this set of strategies that truly represents a plan that is right for Maine.

# MAINE'S CLIMATE ACTION PLAN GOALS

## Reduce Maine's Greenhouse Gas Emissions

While Maine has been among the leading U.S. states when it comes to mitigating greenhouse gas emissions, significant progress must still be made to meet the state's 2030 and 2050 targets.

## Avoid the Impacts and Costs of Inaction

Maine must take action to ensure that our people, environment, economy, and society are more resilient to the impacts of climate change that are now occurring. While mitigating the causes of climate change and better preparing Maine for its impacts will require significant public and private investment, inaction will cost Maine substantially more, and those costs will accelerate over time.

## Foster Economic Opportunity and Prosperity

Today, as Maine charts the course for economic recovery, many of the proposed solutions in this Climate Action Plan can leverage Maine's strengths and reverse workforce trends by supporting good-paying jobs that attract new workers and families, growing the economy, protecting key economic sectors most at risk from climate change, and fostering innovation in new business sectors that will drive climate solutions.

## Advance Equity through Maine's Climate Response

Like other dislocations and disruptions to society, from recessions to pandemics, the costs of Maine's inaction on climate change will be acutely borne by vulnerable communities, which should be given foremost consideration for opportunities and support from climate action. A new Equity Subcommittee of the Maine Climate Council will support ongoing planning and implementation of Maine's climate strategies to ensure shared benefits across diverse populations of Maine people and to understand any concerns for implementation.





## STRATEGY A

### Embrace the Future of Transportation in Maine

Transportation is responsible for 54% of Maine’s annual greenhouse gas emissions. To meet our emissions-reductions goals by 2030 and 2050, our state must pivot to the future by pursuing aggressive transition strategies and innovative solutions within this important sector.

1

#### Accelerate Maine’s Transition to Electric Vehicles

- **Achieve emissions-reduction goals by putting 41,000 light-duty EVs on the road in Maine by 2025 and 219,000 by 2030.**
- **By 2022, develop a statewide EV Roadmap to identify necessary policies, programs, and regulatory changes needed to meet the state’s EV and transportation emissions-reduction goals.**
- **By 2022, create policies, incentives, and pilot programs to encourage the adoption of electric, hybrid, and alternative-fuel medium- and heavy-duty vehicles, public transportation, school buses, and ferries.**

2

#### Increase Fuel Efficiency and Alternative Fuels

- **Continue to support increased federal fuel-efficiency standards.**
- **Significantly increase, by 2024, freight industry participation in EPA’s SmartWay program.**
- **Increase, by 2024, local biofuel and biodiesel production and use in Maine transportation sectors, especially heavy-duty vehicles (assuming Maine biofuels production becomes viable).**
- **Establish a time-limited incentive program, targeted to low- and moderate-income drivers, to encourage drivers to upgrade to higher-efficiency vehicles in the near term.**

3

#### Reduce Vehicle Miles Traveled

- **Reduce light-duty VMT over time, achieving 10% reductions by 2025 and 20% by 2030.**
- **Reduce heavy-duty VMT by 4% by 2030.**
- **Deploy high-speed broadband to 95% of Maine homes by 2025 and 99% by 2030.**
- **By 2024, establish state coordination, strengthen land-use policies, and use state grant programs to encourage development that supports the reduction of VMT.**
- **Increase public transportation funding to the national median of \$5 per capita by 2024.**
- **Relaunch GO Maine to significantly increase shared public commuting options by 2022.**

## STRATEGY B

### Modernize Maine's Buildings: Energy-Efficient, Smart and Cost- Effective Homes and Businesses

Heating, cooling, and lighting of buildings are responsible for almost one-third of Maine's greenhouse gas emissions. Maine can reduce greenhouse gases by modernizing our buildings to use cleaner energy, increase energy efficiency, and utilize lower-carbon building materials.

1

#### Transition to Cleaner Heating and Cooling Systems, Efficient Appliances

- Install at least 100,000 new heat pumps in Maine by 2025, ensuring that by 2030, 130,000 homes are using between 1-2 heat pumps and an additional 115,000 homes are using a whole-home heat-pump system. Install at least 15,000 new heat pumps in income-eligible households by 2025.
- Implement Maine Appliance Standards requirements by 2022.

2

#### Accelerate Efficiency Improvements to Existing Buildings

- Double the current pace of home weatherization so that at least 17,500 additional homes and businesses are weatherized by 2025, including at least 1,000 low-income units per year.
- Weatherize at least 35,000 homes and businesses by 2030.



"My prize thing is my heat pump. It worked out well for us financially, as well as it stabilizes our home."

—Jim Fecondo, 86, Eagle Lake

3

#### Advance the Design and Construction of New Buildings

- By 2024, develop a long-term plan to phase in modern, energy-efficient building codes to reach net-zero carbon emissions for new construction in Maine by 2035.
- Enhance existing training on building codes and expand these programs to support ongoing education of contractors and code-enforcement officials.

4

#### Advance the Design and Promote Climate-Friendly Building Products

- Develop and enhance innovation support, incentives, building codes, and marketing programs to increase the use of efficient and climate-friendly Maine forest products, including mass timber and wood-fiber insulation.

5

#### "Lead by Example" in Publicly Funded Buildings

- Use procurement rules and coordinated planning efforts for state government to promote high-efficiency lighting, heating, and cooling; climate-friendly construction materials; and renewable energy use for reduced operating costs and emissions reductions. The state will produce a "Lead by Example" plan for state government by February 2021.
- Enhance grant and loan programs to support efficiency and renewable energy programs in municipal, tribal, school, and public-housing construction and improvements. Provide recognition programs for those projects making outstanding efforts.

6

### Renewable Fuels Standard

- Investigate options for establishing a Renewable Fuels Standard (RFS) for heating fuels.

7

### Replace Hydrofluorocarbons with Climate-Friendly Alternatives

- Adopt hydrofluorocarbons phase-down regulations in 2021 to be implemented by 2022.



## STRATEGY C

### Reduce Carbon Emissions in Maine’s Energy and Industrial Sectors through Clean-Energy Innovation

Sectors with high greenhouse gas emissions, such as transportation and heating, must shift their energy sources from fossil fuels to electricity and low-carbon fuels to achieve Maine’s climate goals. This makes it even more essential to produce and consume electricity that is increasingly clean and from lower-emission resources. This transition must be managed effectively to ensure affordability and reliability.

1

### Ensure Adequate Affordable Clean-Energy Supply

- Achieve by 2030 an electricity grid where 80% of Maine’s usage comes from renewable generation.
- Set achievable targets for cost-effective deployment of technologies such as offshore wind, distributed generation, and energy storage, and outline the policies, including opportunities for pilot initiatives, necessary to achieve these results.

2

### Initiate a Stakeholder Process to Transform Maine’s Electric Power Sector

- Establish a comprehensive stakeholder process in 2021 to examine the transformation of Maine’s electric sector and facilitate other recommendations of the Maine Climate Council.

3

### Accelerate Emissions Reductions of Industrial Uses and Processes

- Launch an Industrial Task Force to collaboratively partner with industry and stakeholders to consider innovations and incentives to manage industrial emissions through 2030 and reduce total emissions by 2050.

4

### Encourage Highly Efficient Combined Heat and Power Facilities

- Analyze policies, including the potential for long-term contracts, needed to advance new highly efficient combined heat and power production facilities that achieve significant net greenhouse gas reductions.



## STRATEGY D

### Grow Maine's Clean-Energy Economy and Protect Our Natural-Resource Industries

Climate change threatens vital natural-resource sectors of Maine's economy, like our forestry, farming, and fishing industries. Climate change will also impact community and economic infrastructure and leading economic sectors like tourism and hospitality — as sea levels rise and warming winters impact iconic Maine places and seasons.

Transitioning to cleaner energy generation and greater energy efficiency offers exciting new economic opportunity. Maine currently spends roughly \$4.4 billion annually on imported fossil fuels. Clean and renewable energy solutions can help keep those energy dollars in Maine, catalyzing a transformative economic impact, while significantly reducing emissions.

1

#### Take Advantage of New Market Opportunities

- **Support the ability of Maine's natural-resource economies to adapt to climate-change impacts.**
- **Grow Maine's forest-products industry through bioproduct innovation, supporting economic growth and sustainable forest management and preservation of working lands.**

- **Establish the University of Maine as the coordinating hub for state-applied research on forestry, agriculture, and natural land-related climate concerns, including research and development of climate-friendly bio-based wood-market innovation; and research around climate-friendly agricultural practices.**
- **Increase the amount of food consumed in Maine from state food producers from 10% to 20% by 2025 and 30% by 2030 through local food system development.**
- **Launch the Maine Seafood Business Council by 2022.**

2

#### Clean-Energy Jobs and Businesses in Maine

- **Launch a workforce initiative by 2022 that establishes ongoing stakeholder coordination between industry, educational, and training organizations to support current and future workforce needs.**
- **Establish programs and partnerships by 2022 for clean-tech innovation support to encourage the creation of clean-energy and climate solutions.**



"Maine's clean-energy economy is building great opportunities for Maine-based contractors and providing incentives for students to consider careers in innovative energy generation right here at home."

—Matt Marks, CEO of AGC Maine, Member, Maine Climate Council

## STRATEGY E

### Protect Maine's Environment and Working Lands and Waters: Promote Natural Climate Solutions and Increase Carbon Sequestration

Climate change and development are harming Maine's natural and working lands and waters, which are key to the state achieving its carbon neutrality commitment by 2045. Protecting natural and working lands from development maintains their potential to draw back carbon from the atmosphere, as well as provide important co-benefits. Maine's coastal and marine areas also store carbon, while supporting our fishing, aquaculture, and tourism industries.

1

#### Protect Natural and Working Lands and Waters

- Increase by 2030 the total acreage of conserved lands in the state to 30% through voluntary, focused purchases of land and working forest or farm conservation easements.
  - » Additional targets should be identified in 2021, in partnership with stakeholders, to develop specific sub-goals for these conserved lands for Maine's forest cover, agriculture lands, and coastal areas.
- Focus conservation on high biodiversity areas to support land and water connectivity and ecosystem health.
- Revise scoring criteria for state conservation funding to incorporate climate mitigation and resiliency goals.
- Develop policies by 2022 to ensure renewable energy project siting is streamlined and transparent while seeking to minimize impacts on natural and working lands and engaging key stakeholders.

2

#### Develop New Incentives to Increase Carbon Storage

- DEP will conduct a comprehensive, state-wide inventory of carbon stocks on land and in coastal areas (including blue carbon) by 2023 to provide baseline estimates for state carbon sequestration, allowing monitoring of sequestration over time to meet the state's carbon neutrality goal.
- Establish by 2021 a stakeholder process to develop a voluntary, incentive-based forest carbon program (practice and/or inventory based) for woodland owners of 10 to 10,000 acres and forest practitioners.
- Engage in regional discussions to consider multistate carbon programs that could support Maine's working lands and natural-resource industries, and state carbon-neutrality goals.

3

#### Expand Outreach to Offer Information and Technical Assistance

- Increase technical service provider capacity by 2024 to deliver data, expert guidance, and support for climate solutions to communities, farmers, loggers, and foresters at the Department of Agriculture, Conservation and Forestry, Maine Forest Service, Department of Inland Fisheries and Wildlife, the Department of Marine Resources, and the University of Maine.
- Launch the Coastal and Marine Information Exchange by 2024.

4

#### Enhance Monitoring and Data Collection to Guide Decisions

- Establish a "coordinating hub" with state and non-state partners for key climate-change research and monitoring work to facilitate statewide collaboration by 2024.

- **Create the framework and begin pilot for a coordinated, comprehensive monitoring system by 2024.**
- **Incorporate climate research and climate-change-related technologies into Maine’s research and development priorities such as those developed by the Maine Innovation Economy Advisory Board and the Maine Technology Institute.**



## **STRATEGY F** **Build Healthy and Resilient Communities**

As Maine reduces greenhouse gas emissions to combat climate change, we must also respond to climate impacts occurring now and expected soon. State support for communities to be proactive about understanding, planning, and acting to reduce their risk from climate change is essential.

**1**

### **Empower Local and Regional Community Resilience Efforts**

- **Provide state leadership for robust technical assistance and funding to communities by 2024 to support local and regional climate-resilience initiatives.**

**2**

### **Adopt Official Sea-Level Rise Projections**

- **Incorporate official state sea-level rise projections into regulations by 2022 and require regular updates to ensure the projections utilize the latest scientific data.**

**3**

### **Emphasize Resilience Through Land-Use Planning and Legal Tools**

- **Develop and implement updated land-use regulations, laws, and practices by 2024 in order to enhance community resilience to flooding and other climate impacts.**

**4**

### **Strengthen Public-Health Monitoring, Education, and Prevention**

- **Develop and implement more robust public-health monitoring, education, and prevention practices by 2024 to achieve better health outcomes against climate-change impacts.**

## **STRATEGY G** **Invest in Climate-Ready Infrastructure**

Maine must improve the climate readiness and resilience of infrastructure so that it serves Maine better under day-to-day conditions and functions reliably during emergencies.

**1**

### **Assess Climate Vulnerability and Provide Climate-Ready Design Guidance**

- **Complete a statewide infrastructure-vulnerability assessment by 2023, as well as develop and implement design standards for resilience in infrastructure projects.**

2

## Establish the State Infrastructure Adaptation Fund

- **Launch a State Infrastructure Adaptation Fund and predevelopment assistance program in 2021, designed to leverage federal recovery support in the short term, and in the long term to address the significant and ongoing infrastructure adaptation needs.**



## STRATEGY H

### Engage with Maine People and Communities about Climate Impacts and Program Opportunities

Effective communication about Maine’s climate strategies will be critical to the success of the Maine Climate Action Plan. Highlighting leadership and climate innovations can help people better understand the challenges and the opportunities. Maine students should understand the science of Maine’s changing natural systems and climate and be prepared with the necessary skills to meet future workforce opportunities.

1

## Raise Awareness About Climate-Change Impacts and Opportunities

- **Launch a multifaceted, ongoing communications effort in 2021 based on the Climate Action Plan to raise public awareness and understanding about climate change in Maine, the state’s climate-response actions, and climate-related programs and opportunities.**

2

## Increase Public Education Offerings Related to Climate and Energy

- **Develop enhanced educational opportunities for climate science and clean-energy careers in Maine public schools to meet increasing interest from students and educators. Launch a process in 2021 to engage key stakeholders including students, older youth, educators, and state leaders in next steps.**

3

## Start the “Maine Climate Corps” for Climate-Related Workforce Development

- **Partner with service-learning organizations and nonprofit organizations to launch a Maine Climate Corps program by 2023.**

4

## Recognize Climate Leadership by Maine Businesses and Organizations

- **Launch the Governor’s Climate Leadership Council in 2021 to increase private-sector commitment toward voluntary climate actions.**

# IMPLEMENTING MAINE'S CLIMATE ACTION PLAN

**M**aine's Climate Action Plan is a blueprint for bold, specific, and immediate action. To implement the plan, government leaders must not only recognize their responsibility in this moment, but also move with urgency to achieve its outcomes. Resources will be needed to do this, as will clear and transparent metrics to ensure accountability to the public and convey where progress is occurring.

The responsibility for appropriation and revenues rests with the Governor and Maine State Legislature, with similar processes at the municipal, tribal, regional, and federal levels. This plan seeks to provide a roadmap for actions that will meet the state's goals, urging leaders at all levels of government and society to consider how to prioritize investments toward these actions.

Yet fighting climate change cannot be shouldered by government alone. For this plan to be successful, the support and engagement of Maine people is critical — to mobilize a broad coalition of state, local, regional, and tribal governments, nonprofits, academic institutions, and private interests taking collaborative, decisive action.

Significant and sustained investments, well-financed programs, and properly-capitalized lending entities are needed to implement the Climate Action Plan. Such investments and partnerships will be needed to realize outcomes like a modern electricity grid that delivers clean energy needed to power climate-friendly innovations; transportation infrastructure resilient against rising sea levels and more frequent, intense storms; and enhanced incentive programs that make cleaner vehicles and energy-efficiency improvements within reach of everyone in Maine.

No single funding stream will achieve our climate goals. Climate action requires leveraging a variety of sources — existing and new, private and public, local, state, and federal — and fresh, innovative financing mechanisms to support sector-level transformations and the ability of Maine lenders to make crucial long-term investments in climate-focused projects and initiatives.

This four-year Climate Action Plan, however, is emerging amid unprecedented conditions caused by the global COVID-19 pandemic, which is stretching state revenues and many family budgets without relief in sight, and further exposing inherent inequities within our economy that puts Maine's most vulnerable citizens at risk from even minor disruptions.

This grave situation illustrates the urgent need to prepare our people, communities, and economy for the disruptions that climate change will cause. Investments to create a sustainable economy that is less reliant on global supply chains and imported fossil fuels, while leveraging Maine's abundance to source essential goods, from fresh food to building supplies, will reinforce the bedrock of Maine's economy and enable families to withstand major challenges in the future.

# FUNDING & FINANCING OPTIONS

## NEAR TERM

### **USE GENERAL-FUND BONDS FOR ESSENTIAL, FOCUSED CAPITAL INVESTMENT:**

Maine should leverage record-low borrowing rates to support critical infrastructure projects that will generate economic activity, create jobs for Maine people, and signal bold action for addressing climate change and implementing this plan. Specific bonding priorities should include:

**State infrastructure adaptation fund:** Establish this fund to support local and state projects, such as modern transportation investments, urgently needed broadband deployments, and overdue wastewater and drinking-water projects to address risks from climate impacts, while also leveraging federal matching funds to unlock further federal grant support.

**Energy innovation, weatherization, and clean transportation:** Expand and enhance state research and development programs; recapitalize incentive programs that generate jobs and savings for families, businesses, and communities.

**Natural and working lands:** Invest to protect at-risk working lands and support business growth of natural-resource-based businesses.

**Clean-energy workforce:** Support targeted career training programs like CTEs and those within Maine's community colleges and university system to ready Maine people for new and growing well-paying employment opportunities.

**Pursue current and new federal grant opportunities:** Maine should aggressively support energy, infrastructure, and climate strategies through new federal Land and Water Conservation Funds, emerging climate-focused state funds, federal FEMA hazard-mitigation grants, and ongoing federal transportation, environmental infrastructure, and energy programs. The state should also prioritize providing match dollars when significant federal investments are available.

**Maximize one-time funding streams and settlement dollars:** These funds, like those received from the Volkswagen emissions settlement, may continue to flow into the state from renewable energy and power projects and should be deployed aggressively to support emissions-mitigation actions.

**Enact a Commercial Property Assessed Clean Energy (C-PACE) program:** This financing mechanism would support investments by Maine businesses into clean energy and energy-efficiency improvements.

**Deploy and retool of existing state resources, staff, and grant programs:** The state should review and revise existing state programs and grants to align with climate mitigation and adaptation goals, such as the state drinking-water revolving fund, Tax-Increment Finance programs, or other municipal infrastructure grant and loans programs.

**Seek stable budget support for long-term actions:** At the time of this report's publication, Maine's general fund budget is under significant strain from revenue reductions associated with the recession and pandemic. But as Maine recovers, state leaders should allocate funding for programs that require ongoing support, such as technical assistance, tax credits and incentives, and monitoring.

**Convene:** State leaders, stakeholders, and finance experts should convene in 2021 to consider additional creative funding and finance solutions to support Maine’s climate strategies, and they should work collaboratively with Maine’s federal delegation and federal agencies around emerging climate funding opportunities.

## LONG TERM

### IDENTIFY REVENUE SOURCES FOR LONG-TERM FUNDING FOR:

**Essential transportation infrastructure and clean transportation:** Maine needs to fund basic transportation infrastructure needs, including the adaptation work required to make Maine’s transportation systems and emergency evacuation routes able to withstand increasing storm events and rising sea levels. In addition, clean transportation programs will also require sustained support for electric vehicles (EVs) and clean-car rebates, public charging infrastructure, pedestrian and bicycle infrastructure, broadband expansion, and clean public transportation options, including buses, school buses, and ferries.

**State Infrastructure Adaptation Fund and disaster funds:** The proposed State Infrastructure Adaptation Fund supports long-term infrastructure needs for cities and towns, regional units, and state agencies by meeting cost-share requirements to unlock federal funding for infrastructure projects and pre-disaster funds. Pre-development assistance is also much needed to ensure infrastructure projects are made shovel-ready for federal support or private investment. Maine also has two funds that typically support disaster recovery including the State Disaster Recovery Fund and a State Contingency Account. Maine should ensure that they are funded to provide match to towns for federal disaster relief.

**Funding for natural and working lands conservation and easements:** The Natural and Working Lands Working Group identified the need for a dedicated, sustained funding source, driven by the state’s ambitious targets and sequestration needs to support conservation and easements purchases; and supporting agricultural, forestry, fishing, and recreation access and opportunities. Securing Maine’s natural lands preserves an essential economic asset and protects the state’s special natural places.

**Coordinated climate-change monitoring:** Maine will need to identify a combination of federal, state, foundation, and private funding sources in order to support a comprehensive climate-change data and monitoring system. Consistent funding over time will help detect changes to land, coastal, and marine ecosystems, avoid data gaps, and support improved and adaptive local decision making.

**Enhance supports from visitors:** The state should consider funding opportunities that support infrastructure, investments, and natural lands investments drawn from Maine’s millions of annual visitors who utilize our transportation systems and contribute emissions in order to experience our iconic landscapes and clean environment.

**Revenue bonding:** Long-term capital support for long-term state climate infrastructure projects could also be identified through revenue-bonding activities for state and local needs.

**Innovation funding:** Provide funding that supports innovations, from new vehicle batteries that offer more cost-effective transportation solutions to advances in building material and heating technology. Some of these innovations can grow and emerge in Maine. The state should invest in the most promising sectors

with targeted research and development, commercialization, and business-attraction support. Potential high-value forest products like cross-laminated timber, wood-fiber insulation, biofuels, agriculture production and innovation, and floating offshore wind could help Maine emerge a national leader in climate and energy innovation. A complementary policy framework, ongoing state and federal investments in innovation and workforce, and stable business program supports should be bolstered to encourage their growth as highlighted in the *Clean Energy Economy Plan*.

## FINANCING AND POLICY OPTIONS FOR CONSIDERATION:

**Maine green bank or green fund:** A green bank or fund could leverage significant, low-cost private-sector capital to finance clean-energy projects, climate initiatives, and infrastructure over the long term, based on the successful experience of other states. Options to establish a green bank or fund could include launching a new program through an existing state finance entity or creating a new fund, both of which would require capitalization and staff expertise.

**Power-sector transformation:** This plan proposes a significant process to investigate structural approaches and make recommendations on required transitions needed for our electricity generation and delivery system to meet projected electrification demands, stable and affordable prices, and reduced infrastructure costs. Some options considered by the Energy Working Group included public financing mechanisms for additional grid or generation capacity; consumer ownership of all or part of Maine’s power delivery systems; and examining the viability of a “Maine Power Authority” existing as the primary energy planning and financing authority in the state.

**Carbon-market programs:** Working groups recommended ongoing consideration of multistate or national carbon-market programs. Carbon pricing is generally viewed by economists as needed to address climate change, but many also consider that these policies are best implemented at the federal level. Maine already prices power-sector carbon emissions through its participation in the Regional Greenhouse Gas Initiative and returns the revenues back to participating states and consumers to invest in energy efficiency. The Transportation Working Group recommended that Maine continue to monitor the Transportation Climate Initiative, a proposed regional initiative in the Northeast to implement a cap, trade, and invest system to reduce transportation emissions and generate revenue for transportation transitions, as well as other options, as transportation-funding solutions.

# MEASURING PROGRESS

Clear metrics for Maine’s climate goals are critical for informing the public about whether policies are having the intended outcomes and for making evidence-based adjustments, enhancements, or replacements to policies in pursuit of our 2030, 2045, and 2050 targets.

**Actions Taken:** These indicators will help Maine evaluate progress toward climate mitigation and adaptation goals, such as the number of heat pumps installed or green-industry jobs created, as measures of effort and effectiveness.

## Proposed Metrics for Tracking:

- **Progress toward 80% renewable energy by 2050**
- **Energy saved via ongoing efficiency measures**
- **Clean-energy jobs created**
- **Electric Vehicle on the road, Plug-in EVs, total**
- **Heat-pump installations total**
- **Total percentage of Mainers with access to high-speed broadband**
- **Percentage of state lands conserved**
- **Number of towns or regions with resilient community plans**
- **Significant critical adaptation infrastructure projects completed**
- **Climate infrastructure and investment funding and leveraged**
- **Federal and private dollars leveraged per state dollar**



## Reducing Carbon Emissions - Key Actions

Sector	Metric	2025	2030	2050
Transportation	Number of Light-duty EVs on the Road	41,000	219,000	904,000
	EV Share of New Light-duty Vehicle Sales	28%	85%	100%
	Reduction in Light-duty VMT per Vehicle	10%	20%	20%
	ZEV Share of New Heavy-duty Vehicle Sales	12%	55%	100%
	Reduction in Heavy-duty VMT per Vehicle	2%	4%	4%
Buildings	Number of Households with Retrofit Heat Pumps (installed after 2018) and Legacy Fossil Systems	80,000	130,000	26,000
	Number of Households with Whole-Home Heat-Pump Systems	35,000	116,000	487,000
	Newly Weatherized Households (after 2019)	17,000	35,000	105,000
All	GHG Emissions (MMT)	14.50	11.67	3.72
	Emissions Reduction from 1990 Levels	32%	45%	82%

**Measuring Equity:** In addition to these measures, the Maine Climate Council Equity Subcommittee will recommend targeted goals and program metrics for key populations and groups, providing additional key equity outcome indicators, along with program suggestions, for Council consideration by September 2021.

The Implementation Chart for the Four-Year Climate Action Plan (available at [www.maine.gov/future/initiatives/climate/climate-council](http://www.maine.gov/future/initiatives/climate/climate-council)) identifies the lead agencies assigned to each of the specific outcomes assigned to the climate strategies. The agencies will work with partner organizations to implement the actions, and progress will be monitored quarterly by the Maine Climate Council and working groups.

**Emissions and adaptation impacts achieved:** These are indicators that evaluate our collective efforts, as exemplified by the Maine Department of Environmental Protection’s Biennial Emissions Report: “Progress Toward Greenhouse Gas Reduction Goals,” which charts Maine’s sector-based emissions.

New emissions reductions and carbon-neutrality goals outlined in Maine law require the state to include both gross emissions from all sources, including from the combustion of biomass, as well as a carbon sequestration estimate, in the biennial greenhouse gas report submitted to the Legislature, starting in January 2022.

The Maine Department of Environmental Protection (DEP) is also required by law to adopt rules to track and report annual gross and net greenhouse gas emissions by July 2021. The DEP is also developing the methodology for calculating net emissions, in consultation with the Scientific and Technical Subcommittee, and will be working with stakeholders in early 2021 to develop a proposed rule for adoption by the Board of Environmental Protection.

Other examples of possible measures include changes in ocean acidification or reductions in heat-related emergency room visits. Because of the global nature of climate change, some of these indicators are only available on a planetary scale, like atmospheric carbon dioxide concentration, and may respond slowly to the actions that state and country jurisdictions take collectively.

# ACKNOWLEDGEMENTS

The Maine Climate Council expresses its deepest thanks and appreciation to all the people and organizations who contributed to this Plan.

## THE MEMBERS OF THE MAINE CLIMATE COUNCIL ARE:

### Co-Chairs:

Hannah Pingree, Director of the Governor's Office of Policy Innovation and the Future

Melanie Loyzim, Acting Commissioner of the Department of Environmental Protection

### Members of the State Legislature:

Representative Lydia Blume (D)

Representative Richard Campbell (R)

Senator Everett Brownie Carson (D)

Senator David Woodsome (R)

### Members of the Executive Branch, or their designees:

Amanda Beal, Commissioner of the Department of Agriculture, Conservation and Forestry

Dan Burgess, Director of the Governor's Energy Office

Judy Camuso, Commissioner of the Department of Inland Fisheries and Wildlife

Major General Doug Farnham, Commissioner of the Department of Defense, Veterans and Emergency Management

Kirsten Figueroa, Commissioner of the Department Administrative and Financial Services

Designee: Elaine Clarke, Chief Facilities Officer

Laura Fortman, Commissioner of the Department of Labor

Designee: Kim Moore, Director of the Bureau of Employment Services

Heather Johnson, Commissioner of the Department of Economic and Community Development

Patrick Keliher, Commissioner of the Department of Marine Resources

Pender Makin, Commissioner of the Department of Education

Designee: Scott Brown, Director of School Facilities and support from Page Nichols, DOE Director of Innovation

Bruce Van Note, Commissioner of the Department of Transportation

Jeanne Lambrew, Commissioner of Department of Health and Human Services

Designees: Nirav Shah, Director of the Maine Centers for Disease Control and Prevention; Susan Breau, Hydrogeologist - Water Resources Team Manager, Maine Centers for Disease Control and Prevention

### Members of Quasi-Government Agencies:

Dan Brennan, Executive Director of the Maine State Housing Authority

Michael Stoddard, Executive Director of Efficiency Maine Trust

Members Representing Environmental Nonprofit Organizations or Foundations:

Alexander Buck, President, Horizon Foundation

Kate Dempsey, Maine State Director for The Nature Conservancy

### Members with Expertise in Climate Change Science:

Ivan Fernandez, Distinguished Professor at the University of Maine's Climate Change Institute & School of Forest Resources

Andrew Pershing, Chief Scientific Officer, Gulf of Maine Research Institute

## Members with Expertise in Resilience, Climate-Change Adaptation, Emergency Management, or Disaster-Risk Reduction:

Judy East, Executive Director of the Land Use Planning Commission

Kristina Ford, Selectwoman for Town of Boothbay (resigned November 9, 2020)

## Other Members:

Lori Parham, Maine State Director for AARP

Jessie Perkins, Executive Director of the Bethel Chamber of Commerce

Expert on State's Energy Sector: Ken Colburn, Energy and Climate Expert

Representative of Manufacturing Industry: Benedict Cracolici, Energy Manager for Sappi North America

Representative of Maine's Tribes: Ambassador Maulian Dana, Penobscot Nation

Representative of Municipal Government: Steven C. Golieb, Town Councilor for the Town of Millinocket

Representative of Small Business: Daniel Kleban, Owner of Maine Beer Company

Representative of Agriculture: Melissa Law, Owner of Bumbleroot Organic Farm in Windham

Representative of Building and Construction Trades: Matt Marks, Executive Director of the Associated General Contractors of Maine

Representative of Marine Fisheries: Patrice McCarron, Executive Director of Maine Lobsterman's Association

Representative of Business: Jeff Saucier, Environmental Control for McCain's Foods

Representative of Labor: Matt Schlobohm, Executive Director of the Maine AFL-CIO

Representative of Forest Industry: Patrick Strauch, Executive Director of the Maine Forest Products Council

Representative of Maine Youth: Ania Wright, Student at the College of the Atlantic

The Maine Climate Council includes a Scientific and Technical Subcommittee and six working groups, each composed of diverse stakeholders with expertise and experience in their topic areas. We would like to express appreciation for the incredible work accomplished by the subcommittee and working groups over the last year, and to the many staff who supported their work.



## **Connect With the Council**

**On June 26, 2019, Governor Mills signed legislation to create the Maine Climate Council, an assembly of scientists, industry leaders, bipartisan local and state officials, and engaged citizens to develop this four-year Climate Action Plan.**

**Following the release of this Plan, the Maine Climate Council will continue to meet at least quarterly to track the plan's implementation and progress. Council working groups and subcommittees will also continue to meet to review the latest science, data, and program developments. The Council is charged with creating a revised Climate Action Plan every four years, going forward.**

**The Council welcomes public comments and questions. To contact the Council, invite the Council to speak to your group, organization or class, sign up for the Council email list, or find out where to follow the Council on social media, please visit [climatecouncil.maine.gov](http://climatecouncil.maine.gov).**

**Climate actions that meet the urgency of the challenge facing us will take all of us, doing what we can, to make a difference. Join us!**

