State of Maine
Priority Climate Action Plan

Submitted to the Environmental Protection Agency by:

Governor's Office of Policy Innovation and the Future
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Acronyms, Abbreviations and Definitions

Adaptation: Used in this report as an adjustment by nature or a community that reduces the hazardous effects of climate change
BEV: Battery electric vehicle
Biodiesel: A form of diesel fuel derived from plants or animals
Biofuel: Fuel that is derived from biomass such as plant or algae material, wood, or animal waste
Biomass: Generally in this report, we refer to biomass in relation to wood biomass which is any timber-derived product (softwood or hardwood) capable of being converted to energy through direct combustion or gasification; to solid fuel through pelletizing; or to liquid fuel through myriad processes. Biomass can also be renewable organic material that comes from plants and animals.
Blue Carbon: Carbon that is buried or sequestered away from the atmosphere by coastal ecosystems like salt marshes, seaweeds, and seagrass beds
Carbon Neutral: Emissions are balanced by the uptake of carbon dioxide by forests and other ecosystems
Clean Energy: The production of electricity or heat from renewable or low-carbon resources such as solar, wind, water, biomass, or geothermal.
Energy-efficiency measures that improve the output of or reduce energy consumption, and innovative grid technologies such as energy storage, may also be included in the broad definition of clean energy.
CHP: Combined heat and power
Climate: The average weather conditions at a given place over a period of time. For example, meteorologists often make comparisons against a 30-year period, called a climate normal.
Climate Change: A difference in the climate over multiple decades or longer. Long-term changes/shifts in climate can result from both natural and human factors.
CPRG: Carbon Pollution Reduction Grant
DEP: Maine Department of Environmental Protection
DER: Distributed energy resource. Small-scale resources that produce and supply electricity, or controllable loads, that are connected to a local distribution system or installed at a host facility, and may be spread out over a wide area. These resources either provide energy to the electrical grid or allow for greater control of demand for electricity, and are located at various geographic locations across the grid system, sometimes “behind the meter.”
EPA: Environmental Protection Agency

EVs: Electric Vehicles
Fossil Fuels: A hydrocarbon fuel (such as coal, oil, or natural gas) formed in the earth from plant or animal remains over millions of years
GEO: Governor's Energy Office
GDP: Gross domestic product, a monetary measure of the market value of all the final goods and services produced in a specific time period
GHG: Greenhouse gases are gases that absorb/act as a blanket, trapping heat in the atmosphere, including but not limited to water vapor, carbon dioxide, methane, nitrous oxide, and ozone
GOPIF: Governor's Office of Policy Innovation and the Future (Climate)
Mitigation: A human intervention intended to reduce the rate of climate change by limiting the emissions of greenhouse gases or by removing greenhouse gases from the atmosphere through natural or technological processes
(Hazard) Mitigation: Any sustained action taken intended to reduce or eliminate the long-term risk to human life and property from natural hazards
HFC: Hydrofluorocarbons, which are greenhouse gases with global-warming potentials of hundreds to thousands of times that of carbon dioxide
HVAC: Heating, ventilation, and air conditioning
IPCC: Intergovernmental Panel on Climate Change
MPUC: Maine Public Utilities Commission
Particulate Matter: Also known as particle pollution or PM, a complex mixture of extremely small solid particles and liquid droplets found in the air, which can pose a danger to human and animal health
PHEV: Plug-in Hybrid Electric Vehicle
Resilience: The ability of a community, business, or the natural environment to prepare for, withstand, respond to, and recover from a hazardous event
RGGI: Regional Greenhouse Gas Initiative
RFS: Renewable Fuel Standards
RPS: Renewable Portfolio Standard
Sequestration or Carbon Sequestration: The process of capturing carbon dioxide from the atmosphere or industrial processes and storing it for years to centuries, sometimes referred to as "negative emissions." Carbon may be stored in biomass, soils, and rocks for varying periods of time, or reused in industrial applications. Research and technological development into direct air capture of carbon dioxide for storage or reuse is ongoing but not yet developed at a large scale.
STS: Scientific and Technical Subcommittee

Weather: Atmospheric conditions at any given time or place, measured from variables such as wind, temperature, humidity, air pressure, cloudiness, and precipitation. Weather can vary from hour to hour, day to day, and week to week.
ZEV: Zero emission vehicle.

Introduction

Governor Janet Mills has prioritized tackling climate change, advancing clean energy, and improving the climate resiliency of Maine's communities. The Governor's Office of Policy Innovation and the Future (GOPIF) coordinates the work of the Maine Climate Council, established in law in 2019, and works with the Maine Department of Environmental Protection (Maine DEP), the Governor's Energy Office (GEO), Maine Department of Transportation (Maine DOT), other state agencies, regional and municipal governments, and key stakeholders on policy issues to advance climate and energy policy. GOPIF serves as the lead agency for the EPA Climate Pollution Reduction Grant (CPRG).

The following Priority Climate Action Plan (PCAP) for Maine builds on the award-winning, *Maine Won't Wait* (PDF), (2020) the state's first four-year Climate Action Plan from the Maine Climate Council. On December 1, 2023, the Maine Climate Council released a progress report as well as a new online dashboard, highlighting progress being made to implement *Maine Won't Wait*'s climate and energy recommendations.

The PCAP supports investment in policies, practices, and technologies that reduce carbon pollutant emissions, create high-quality jobs, spur economic growth, and enhance the quality of life for all in Maine.

The Maine Climate Council consists of 39 scientists, industry leaders, bipartisan local and state officials, and engaged citizens. More than 200 additional representatives from communities, businesses, organizations, government leaders, and youth serve on the Council's working groups and subcommittees — Transportation; Buildings, Housing, and Infrastructure; Energy; Natural and Working Lands; Coastal and Marine; and Community Resilience working groups, and the Equity and Scientific and Technical subcommittees.

Thousands more Maine people offered their climate concerns, observations, ideas, and encouragement to the Maine Climate Council, in the development of *Maine Won't Wait*, released December 2020. The greenhouse gas emission reduction strategies outlined in *Maine Won't Wait* form the backbone of Maine's PCAP.

This project has been funded wholly or in part by the United States Environmental Protection Agency (EPA) under Grant Number 00A01355 to GOPIF. The contents of

this document do not necessarily reflect the views and policies of the EPA, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.

The measures contained herein should be construed as broadly available to any entity in the state eligible for receiving funding under the EPA's Climate Pollution Reduction Implementation Grants (CPRG) and other funding streams, as applicable. GOPIF has prioritized greenhouse gas emission reductions measures that maximize cumulative emission reductions, provide benefits to low-income and disadvantaged communities, and leverage existing programs, policies and federal funding streams to advance climate action in cost-effective measures. A public version of this PCAP is available at: https://www.maine.gov/future/climate/climate-pollution-reduction-grant.

This PCAP is organized into 11 sections:

1. Introduction
2. Greenhouse Gas (GHG) Emissions Inventory
3. Emissions Projections and Reduction Targets
4. Priority Measures
5. Benefits Analysis
6. Low-Income/Disadvantaged Community Benefits Analysis
7. Review of Authority to Implement
8. Intersection with Other Funding Availability
9. Workforce Planning Analysis
10. Coordination and Outreach
11. Conclusion

Greenhouse Gas Emissions Inventory

Maine has statutory greenhouse emissions reduction targets requiring a 45% reduction in carbon emissions below 1990 levels by 2030, at least 80% reductions by 2050, and achieving carbon neutrality by 2045 (Figure 1).

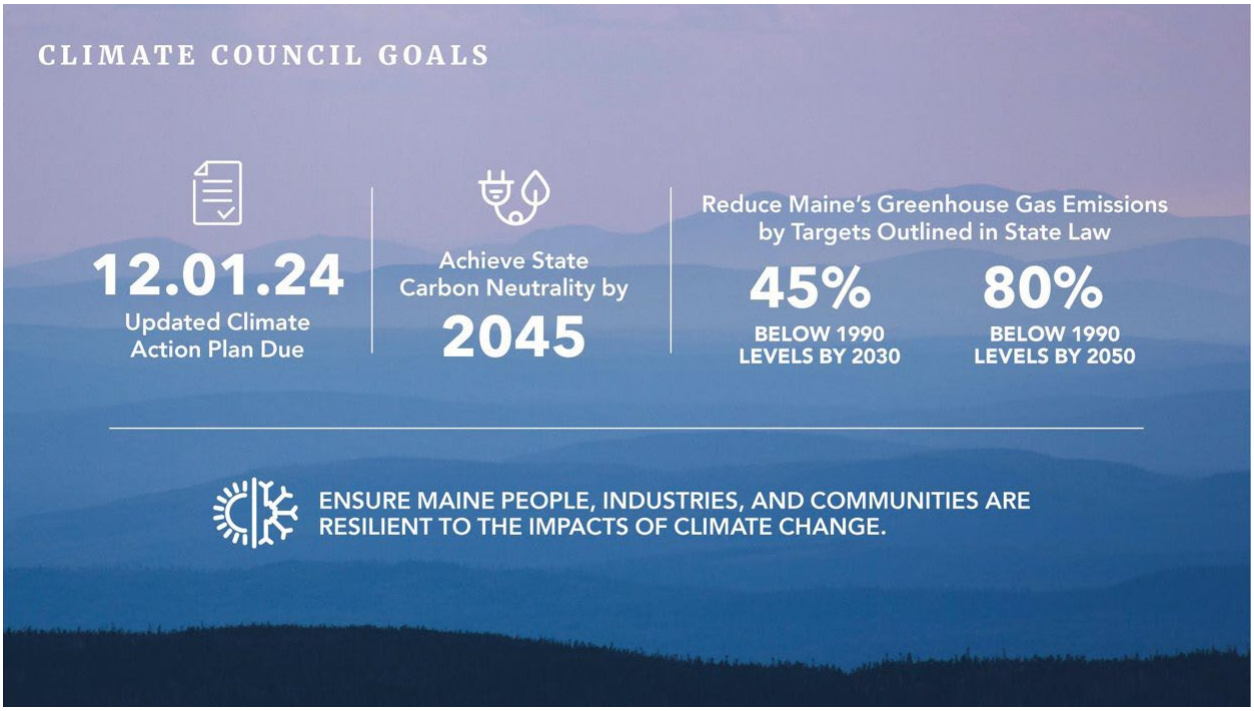


Figure 1. Climate Council goals in Maine statute.

The Maine Department of Environmental Protection publishes a statewide inventory of major sources of GHG emissions within Maine. The Ninth Biennial Greenhouse Gas Inventory was published in July 2022. This inventory was prepared using the following data resource(s):

- State-level GHG inventories prepared by the EPA;[1]
- EPA's State Inventory Tool (SIT);[2]
- Data reported to the EPA's Greenhouse Gas Reporting Program;[3] and

[1] https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals
[2] https://www.epa.gov/statelocalenergy/state-inventory-and-projection-tool
[3] https://www.epa.gov/ghgreporting/data-sets

- The Department augments the SIT with data from Maine state programs when available (e.g., state vehicle miles travelled, industrial-process-specific data, and solid waste data) to best estimate GHG emissions in Maine.

Detailed methodology and quality assurance procedures for preparation of this inventory are contained in Appendix A. The overview of major sources of current greenhouse gas emissions is presented in Figure 2.

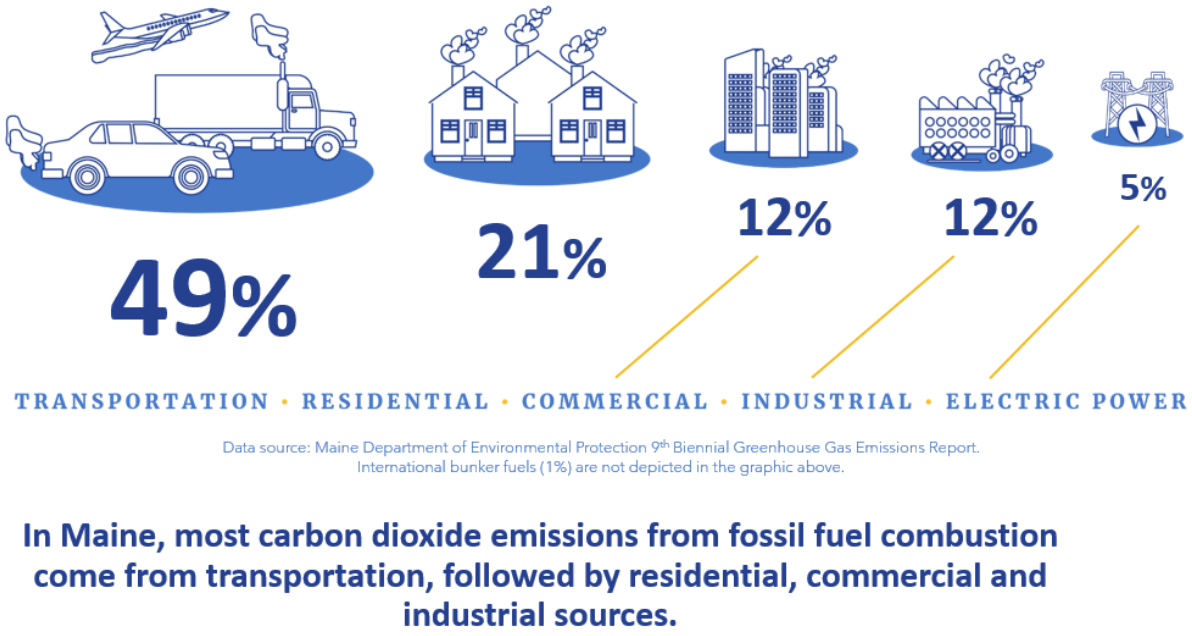


Figure 2. Greenhouse Gas Emissions represented as a percentage of total emissions from fossil fuel combustion as reported by the Department of Environmental Protection 9th Biennial Greenhouse Gas Emissions Report.

The Maine inventory includes the following sectors and gases:

Sectors	***Greenhouse Gases (across all sectors)***
1. Transportation 2. Residential buildings 3. Commercial buildings 4. Industrial 5. Electricity generation and/or use 6. Waste 7. Agriculture 8. Natural and working lands	carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), nitrogen trifluoride (NF_3), sulfur hexafluoride (SF_6)

State of Maine Priority Climate Action Plan (PCAP)

Table 1 details GHG emissions in million metric tons (MMT) of carbon dioxide equivalents (CO_2e) for all economic sectors. Table 2 details emissions of specific GHGs across all sectors.

Table 1. Maine GHG emissions in MMT CO_2e by Sector[4]

Sector/Source	1990	2021
Transportation	7.607838	7.093048
CO_2 from Fossil Fuel Combustion	7.334285	6.8865
Substitution of Ozone Depleting Substances	0	0.12327
Mobile Combustion	0.21853	0.049712
Non-Energy Use of Fuels	0.055023	0.033565
Electric Power Industry	2.481075	1.510713
CO_2 from Fossil Fuel Combustion	2.062211	1.261531
Stationary Combustion	0.006116	0.01362
Incineration of Waste	0.202619	0.116852
Electrical Equipment	0.136081	0.035948
Other Process Uses of Carbonates	0.074049	0.082762
Industry	4.80925	2.568435
CO_2 from Fossil Fuel Combustion	3.124309	1.431332
Natural Gas Systems	0.145922	0.11134
Non-Energy Use of Fuels	0.057155	0.024707
Petroleum Systems	0	0
Coal Mining	0	0
Iron and Steel Production	0	0
Cement Production	0.69132	0.174526
Substitution of Ozone Depleting Substances	3.21E-05	0.133197
Petrochemical Production	0	0
Lime Production	0	0
Ammonia Production	0	0

[4] Data were obtained from EPA's State-level GHG inventories file State-GHG_Trends_Emissions__Sinks_Economic_Sector_08312023.xlsx, which was accessed on December 5, 2023. These data come from Maine's 9th Biennial Greenhouse Gas Inventory prepared by Maine Department of Environmental Protection. This data set is available at <https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals>.
NO = Not occurring
Symbols:
"-" indicates that the value has not be estimated at this time or is not applicable to the State
"+" indicates that the value does not exceed 0.005 MMT CO_2E

Nitric Acid Production	0	0
Abandoned Oil and Gas Wells	0	0
Wastewater Treatment	0.151807	0.060207
Urea Consumption for Non-Agricultural Purposes	0.018388	0.020405
Mobile Combustion	0.009886	0.024298
Abandoned Underground Coal Mines	0	0
Adipic Acid Production	0	0
Carbon Dioxide Consumption	0.007152	0.020408
Electronics Industry	0.075631	0.097816
N_2O from Product Uses	0.018294	0.015338
Stationary Combustion	0.148276	0.068006
Other Process Uses of Carbonates	0.074049	0.082762
Fluorochemical Production	0	0
Aluminum Production	0	0
Soda Ash Production	0	0
Ferroalloy Production	0	0
Titanium Dioxide Production	0	0
Caprolactam, Glyoxal, and Glyoxylic Acid Production	0	0
Glass Production	0	0
Magnesium Production and Processing	0	0
Zinc Production	0	0
Phosphoric Acid Production	0	0
Lead Production	0	0
Landfills (Industrial)	0.285298	0.302419
Carbide Production and Consumption	0.001731	0.001675
Agriculture	0.648123	0.583351
N_2O from Agricultural Soil Management[1,2]	0.251649	0.199228
Enteric Fermentation	0.263897	0.204637
Manure Management	0.05287	0.10912
CO_2 from Fossil Fuel Combustion	0.075121	0.067018
Rice Cultivation	0	0
Urea Fertilization	0.002062	0.001113
Liming	0	0
Mobile Combustion	0.002348	0.002094
Field Burning of Agricultural Residues[1,2]	7.11E-05	5.7E-05
Stationary Combustion	0.000104	8.38E-05
Commercial	2.539315	2.032328
CO_2 from Fossil Fuel Combustion	2.231631	1.496346
Landfills (Municipal)	0.131745	0.086431
Substitution of Ozone Depleting Substances	7.6E-05	0.256538
Wastewater Treatment	0.150109	0.14393
Composting	0.003878	0.013575

Stationary Combustion	0.021699	0.033646
Anaerobic Digestion at Biogas Facilities	0.000177	0.001863
Residential	2.99928	2.330678
CO_2 from Fossil Fuel Combustion	2.939873	1.971207
Substitution of Ozone Depleting Substances	0.00112	0.194144
Stationary Combustion	0.058287	0.165327
Total Emissions (Sources)	21.08488	16.11855
Land-Use, Land-Use Change, and Forestry (LULUCF) Sector Net Total	-9.80718	-13.1737
Net Emissions (Sources and Sinks)	11.2777	2.944887

Table 2. Maine GHG emissions in MMT CO_2e by Gas[5]

Gas/Source	**1990**	**2021**
CO_2	18.94513	13.671049
Fossil Fuel Combustion	17.76743	13.11393362
Electric Power Sector	2.062211	1.26153059
Transportation	7.334285	6.886500347
Industrial	3.199431	1.498349459
Residential	2.939873	1.971207367
Commercial	2.231631	1.496345862
Non-Energy Use of Fuels	0.112177	0.058272116
Natural Gas Systems	0.000336	0.001531461
Cement Production	0.69132	0.174525815
Lime Production	0	0
Other Process Uses of Carbonates	0.148097	0.16552353
Glass Production	0	0
Soda Ash Production	0	0
Carbon Dioxide Consumption	0.007152	0.020408047
Incineration of Waste	0.196436	0.113646861

[5] Data were obtained from EPA's State-level GHG inventories file State-GHG_Trends_Emissions__Sinks_By_Gas_08312023.xlsx, which was accessed on December 5, 2023. These data come from Maine's 9th Biennial Greenhouse Gas Inventory prepared by Maine Department of Environmental Protection. This data set is available at <https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals>.

NO = Not occurring
Symbols:
"-" indicates that the value has not be estimated at this time or is not applicable to the State
"+" indicates that the value does not exceed 0.005 MMT CO_2E

Titanium Dioxide Production	0	0
Aluminum Production	0	0
Iron and Steel Production & Metallurgical Coke Production	0	0
Ferroalloy Production	0	0
Ammonia Production	0	0
Urea Consumption for Non-Agricultural Purposes	0.018388	0.020404991
Phosphoric Acid Production	0	0
Petrochemical Production	0	0
Carbide Production and Consumption	0.001731	0.001674517
Lead Production	0	0
Zinc Production	0	0
Petroleum Systems	0	0
Abandoned Oil and Gas Wells	0	0
Magnesium Production and Processing	0	0
Coal Mining	0	0
Liming	0	0
Urea Fertilization	0.002062	0.001112765
Substitution of Ozone Depleting Substances	6.71E-08	1.52699E-05
International Bunker Fuels[6]	0.256404	0.104836524
Wood Biomass, Ethanol, and Biodiesel Consumption[7]	10.02919	8.232897561
CH_4	1.256618	1.145132442
Stationary Combustion	0.12867	0.204472833
Mobile Combustion	0.036627	0.010855705
Coal Mining	0	0
Abandoned Underground Coal Mines	0	0
Natural Gas Systems	0.145586	0.109808004
Petroleum Systems	0	0
Abandoned Oil and Gas Wells	0	0
Petrochemical Production	0	0
Carbide Production and Consumption	0	0
Iron and Steel Production & Metallurgical Coke Production	0	0
Ferroalloy Production	0	0
Enteric Fermentation	0.263897	0.204637037
Manure Management	0.031943	0.093619914
Rice Cultivation	0	0

[6] Emissions from international bunker fuels are not included in totals.
[7] Wood biomass, ethanol, and biodiesel consumption emissions are not included in the sum of Energy sector totals. Net carbon fluxes from changes in biogenic carbon reservoirs are accounted for in LULUCF estimates.

Field Burning of Agricultural Residues	4.83E-05	3.94048E-05
Landfills	0.417043	0.388850137
Wastewater Treatment	0.230355	0.12304563
Composting	0.002268	0.007939566
Anaerobic Digestion at Biogas Facilities	0.000177	0.001862856
Incineration of Waste	2.61E-06	1.35416E-06
International Bunker Fuels[8]	0.000235	0.000147204
N_2O	0.671015	0.465086114
Stationary Combustion	0.105812	0.076209622
Mobile Combustion	0.194137	0.065247572
Adipic Acid Production	0	0
Nitric Acid Production	0	0
Manure Management	0.020927	0.01550009
Agricultural Soil Management	0.251649	0.199228339
Field Burning of Agricultural Residues	2.28E-05	1.76081E-05
Wastewater Treatment	0.071561	0.081091228
N_2O from Product Uses	0.018294	0.015337943
Caprolactam, Glyoxal, and Glyoxylic Acid Production	0	0
Incineration of Waste	0.00618	0.003203969
Composting	0.00161	0.005635674
Electronics Industry	0.000822	0.003613355
Natural Gas Systems	3.73E-07	7.15712E-07
Petroleum Systems	0	0
International Bunker Fuels[9]	0.001995	0.000781964
HFCs, PFCs, SF_6 and NF_3	0.212119	0.837284681
HFCs	0.005365	0.711577322
Substitution of Ozone Depleting Substances	0.001228	0.706929744
Fluorochemical Production	0	0
Electronics Industry	0.004137	0.004647578
Magnesium Production	0	0
PFCs	0.057992	0.066237129
Aluminum Production	0	0
Electronics Industry	0.057992	0.066032951
Electrical Equipment	0	0
Substitution of Ozone Depleting Substances[10]	0	0.000204178
SF_6	0.147738	0.044650181

[8] Emissions from international bunker fuels are not included in totals.
[9] Emissions from international bunker fuels are not included in totals.
[10] Small amounts of PFC emissions also result from this source.

Electrical Equipment	0.136081	0.035948131
Electronics Industry	0.011657	0.00870205
Magnesium Production	0	0
NF_3	0.001024	0.01482005
Electronics Industry	0.001024	0.01482005
Total (Sources) Emissions[11]	21.08488	16.11855223
LULUCF Emissions[12]	0.599049	0.569566936
LULUCF CH_4 Emissions	0.599037	0.569557118
LULUCF N_2O Emissions	1.15E-05	9.81822E-06
LULUCF Carbon Stock Change[13]	-10.4062	-13.74323262
LULUCF Sector Net Total[14]	-9.80718	-13.17366568
Net Emissions (Sources and Sinks)[15]	11.2777	2.944886552

[11] Total emissions presented without LULUCF.
[12] LULUCF emissions of CH_4 and N_2O are reported separately from gross emissions totals.
[13] LULUCF Carbon Stock Change is the net C stock change from the following categories: Forest Land Remaining Forest Land, Land Converted to Forest Land, Cropland Remaining Cropland, Land Converted to Cropland, Grassland Remaining Grassland, Land Converted to Grassland, Wetlands Remaining Wetlands, Land Converted to Wetlands, Settlements Remaining Settlements, and Land Converted to Settlements.
[14] The LULUCF Sector Net Total is the net sum of all CH_4 and N_2O emissions to the atmosphere plus net carbon stock changes.
[15] Net emissions include LULUCF.

GHG Emissions Projections and Targets

The Governor's Office of Policy Innovation and the Future has developed near-term (2030) and long-term (2050) projections of GHG emissions that would occur in a "business-as-usual" (BAU) scenario where the PCAP measures are not implemented and under a scenario where the measures in this PCAP are fully implemented (PCAP scenario). The PCAP scenario also includes the state's GHG reduction targets codified in statute. Detailed methodology and quality assurance procedures for preparation of these projections are contained in Appendix A. Table 3 lists base year GHG emissions and near-term and long-term GHG emissions projections by sector for Maine under the BAU and PCAP scenarios.

Table 3. Maine GHG baseline and projected emissions in $MMTCO_2e$ by Sector

Sector/Source	1990	BAU		MWW	
		2030	2050	2030	2050
Transportation	7.607838	6.97	5.73	5.19	1.09
Electric Power Industry	2.481075	0.15	0.1	0.39	0.7
Industry	4.809250	3.03	3.8	2.37	0.77
Agriculture	0.648123	0.27	0.17	0.27	0.17
Commercial and Residential Buildings	5.538595	4.04	3.7	3.14	0.65
Waste and Materials Management	0.307684	0.32	0.32	0.32	0.32
Total Emissions (Sources)	21.08488	14.8	13.8	11.68	3.7
LULUCF Sector Net Total	-9.80718				
Net Emissions (Sources and Sinks)	11.2777				

Baseline Scenario Results (Business as Usual)[16]

Energy sector modeling established the mitigation efforts required to meet Maine's goal: reducing greenhouse gas emissions by at least 80 percent below 1990 levels by

[16] From the technical report, Assessing the Impacts Climate Change May Have on the State's Economy, Revenues, and Investment Decisions: Summary Report (PDF) -updated December 2, 2020, produced by Eastern Research Group and Synapse Energy Economics.

2050. Maine also has an interim greenhouse gas emissions reduction target of 45 percent below 1990 levels by 2030. It is widely acknowledged in the literature that this aggressive target requires deep decarbonization across all sectors. The pathway to decarbonization requires switching from petroleum-based fuels and natural gas in the transportation and buildings sectors to clean renewable electricity. Thus, the focus of the energy sector modeling was the transition to an electric grid with low and zero carbon emissions generation sources and electrification of the transportation and buildings sectors.

The energy sector modeling was performed sequentially, starting with the transportation and buildings sectors. These models provide annual fuel use, including electricity consumption for electric vehicle charging and heat pumps in buildings. The increased load from these sectors is then integrated into the load profile used in EnCompass to model the New England grid.

For each sector, the modeling consultant began its modeling by developing a baseline from which alternative scenarios would be evaluated. The baseline modeling featured a “sustained policy scenario”: business as usual, with current policies staying in place. Figure 3 presents the economy-wide emissions associated with the sustained policy scenario.

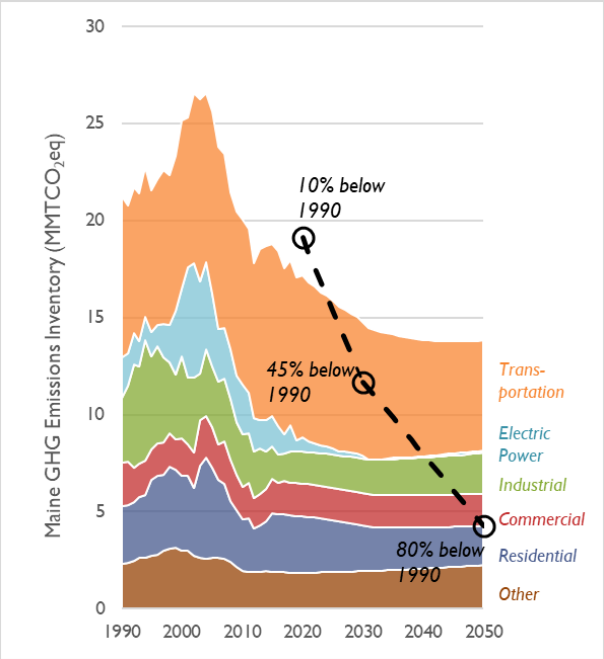


Figure 3. Economy-wide greenhouse gas emissions for the sustained business as usual policy scenario. "Other" includes emissions from industrial processes, agriculture, waste, and non-CO_2 emissions from energy. Emissions from industry, industrial processes, and agriculture were projected based on a 2013–2017 compounded annual growth rate. Non-CO_2 emissions from energy were projected based on the historical ratio of these emissions to CO_2. This model was produced by Synapse Energy Economics, Inc. and presented to the Governor's Office of Policy Innovation and the Future and the Maine Climate Council in Volume 3. Mitigation Modeling Consolidated Energy Sectors Modeling Results.

The sustained business as usual policy scenario fails to meet Maine's greenhouse gas emissions reductions targets. Emissions are projected to decline through 2030 and flatten out in later years. Total emissions in 2050 are projected to be 13.8 million metric tons, which is 9.6 million metric tons above the 2050 target. The transportation sector continues to be the largest source of emissions in the state through 2050, representing 41 percent of economy-wide emissions.

Table 4. presents near-term and long-term emissions reduction targets based on Synapse Energy Economics, Inc.'s assessment of projected emissions and emission reductions anticipated as result of implementation of all measures included in *Maine Won't Wait* 2020, Maine's four-year climate action plan. Synapse Energy Economics Inc. was hired by GOPIF to conduct emissions modeling for the Maine Climate Council in the creation of *Maine Won't Wait*. Inclusion of targets in this PCAP does not render achievement of the targets binding on any entity of the state of Maine, its

subdivisions, organizations operating in the state, and individuals living within the state. Figure 4 presents the economy-wide greenhouse gas emissions reductions anticipated as result of implementation of all transportation, electric power, industrial, and commercial and residential building measures included in *Maine Won't Wait* 2020, which are the measures included in this PCAP and were modeled by Synapse Energy Economics, Inc.

Table 4. Maine PCAP GHG emission reduction targets in $MMTCO_2e$ [17]

	Projected Emissions to Reach Reduction Targets	
Sector/Source	**2030**	**2050**
Transportation	5.19	1.1
Electric Power Industry	0.39	0.7
Industrial	2.37	0.78
Commercial Buildings	1.31	0.36
Residential Buildings	1.83	0.3
Other	0.59	0.49
Total Emissions (Sources)	11.68442838	3.73
Emission Reduction Targets compared to 1990 levels	**-45%**	**-80%**

[17] Projected emissions are modeled by Synapse Energy Economics, Inc. In Volume 3: Mitigation Modeling Consolidated Energy Sectors Modeling Results presented to the Maine Climate Council August 7, 2020, and updated November 11, 2020.

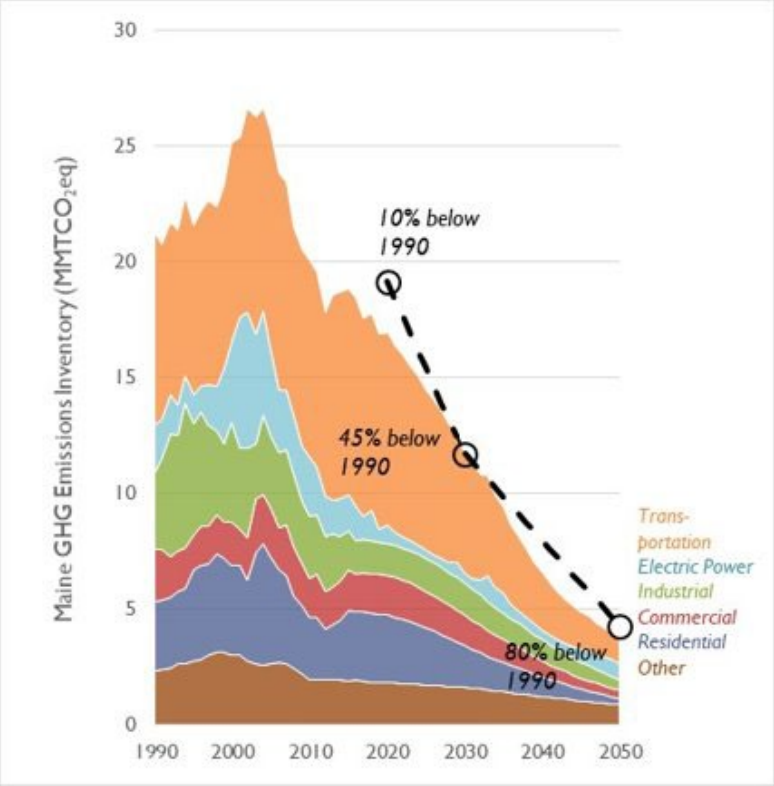


Figure 4. Economy-wide greenhouse gas emissions reductions anticipated as a result of implementation of all transportation, electric power, industrial, and commercial and residential building measures included in Maine Won't Wait 2020, Maine's four-year climate action plan, which are the measures included in this PCAP. "Other" includes emissions from industrial processes, agriculture, waste, and non-CO_2 emissions from energy. Emissions from industry, industrial processes, and agriculture were projected based on a 2013–2017 compounded annual growth rate. Non-CO_2 emissions from energy were projected based on the historical ratio of these emissions to CO_2. This model was produced by Synapse Energy Economics, Inc. and presented to the Governor's Office of Policy Innovation and the Future and the Maine Climate Council in Volume 3. Mitigation Modeling Consolidated Energy Sectors Modeling Results on August 7, 2020 and updated on November 9, 2020.

Clean Energy Targets

Clean electricity from lower-emission resources is essential to support Maine's transition from fossil fuels to electricity in key sectors such as transportation and buildings. Maine law requires that 80% of electricity consumed in Maine to be renewable by 2030, with a goal of 100% by 2050. In 2023, Governor Mills set an ambitious new target to achieve 100% clean energy use in Maine by 2040. The clean energy transition must be managed effectively to ensure reliability and affordability. Pairing energy storage with small distributed and large-scale renewable resources provides opportunities to maximize the value of renewable energy to our grid.

Consistent with the Governor's 2040 directive, the Governor's Energy Office (GEO) has launched *Maine Energy Plan: Pathway to 2040*, a comprehensive energy planning effort to analyze the energy needs and options for Maine in the coming decades with substantial engagement from stakeholders.

In addition*, Maine Won't Wait* recommended that the state set specific targets for particular clean energy technologies such as energy storage, distributed generation, and offshore wind. Each of these installation targets require new infrastructure to be built and managed to support technological deployment (ie: transmission and distribution assets) as well as burgeoning industries to be developed. Since the publication of *Maine Won't Wait,* Maine has set specific deployment targets and advanced clean energy policy and programs that further actions under Strategy C as well as enable meeting emission reduction goals within Strategies A and B.

Solar: Solar electricity generation has significantly expanded in recent years as a result of forward-looking policies on renewable energy and solar incentives passed by Governor Mills and the Legislature. Maine has a target of 750 MW of installed distributed generation (defined as under 5MW) and currently has a mix of both large scale and distributed solar in Maine with 796 megawatts of solar is installed in Maine as of September 2023 (up from under 100 MW in 2019).

Offshore Wind: After an extensive 18-month public process, the *Maine Offshore Wind Roadmap* was published in February 2023. The Roadmap is the blueprint for the State's responsible offshore wind activities to meet climate, clean energy and economic goals while protecting the environment and existing ocean users. Following this process and publication of the *Roadmap*, Governor Mills signed LD 1895 into law in 2023 authorizing the procurement of 3,000 MW of offshore wind by 2040, providing for critical port development, creating opportunity for all Maine workers and businesses, and incentivizing offshore wind development while protecting the Gulf of Maine ecosystem including critical lobstering areas. Offshore wind energy, specifically from floating offshore turbines in the Gulf of Maine, is needed to meet state and regional decarbonization targets. In addition to the new offshore wind procurement authorization, the state is also advancing the development of a purpose-built floating offshore wind port in the Port of Searsport, a key step in supporting offshore wind and meeting Maine's climate and clean energy requirements.

Storage: L.D. 1850 was signed by the Governor in June 2023 and modifies the state goal for energy storage development (originally established by P.L. 2021, chapter 298) to at least 300 MW of installed capacity by December 31, 2025 and at least 400 MW by December 31, 2030. It additionally allows the Governor's Energy Office (GEO) to reevaluate and increase the state goal as needed. The GEO is tasked with submitting a utility-scale energy storage procurement to the Public Utilities Commission in March 2023 and there are active behind-the-meter programs active in Maine currently through the Efficiency Maine Trust.

Priority Measures

The climate pollution reduction measures in this section have been identified as "priority measures" for the purposes of pursuing funding through CPRG implementation grants. This list is not exhaustive of Maine's climate action and adaptation priorities. Instead, the selected priority measures included in this PCAP meet the following criteria:

- The measure is implementation ready, meaning that the design work for the policy, program, or project is complete enough that a full scope of work and budget can be included in a CPRG implementation grant application.
- The measure can be completed in the near term, meaning that all funds will be expended, and the project completed, within the five-year performance period for the CPRG implementation grants.
- The measure advances the following state priorities as defined in *Maine Won't Wait*: 1) Reduce Maine's greenhouse gas emissions, 2) Make Maine more resilient to the impacts of climate change, 3) Foster economic opportunity and prosperity, and 4) Advance equity through Maine's response.

For each priority measure, Table 5 provides additional details about the following information:

- An estimate of the cumulative GHG emission reductions from 2025 - 2030;
- An estimate of the cumulative GHG emission reductions from 2025 - 2050;
- Key implementing agency or agencies;
- Implementation schedule and milestones;
- Geographic scope.

Maine's four-year climate action plan, *Maine Won't Wait*, contains a suite of eight strategies to meet Maine's climate goals and priorities including both greenhouse reduction measures and climate adaptation and resilience actions. For the full state climate action plan, please visit MaineWontWait_December2020.pdf

For the purposes of designing implementation funding applications, all the measures contained within *Maine Won't Wait* are included in this PCAP. A summary of measures from *Maine Won't Wait* follows after Table 5. Table 5 summarizes Maine PCAP priority measures that have quantified targets with modeled climate pollution emission reductions in the near term (2025-2030) and long term (2025-2050).

Table 5. Maine PCAP Priority Measures

		Target by Year			Cumulative GHG emission reductions (MMT CO_2e)			
***Maine Won't Wait* Strategy**	**Climate Pollution Reduction Measure**	**2025**	**2030**	**2050**	**2025–2030**	**2025–2050**	**Implementing Agency or Agencies**	**Geographic Scope**
Strategy A: Embrace the Future of Transportation	Number of Light-duty EVs on the road	41000	219000	904000	1.38	5.94	Efficiency Maine, Private Market, Maine Department of Transportation, Governor's Office of Policy Innovation and the Future	Maine
	EV Share of New Light-duty Vehicle Sales	28%	85%	100%			Same	Maine
	Reduction in Light-duty VMT per Vehicle	10%	20%	20%			Same	Maine
	ZEV Share of New Heavy-duty Vehicle Sales	12%	55%	100%			Same	Maine
	Reduction in Heavy-duty VMT per Vehicle	0.02	0.04	0.04			Same	Maine
Strategy B: Modernize Maine's Buildings	Number of households with retrofit heat pumps (installed after 2018) and legacy fossil systems, low income target	80000	130000*	26000	0.75	3.42	Efficiency Maine, MaineHousing	Maine

	Number of households with whole-home heat pump systems, low income target	35000	116000	487000			Efficiency Maine, MaineHousing	Maine
	Newly weatherized households (after 2019), low income target	17500	35000	105000			Efficiency Maine, MaineHousing	
	Enhance grant and loan programs to support efficiency and renewable energy programs, including storage systems, in local government buildings, municipal, tribal, school, and public housing construction and improvements.							Maine
Strategy C: Reduce Emissions through Clean Energy Innovation	Achieve by 2030** an electricity grid where 80% of Maine's usage comes from renewable generation, linked with Industrial emissions decrease, and including cost- effective deployment of technologies and		80% renewable		-0.27	1.29	Governor's Energy Office, Maine Public Utilities Commission	Maine

	associated infrastructure to support offshore wind, distributed generation, and energy storage, and outline the policies, including opportunities for pilot initiatives, necessary to achieve set targets.							

*Since the release of *Maine Won't Wait* in 2020, in 2023 Governor Mills set a more ambitious goal of installing 275,000 heat pumps in Maine homes and businesses by 2027.

**Since the release of *Maine Won't Wait* in 2020, in 2023 Governor Mills set a more ambitious goal for Maine to reach 100% clean energy by 2040. The Governor's Energy Office has launched a planning process to inform that effort. More information is available on the Maine Energy Plan: Pathway to 2040 webpage.

Maine Won't Wait Climate Action Plan Strategies and Actions
Strategy Area A: Embrace the Future of Transportation
1. Accelerate the Transition to Electric Vehicles (EVs)
a. Put 41,000 light duty EV on road by 2025, and 219,00 by 2030.
b. By 2022, Statewide EV roadmap to identify policies, programs, and regulatory changes to meet goals.
c. By 2022, create policies, incentives, and pilot programs to encourage the adoption of electric, hybrid, and alternative fuels, vehicles, public transport, buses, and ferries.
2. Increase Fuel Efficiency and Alternative Fuels
a. Continue to support increased federal fuel efficiency standards.
b. Significantly increase, by 2024, freight industry participation in EPA's SmartWay program.
c. Increase by 2024 local biofuel and biodiesel production and use in Maine transportation, especially heavy-duty vehicles.
d. Establish a time-limited incentive program to encourage drivers to upgrade to higher-efficiency vehicles in the near-term, targeted to low- and moderate-income drivers.
3. Improve Mobility and Reduce Vehicle Miles Traveled (VMT)
a. Reduce light-duty vehicle miles traveled (VMT) over time, achieving 10% reductions by 2025, and 20% by 2030.
b. Reduce heavy duty VMT by 4% by 2030.
c. Deploy high speed broadband to 95% of Maine homes by 2025 and 99% by 2030.
d. By 2024, establish state coordination, strengthen land use policies, and use state grant programs to encourage development that supports the reduction of vehicle miles traveled.
e. Increase public transportation funding to the national median of $5 per capita by 2024.
f. Relaunch GO Maine to significantly increase shared public commuting options by 2022.
Strategy Area B: Modernize Maine's Buildings
1. Transition to cleaner heating and cooling systems and efficient appliances
a. Install at least 100,000 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.
b. Implement Maine Appliance Standards requirements by 2022.

2. Accelerate efficiency improvements to existing buildings
a. 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.
b. Weatherize at least 35,000 homes and businesses by 2030.
3. Advance the design and construction of new buildings
a. 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.
b. Enhance existing training on building codes and expand these programs to support ongoing education of contractors and code enforcement officials.
4. 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
a. 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.
b. 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 (RFS)
Investigate options for establishing a Renewable Fuels Standard (RFS) for heating fuels.
7. Replace hydrofluorocarbons (HFCs) with climate-friendly alternatives
a. Adopt HFC phase-down regulations in 2021 to be implemented by 2022.
Strategy Area C: Reduce Emissions through Clean Energy Innovation
1. Ensure adequate affordable clean energy supply
a. Achieve, by 2030, an electricity grid where 80% of Maine's usage comes from renewable generation.
b. 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
a. 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
a. 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
a. Analyze policies, including the potential for long-term contracts, needed to advance new highly-efficient combined heat and power (CHP) production facilities that achieve significant net greenhouse gas reductions.
Strategy Area D: Grow Jobs and Protect Natural Resource Industries
1. Support the ability of Maine's natural resource economies to adapt to climate change impacts and take advantage of new market opportunities
a. Grow Maine's forest products industry through bioproduct innovation, supporting economic growth and sustainable forest management and preservation of working lands.
b. 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.
c. 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.
d. Launch the Maine Seafood Business Council by 2022.
2. Clean energy jobs and businesses in Maine
a. Launch a workforce initiative by 2022, that establishes ongoing stakeholder coordination between industry, educational and training organizations to support current and future workforce needs.
b. Establish programs and partnerships by 2022, for cleantech innovation support to encourage the creation of clean energy and climate solutions.
3. Shovel-Ready infrastructure projects
a. Develop a list of climate-related infrastructure projects in early 2021 to utilize for near-term economic recovery, and track over the long term to identify backlogs.
Strategy Area E: Protect the Environment & Promote Natural Climate Solutions
1. Protect natural and working lands and waters
a. 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. To keep important Maine forest and farms as working lands and forest cover, and identify coastal areas for protection, partner with stakeholders starting in 2021 to develop additional targets for conservation.
b. Focus conservation on high biodiversity areas to support land and water connectivity and ecosystem health.

c. Revise scoring criteria for state conservation funding to incorporate climate mitigation and resiliency goals.
d. 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
a. Maine Department of Environmental Protection 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.
b. 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.
c. Engage in regional discussions to consider multi-state carbon programs that could support Maine's working lands and natural resource industries, and state carbon neutrality goals.
d. Increase the amount of financial incentives available for climate friendly land management practices that sequester carbon and support climate change resilience.
e. Update the Open Space Current Use Taxation Program and maintain the Tree Growth Tax Law.
3. Expand outreach to offer information, technical assistance
a. Increase technical service provider capacity by 2024 to deliver data, expert guidance, and support for climate solutions to communities, landowners, 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.
b. Launch the Coastal and Marine Information Exchange by 2024.
4. Improve monitoring to understand and manage the response to climate change
a. Establish a "coordinating hub" with state and non-state partners for key climate change research and monitoring work to facilitate state-wide collaboration by 2024.
b. Create the framework and begin pilot stage of a coordinated, comprehensive monitoring system by 2024.
c. Incorporate climate research and climate change related technology into Maine's research and development priorities such as those developed by the Maine Innovation Economy Advisory Board and the Maine Technology Institute.
Strategy Area F: Build Healthy & Resilient Communities
1. Empower local and regional community resilience efforts
a. 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

a. 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. Update land use planning and legal tools for resilience
a. Develop and implement updated land use regulations, laws, and practices by 2024 in order to enhance community resilience to flooding and other climate impacts.
b. By 2024, Maine will have convened stake-holder processes to make specific recommendations for changes in State regulations on the following land use issues: clean energy siting; land use practices; community flood risk reduction; and anticipating growth.
4. Public health monitoring, education, and prevention
a. Develop and implement more robust public health monitoring, education, and prevention practices by 2024 to achieve better health outcomes against climate change impacts.
Strategy Area G: Invest in Climate-Ready Infrastructure
1. Assess climate vulnerability and provide climate-ready design guidance
a. Complete a statewide infrastructure vulnerability assessment by 2023, as well as develop and implement design standards for resilience in infrastructure projects.
2. State Infrastructure Adaptation Fund & predevelopment assistance
a. Launch a State Infrastructure Adaptation Fund and pre-development 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 of the future.
Strategy Area H: Engage Maine People
1. Raise awareness about climate change impacts and opportunities
a. 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 related to climate and energy
b. 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
a. Partner with service-learning organization and non-profit organizations to launch a Maine Climate Corps program by 2023.
4. Recognize climate leadership by Maine businesses and organizations
a. Launch the Governor's Climate Leadership Council in 2021 to increase private sector commitment toward voluntary climate actions.

Benefits Analysis

The implementation of the measures included in this PCAP are anticipated to have a broad range of benefits. Implementation of the priority measures identified in this PCAP will result in climate pollution emission reductions as well as air quality improvements, improved public health outcomes, quality job creation, economic benefits and cost savings, increased climate resilience, and other environmental benefits. This section details the current co-pollutant inventory to provide a baseline for tracking future reductions of co-pollutants from implementation of priority measures. In addition, please review the Low-Income and Disadvantaged Community Benefits section to see mechanisms to track benefits, and monitor, minimize, and mitigate, to the extent possible, any potential disbenefits resulting from implementation of the priority measures.

In 2019, analysis of the impacts of the costs and benefits of the strategies considered by the Maine Climate Council in the development of the State's climate action plan, *Maine Won't Wait* included a "Cost of Doing Nothing Analysis" with estimates of losses that the State of Maine and its citizens could incur if the State does not take action to prevent or prepare for climate change, as well as an "Economic Analyses of Adaptation and Mitigation Strategies" with economic analyses to provide context for the strategies.

Key findings from the "Cost of Doing Nothing" analysis included a significant economic, ecosystem, and public health impacts from climate impacts, including

- The combination of 1.6 feet of sea level rise and storm surges by 2050 could lead to the loss of about 22,000 jobs by 2050 and building damage of $17.5 billion cumulatively between 2020 and 2050.
- Sea level rise could contribute to the net loss of over 10 square kilometers of eelgrass and nearly 40 square kilometers of salt marsh, leading to $4 million in social costs and other ecosystem services losses in excess of up to $250 million through 2100.
- Sea level rise could cost Maine $1.67 billion in tourism spending annually by 2100, with 13 million fewer visitors due to narrowing beaches. Dune loss could lead to a loss of $70 million annually from diminished flood protection and loss of essential wildlife habitat.
- Vector-borne disease currently costs Maine over $10 million annually for patient treatment alone and has the potential to get worse with warmer, shorter winters.

- Nearly $600 million of annual revenue in lobster and aquaculture is potentially at risk from warming ocean waters.
- Health care costs associated with high-heat days could be up to 36 times higher by 2100, costing nearly $10 million annually.

Key findings from the "Economic Analyses of Adaptation and Mitigation Strategies" found that Maine can reduce greenhouse gas emissions through many strategies that provide cost savings (Figure 5). The figure below provides examples of strategies, with the most cost-effective strategies in the top rows. These strategies will be essential to meet the State's 2030 and 2050 greenhouse gas reduction goals. While many of these strategies reduce emissions, they do not eliminate them, and the cost of mitigation strategies will typically increase after the more cost-effective strategies (the low-hanging fruit) are implemented to their capacity.

Maine will need to also focus on sequestering carbon to offset these emissions and achieve net carbon neutrality by 2045. Preserving natural working lands is a low-cost way to sequester carbon. While restoring eelgrass and marsh is a higher-cost approach to sequestration, it can provide many important ecosystem service values such as support of commercial fisheries. Strategies that can protect existing "blue carbon" will typically be much more cost-effective than losing and restoring them later.

Greenhouse Gas Reduction or Sequestration Strategy	Cost-Effectiveness to Reduce or Sequester Carbon Dioxide
• Building codes focused on energy efficiency • Geothermal heat and cooling for buildings • Heat pumps and heat pump water heaters • Building weatherization • A well-crafted work from home policy	**Highest cost-effectiveness:** These strategies have cost savings over their lifetimes and CO_2 reduction
• Electric vehicle adoption • Renewable energy adoption	**Very cost-effective, with potential for cost savings** over time with mass production
• Preserving natural working lands to sequester carbon	**Very cost-effective:** about $4–$20 per metric ton of CO_2 sequestered
• Methane to energy projects	**Medium cost-effectiveness:** about $100–$200 per metric ton of CO_2 reduced
• Fuel tax • Carbon tax	**Lower cost-effectiveness:** about $150-$250 per metric ton of CO_2 reduced (this is cost to consumers and revenue to state, and can improve cost effectiveness if revenue is used for projects that further reduce emissions)
• Restoring marsh and eelgrass to sequester carbon • Vehicle miles traveled fee	**Less cost-effective:** more than $1,000 per metric ton of CO_2 reduced (but restoration can provide other value in flood protection and to commercial fisheries; and the revenue from the vehicle miles traveled fee can be used for projects that further reduce emissions)

Figure 5. Relative cost-effectiveness of greenhouse gas reduction or sequestration strategies and measures included in the PCAP.

2020 Inventory for Co-Pollutants

Maine obtained emissions data from EPA's 2020 National Emissions Inventory and extracted criteria pollutant and hazardous air pollutant (HAP) emissions data to create a 2020 base county-level inventory for the sectors targeted by the priority measures included in this PCAP.[18] Table 6 presents these nitrogen oxides (NOx), direct fine particulate matter (PM2.5), sulfur dioxide (SO_2), volatile organic compounds (VOC), and HAP data by sector, county, and pollutant for Maine.

[18] https://gaftp.epa.gov/air/nei/2020/data_summaries/2020neiMar_county_tribe_allsector.zip accessed on 10/10/2023.

Table 6. 2020 Maine Criteria Pollutant and HAP Emissions Inventory by County, and Pollutant. Data are reported from the EPA's National Emissions Inventory. County level data are presented in Appendix B.

Maine County	Nitrogen Oxides	PM2.5 Primary (Filt + Cond)	Sulfur Dioxide	Volatile Organic Compounds	HAP Emissions	Grand Total
Androscoggin	162.54			213.06	2118.54	2494.14
Aroostook	138.97				26531.9	26670.87
Cumberland		25.77			200240.3	200266.07
Franklin	65.69	0.66			3247.64	3313.99
Hancock	26.86				14578.18	14605.04
Kennebec	246.43				5951.51	6197.94
Knox	11.73				10346.06	10357.79
Lincoln			0.93	2.22	28277.64	28280.79
Oxford	1281.888	2281.32	92.48	14814.65	52524.48	70994.818
Penobscot		16.77		298.59	9903.97	10219.33
Piscataquis				41.94	8149.79	8191.73
Sagadahoc			0.01		21448.45	21448.46
Somerset			1.45		7073.1	7074.55
Waldo	15.44	0.76	0.93		6844.71	6861.84
Washington		0.7			5004.55	5005.25
York	56.11				83009.68	83065.79
Grand Total	**723.77**	**44.65**	**3.32**	**555.81**	**485250.5**	**486578.05**

Low-Income and Disadvantaged Community Analysis

The implementation of the measures included in this PCAP are anticipated to provide significant benefits to low-income and disadvantaged communities (LIDACs). This section identifies each LIDAC within the jurisdiction covered by this PCAP, how Maine meaningfully engaged with LIDACs in the development of this PCAP, and how Maine will continue to engage into the future.

Identification of and Engagement with LIDACs

The Equity Subcommittee of the Maine Climate Council was established to support ongoing planning and implementation of the State's climate strategies to ensure shared benefits across diverse populations in Maine.

The subcommittee builds upon a groundbreaking equity analysis of the Maine Climate Council's climate strategies that took place during the summer of 2020. That analysis, by the Senator George J. Mitchell Center for Sustainability Solutions at the University of Maine, provided an equity lens on the four-year climate action plan's strategies, but also identified the need for further focus on ensuring climate equity in Maine as the State seeks to implement climate mitigation and adaptation programs.

Following the release of *Maine Won't Wait*, the Equity Subcommittee met to make recommendations for ensuring that all Mainers can benefit from climate action. Over the course of their work, the subcommittee reviewed the strategies in *Maine Won't Wait* to identify opportunities to ensure that Maine's climate response reaches those most in need, worked with State agencies and the Climate Council's Working Groups to refine those recommendations and highlight actions already underway, and developed equity metrics to ensure that programs and benefits reach priority populations and communities. In January 2023, the Equity Subcommittee adopted its final recommendations for submission to the Maine Climate Council (PDF).

The Equity recommendations in the report are organized to align with the strategies in *Maine Won't Wait*. They include actions to ensure that the benefits of Maine's climate actions reach those who most need it, and to support increased participation in State climate and energy processes. There are specific recommendations for the Maine Climate Council to consider to more firmly integrate equity into the State's

climate action plan going forward. Those recommendations are currently being incorporated into the work to update the State's climate action plan, which will also meet the requirements of the EPA CPRG planning grant deliverable, the Comprehensive Climate Action Plan (CPAP).

In December 2023, the Governor's Office of Policy Innovation and the Future on behalf of the Maine Climate Council, selected the University of Maine, through a competitive process, to support increased community engagement with low-income and disadvantaged communities in the State climate action planning process.

Over the coming year, the University of Maine will partner with community-based organizations across the State to engage with low-income and disadvantaged communities and priority populations to contribute to the climate planning process; support members of low-income and disadvantaged communities and priority populations who are members of the Maine Climate Council working groups; and develop and provide equity training and guidance to the climate council and its working groups.

In addition to the LIDACs identified using the EPA's Climate and Economic Justice Screening Tool (CEJST), priority populations as identified by the Equity Subcommittee of the Maine Climate Council include but are not limited to the list below. Note that priority populations may have overlapping characteristics; and that not all priority populations are equally vulnerable to all climate risks and opportunities.

- Low-income households, including renters, homeowners, and mobile home residents
- Older adults and youth
- Black or POC communities
- Tribal communities
- Low-income communities
- Disadvantaged communities
- People with limited English proficiency, including New Mainers
- Recipients of LIHEAP, LIAP, or other energy assistance benefits
- People with mobility challenges
- People without access to reliable transportation
- Migrant farm workers and other outdoor workers
- Businesses in the natural resource industries like agriculture, forestry, and fishing who are operating at the economic margin or suffer disproportionate climate risk

- Un/underemployed people who are also representatives of a priority population or are transitioning from prison or recovery
- Minority, women-owned or veteran owned business enterprises (MWBVEs)
- Rural communities and small towns with limited staff or fiscal capacity
- Climate-frontline communities

See the Outreach and Coordination section of this PCAP for the engagement plan for the priorities of this PCAP, including a record of outreach activities, and a summary of input received.

Impact of PCAP Implementation on LIDACs

In *Maine Won't Wait*, the climate council described that 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.

Maine Won't Wait identified key indicators to 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 included:

- Progress toward 80% renewable energy by 2050
- Energy saved via ongoing efficiency measures
- Clean-energy jobs created
- Electric Vehicles on the road, including Plug-in EVs
- 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 adaption infrastructure projects completed
- Climate infrastructure and investment funding and leveraged
- Federal and private dollars leveraged per State dollar
-

Each year, the Maine Climate Council releases an annual progress report highlighting key actions and milestones under *Maine Won't Wait*.

2023_MWW Progress Report.pdf (maine.gov)

In its January 2023 report to the Maine Climate Council, the Equity Subcommittee identified Equity Outcome Metrics for *Maine Won't Wait* key indicators. These equity outcome metrics are intended to ensure that climate action benefits all people in Maine, especially those who are most vulnerable.

Starting in 2023, the annual climate action progress report includes equity metrics as recommended by the Equity Subcommittee. The equity outcome metrics, like the examples shown below, are aligned with the *Maine Won't Wait* indicators and assess where climate actions are happening and who is benefiting.

In 2023, Equity metrics were tracked across multiple implementation strategies, including home heat pumps, specific grant programs invested in socially vulnerable communities, participation of communities that rank high on the social vulnerability index in the community resilience partnership, reduction of energy burden, availability of broadband service and rebates for electric vehicles shown in Figure 6.

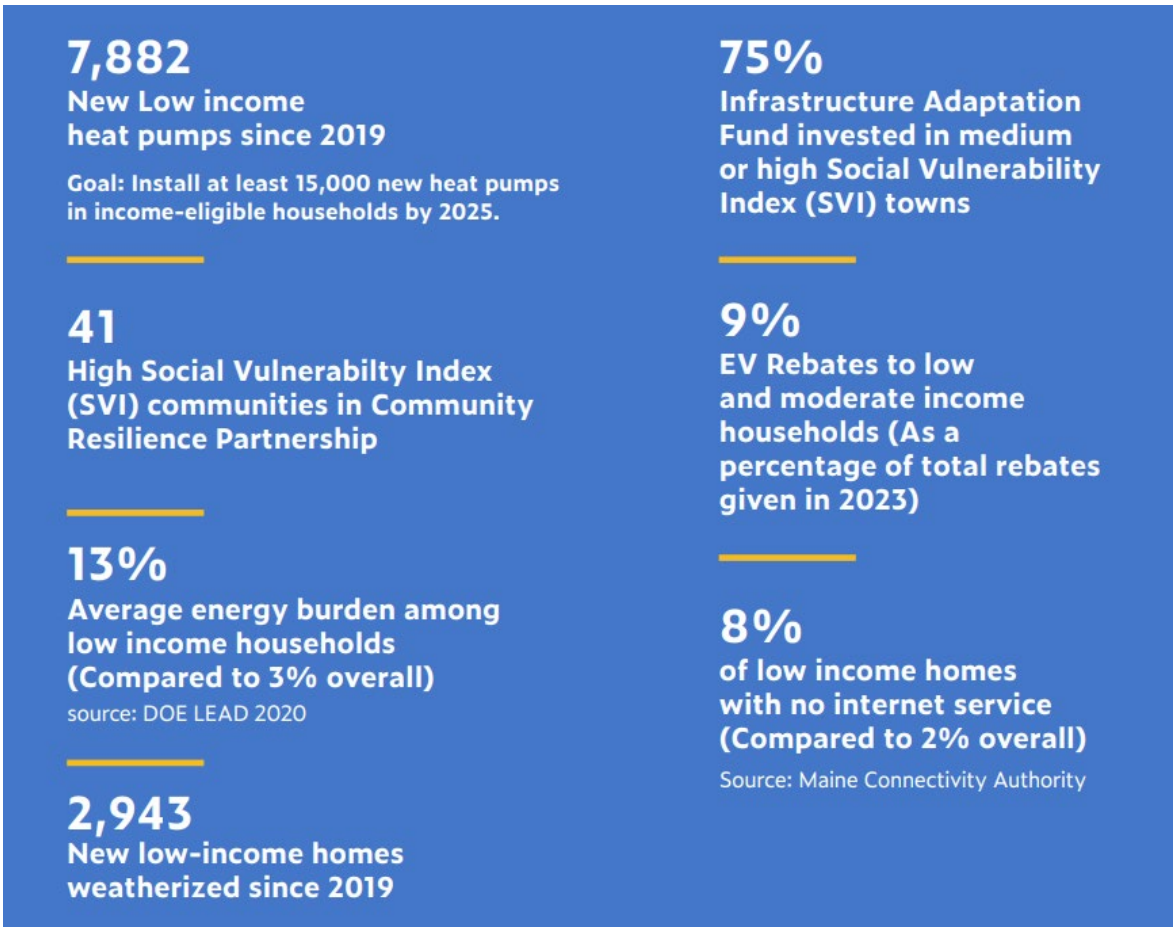
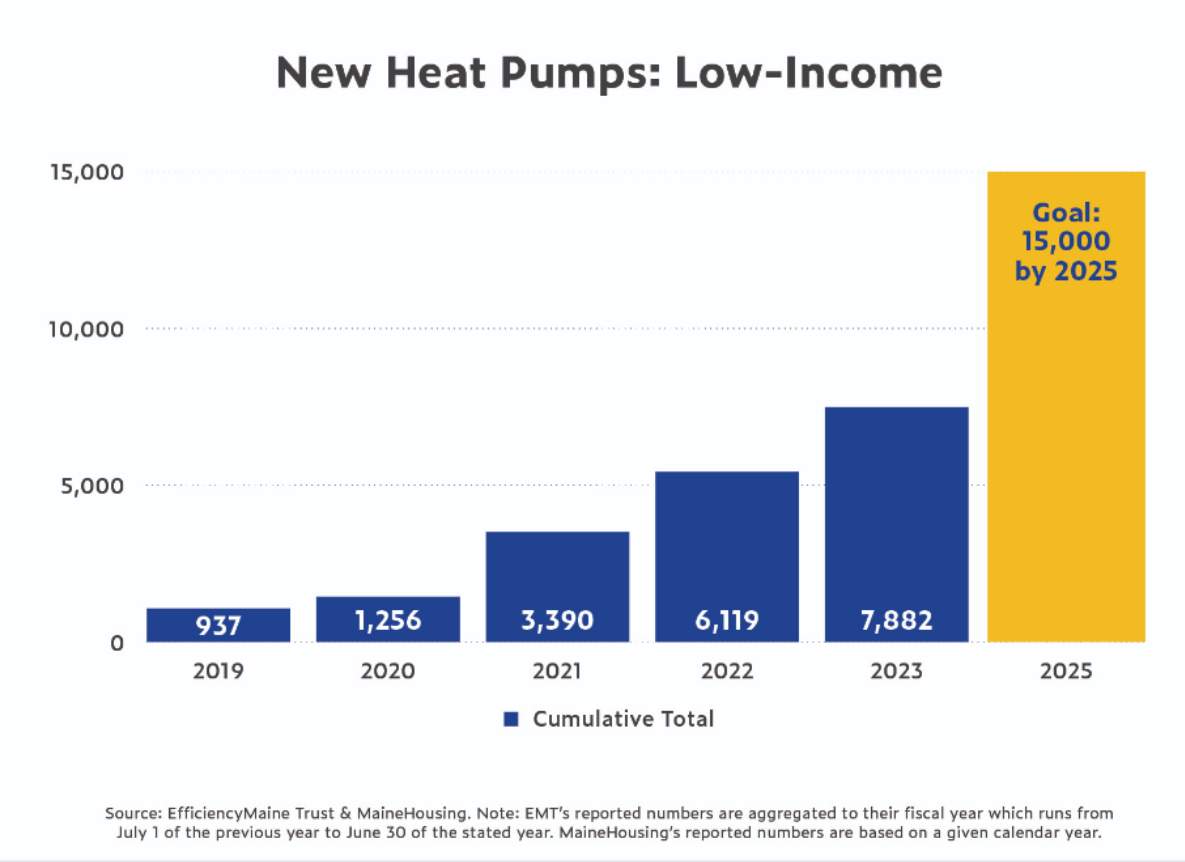


Figure 6. Equity metrics presented in the 2023 progress report on actions from Maine Won't Wait.

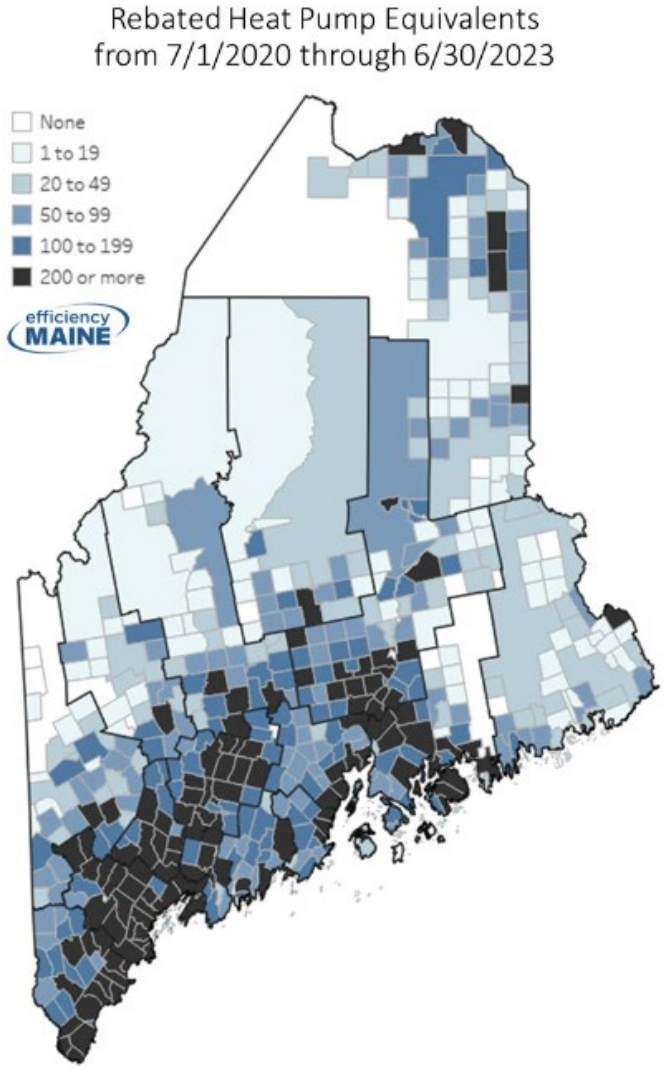
In addition, the *Maine Won't Wait* online dashboard includes a variety of additional data sources on climate and clean energy in Maine, such as land conservation and clean energy generation. The dashboard includes data regarding how programs and investments are reaching vulnerable communities, such as the number of weatherization projects and heat pump installations in low-income households in Maine. The following charts and maps are among those available at the Maine Climate Council's online dashboard,

[Climate Plan Progress Map and Dashboard | 2023 | Maine Climate Plan]

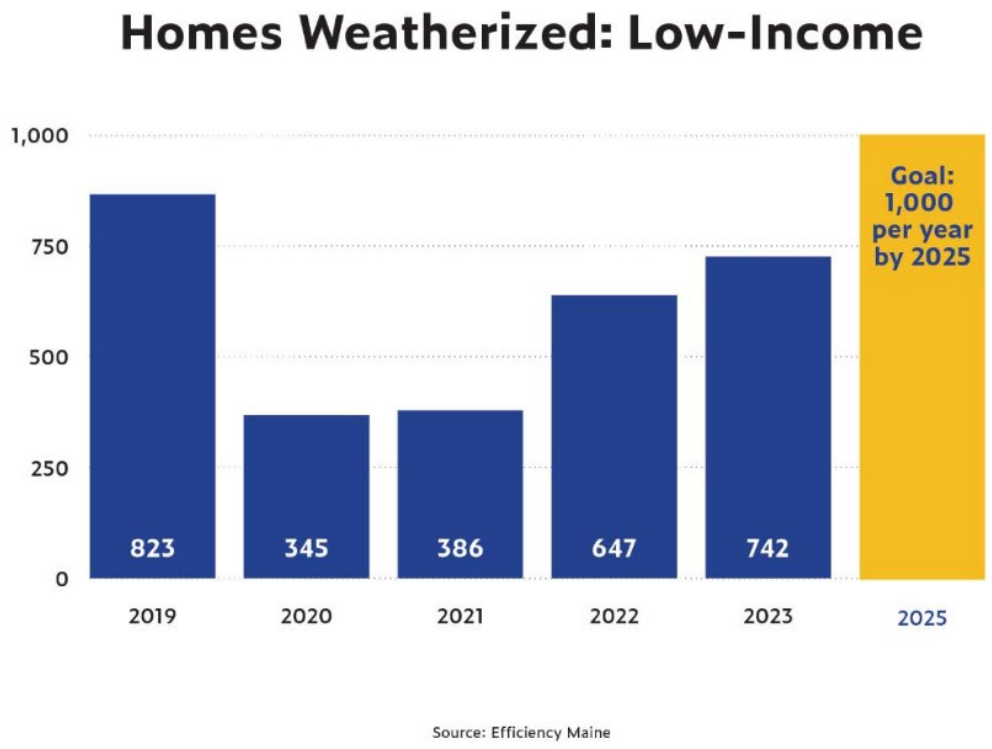
Maine is prioritizing heat pump rebates for our low-income households, with Governor Mills setting a goal of 15,000 heat pumps in low-income households by 2025. We've reached 7,882 as of November 2023.



This Efficiency Maine map shows how many heat pump equivalents received rebates ("rebated heat pump equivalents") across Maine towns. EMT counts heat pumps by “heat pump equivalents” (HPe) where 1 HPe = 25.1 MMBTU / year modelled offset. This is equivalent to EMT’s Tier 1 residential first units, but not directly equivalent to the total number of rebates or physical heat pumps. EMT tracks their rebates this way to compare large VRF systems (>1 heat pump equivalent) and smaller packaged terminal heat pumps (<1 heat pump equivalent) accurately.



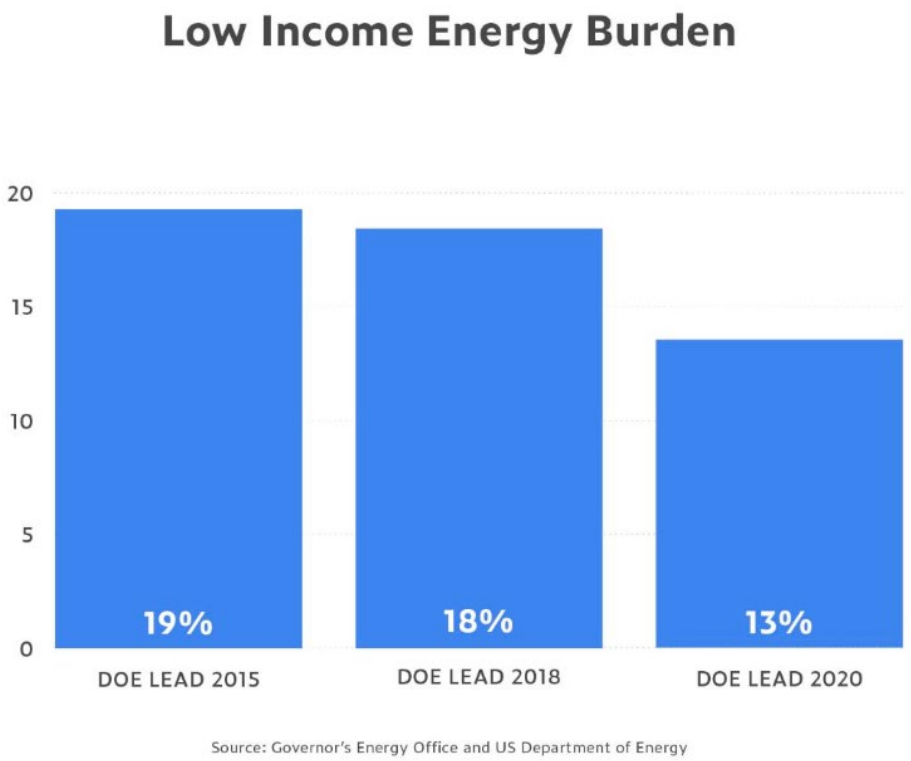
Maine is prioritizing weatherization support for low-income households, with *Maine Won't Wait* setting a goal of 1,000 new low-income homes weatherized each year by 2025.



Clean energy & energy efficiency initiatives like weatherization are vital tools for reducing Mainers' energy burden. Energy burden, defined as energy expenditures divided by income, is essentially a measure of how much of a household's income is being spent on power, heat, and light.

Research from the Maine Governor's Energy Office and U.S. Department of Energy has found that the average Maine energy burden declined from 6% in 2015 to 3% in 2020.

Energy burden is higher among low-income households in Maine, but still decreasing. The Maine Governor's Energy Office and U.S. Department of Energy have found that the average Maine low-income households' energy burden declined from 19% in 2015 to 13% in 2020.



Maine recognizes the importance of ensuring implementation of climate action benefits all populations. The Governor's Office of Policy, Innovation and the Future coordinates an inter-agency staff working group to increase coordination and monitor investments in low-income and disadvantaged communities in alignment with the Justice 40 requirements. GOPIF has created an internal tracking spreadsheet that links zip codes of communities with the federal CJEST tool to monitor benefits in specific geographies. Additionally, GOPIF uses the following tools to track whether a community is identified as disadvantaged to monitor where investments are occurring – Geolocation to Census Tract Tool[19], the EPA IRA Disadvantage Communities Tool[20], and the Climate and Economic Justice Screening Tool[21].

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[19] Geolocation to Census Tract Tool by the Environmental Impact Data Collaborative at McCourt School Massive Data Institute. https://eidc.shinyapps.io/J40Tool/

[20] EPA IRA Disadvantaged Communities Esri Map. https://epa.maps.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=f3be939070844eac8a14103ed6f9affd&extent=-74.0,40.9,-71.5,42.1

[21] Climate and Economic Justice Screening Tool. https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5

Review of Authority

Authority to Implement actions within *Maine Won't Wait*, Maine's four-year Climate Action Plan.

GOPIF has reviewed existing statutory and regulatory authority to implement each priority measure contained in this PCAP. In June 2019, Governor Mills signed LD 1679 into law, establishing the Maine Climate Council and setting greenhouse gas emission reductions for Maine. In September 2019, Governor Mills issued Executive Order 10: an order to strengthen Maine's economy and achieve carbon neutrality by 2045.

Maine has statutory greenhouse emissions reduction targets set forth in §576-A. Greenhouse gas emissions reductions requiring a 45% reduction in carbon emissions below 1990 levels by 2030, at least 80% reductions by 2050, and achieving carbon neutrality by 2045.

GOPIF coordinates the work of the Maine Climate Council and works with the Maine Department of Environmental Protection (Maine DEP), the Governor's Energy Office, Maine Department of Transportation (Maine DOT), other State agencies, regional and municipal governments, and key stakeholders on policy issues to advance climate and energy policy.

GOPIF is authorized under §577-A. Maine Climate Council Title 38: Waters and Navigation Chapter 3-A: Climate Change to provide staff support for the Maine Climate Council, subcommittee and working groups. Under the guidance of *Maine Won't Wait*, the four-year climate action plan, all State agencies are empowered to advance implementation strategies that uphold the Climate Council objectives.

The Maine Department of Environmental Protection is authorized to conduct a biennial greenhouse gas inventory under Title 38: Chapter 3-A: Climate Change §578. Progress evaluation. The Department also has statutory authority to implement the Regional Greenhouse Gas Initiative in Maine, efficiency standards for appliances, restrictions on high global warming potential hydrofluorocarbons, and to adopt other rules necessary to meet Maine's greenhouse gas emission reduction targets. Efficiency Maine is required to include in their Triennial Plan strategies and funding needed to achieve the goals in *Maine Won't Wait* for heat pumps, weatherization, and EVs. 35-A MRSA Sec 10104(4)(F).

Intersection with Other Funding Availability

Many of the priority measures included in this PCAP expand upon or complement existing programs. GOPIF has explored federal and non-federal funding sources to determine whether these sources could fund each priority measure. Given the magnitude of need, the available funding is insufficient to fully realize any particular measure. The available funding for greenhouse gas reduction measures in *Maine Won't Wait* dashboard is available at https://www.maine.gov/future/climate/CPRG. A synopsis of key available funding opportunities for priority measures follows.

Funding to Increase Number of Light-Duty EVs on the Road and Increase Share of Light-Duty EVs Sales:

The Bipartisan Infrastructure Law (BIL), Inflation Reduction Act (IRA), and Maine's plan to utilize American Rescue Plan Act dollars called the Maine Jobs & Recovery Plan (MJRP) each authorize federal spending to increase the number of light-duty electric vehicles (EVs) in use nationwide. The 2020 *Maine Won't Wait* Climate Action Plan set a target of 219,000 light-duty EVs on the road by 2030. As of October 2023, over 12,000 battery electric and plug-in hybrid vehicles are registered in Maine.

Some federal programs aimed at increasing the number of light-duty EVs on the road in Maine include:

- **National Electric Vehicle Infrastructure (NEVI) Program:** BIL-funded program that provides formula grants to states to strategically deploy EV charging stations and to establish an interconnected network to facilitate data collection, access, and reliability.
    - In order to receive Maine's allocation of approximately $19 million in NEVI funds, State agencies developed a Plan for Electric Vehicle Infrastructure Deployment outlining how the State plans to use NEVI and other funding sources to expand public EV charging over the next five years. Efficiency Maine, MDOT, and other State agencies developed this plan with input from stakeholders. Maine's NEVI Plan was approved by the Federal Highway Administration (FHWA) in September 2023.
    - Recharge Maine, the State's initiative to develop a Statewide network of public, high-speed EV chargers, announced planned awards of more

than $5 million in National Electric Vehicle Infrastructure (NEVI) Program funds authorized by the federal Bipartisan Infrastructure Law (BIL). The awards will be used to develop new DC fast chargers (DCFC) in Augusta, Ellsworth, Searsport, Rockland, Waldoboro, and Brunswick. Additional funds from the Maine Jobs and Recovery Plan (MJRP) and the New England Clean Energy Connect (NECEC) Settlement have been awarded to develop DC fast charging stations in Aroostook and Washington Counties in Presque Isle, Fort Kent, Van Buren, Medway, Houlton, Ashland, Baileyville and Machias. Efficiency Maine opened a new round of applications on October 16, 2023 for locations in Western Maine, Southern Maine, and I-95 in the Central Maine/Bangor area.
    - More information: https://afdc.energy.gov/laws/12744
- **EV Charging Infrastructure Program:** MJRP-funded program that allocates $8 million to Efficiency Maine Trust (EMT) to expand EV charging infrastructure
    - Applications for these funds have closed and installation is ongoing.
    - More information: https://www.efficiencymaine.com/federal-funding/
- **Charging and Fueling Infrastructure (CFI) Program:** BIL-funded program to strategically deploy publicly accessible electric vehicle charging and alternative fueling infrastructure in the places people live and work.
    - In June 2023, the Maine Department of Transportation (MDOT) applied for up to $50 million over five years to support public level 2 and DC fast charging station installation statewide. Award decisions are pending.
    - More information: https://www.transportation.gov/rural/grant-toolkit/charging-and-fueling-infrastructure-grant-program
- **Ride and Drive Electric:** BIL-funded program administered by the Joint Office of Energy and Transportation will increase equitable access to EV charging stations.
    - In August 2023, the Maine Governor's Energy Office applied for up to $4 million from this program. Award decisions are pending.
- **EV Technician Workforce Trainings:**
    - Funding from the Clean Energy Partnership, a workforce program recommended by *Maine Won't Wait* and created using federal funds through MJRP, is expanding workforce trainings in EV Repair for technicians, including a 2022 award to Kennebec Valley Community College.
    - MJRP also funded EV Repair trainings at several other Maine Community College System campus, providing no-cost trainings to students to help prepare Maine's workforce to accommodate the increasing demand for EV technicians.

- **Efficiency Maine Trust EV Rebates for Low- and Moderate-Income Residents:** In late 2022, EMT increased their rebate for low and moderate income residents; low income residents can receive up to $7500 for a new EV and up to $3000 for a new PHEV, while moderate income residents can receive up to $3500 (EV) or $2000 (PHEV) for qualified vehicles. Low-income residents are also eligible for a rebate of up to $2,500 for the purchase of a used EV or PHEV.
    - More information: https://www.efficiencymaine.com/electric-vehicle-incentives-for-low-and-moderate-income-mainers/
- **Alternative Fuel Refueling Property Credit:** IRA-funded program provides tax credits of up to $100,000 to businesses and individuals that place qualified refueling property into service during the tax year.
    - More information: https://www.irs.gov/credits-deductions/alternative-fuel-vehicle-refueling-property-credit
- **Light-Duty EV Tax Credit:** IRA-funded program provides tax credits of up to $7,500 to consumers who bought a qualified EV beginning in 2022. Beginning in 2024, car dealerships will be able to offer the incentive at the point of sale.
    - More information: https://www.irs.gov/credits-deductions/credits-for-new-electric-vehicles-purchased-in-2022-or-before

Funding to Reduce Light-Duty VMT per Vehicle:

The Bipartisan Infrastructure Law (BIL), Inflation Reduction Act (IRA), and Maine Jobs & Recovery Plan (MJRP) each authorize federal spending to reduce vehicle miles travel (VMT). The 2020 *Maine Won't Wait* Climate Action Plan set a target of achieving 10% reductions by 2025 and 20% by 2030.

- **Carbon Reduction Program:** BIL-funded program provided formula funding to MDOT to develop a comprehensive Carbon Reduction Strategy (CRS) to steer statewide transportation decision-making towards interventions that reduce VMT. MDOT submitted the State CRS in November 2023.
    - More information: https://storymaps.arcgis.com/stories/ea2c39032b40435aa7afbea7d3e8ab9c
- **Workforce Transportation Pilot:** MJRP-funded program provided $5 million in American Rescue Plan Act funds to the Maine Department of Transportation to support local, regional, and State workforce transportation pilot projects, especially in rural areas.

- To date, $3 million of these funds have been announced for 8 Maine organizations to pilot new ways to connect their workforce to transportation options.
- More information: https://www.maine.gov/mdot/grants/mjrp/workforce/

Funding to Increase the Share of Zero-Emission Vehicles Among New Heavy-Duty Vehicle Sales and Reduce Heavy-Duty VMT per Vehicle:

Maine Won't Wait recommends significant investment to increase the number of heavy-duty electric vehicles (EVs) in use. Some current and upcoming federal initiatives that can contribute to this goal include:

- **Clean Heavy-Duty Vehicle Program:** IRA-funded program that will invest $1billion to replace dirty heavy-duty vehicles with clean, zero-emission vehicles, support zero-emission vehicle infrastructure, and to train and develop workers. The Environmental Protection Agency (EPA) will administer these funds in the form of both grants and rebates to eligible recipients to replace existing heavy-duty vehicles with clean, zero-emission vehicles.
  - This program is expected to launch in spring 2024.
  - More information: https://www.epa.gov/inflation-reduction-act/clean-heavy-duty-vehicle-program
- **SmartWay Program:** Voluntary program managed by EPA that helps companies advance supply chain sustainability by measuring, benchmarking, and improving freight transportation efficiency.
  - The Maine Motor Transport Association (MMTA), with support from MDOT, promotes enrollment in the US EPA's SmartWay program. There are currently more than 30 SmartWay members who are either headquartered or operate in Maine. MMTA provides information about the program, its benefits for owners and operators of large trucks, and how to get started.
  - More information: https://www.epa.gov/smartway
- **Clean Transportation Roadmap:** The State of Maine recently selected a consultant to complete a Clean Transportation Roadmap for medium and heavy duty vehicles (MHDV) for the State, focusing on vehicle technology forecasts, charging needs, policy recommendations, and operational needs of Maine's truck owners and operators. This roadmap was a recommendation of

the State's 2021 Clean Transportation Roadmap, which primarily focused on light duty passenger vehicles.

- **Electric or Low-Emitting Ferry Pilot Program:** BIL-funded program that funds the purchase of electric or low-emitting ferries and the electrification of existing ferries.
    - Maine received $28 million from the FY23 iteration of this program to replace a 35-year-old ferry with a new, hybrid-electric vehicle.
        - More information: https://www.transit.dot.gov/funding/grants/grant-programs/electric-or-low-emitting-ferry-pilot-program-iija-ss-71102
- **Clean School Bus Program:** BIL-funded program to fund the replacement of existing school buses with clean and zero-emission school buses.
    - Maine received $13.3 million from the FY22 iteration of this program to purchase 34 clean school buses in 13 school districts.
        - More information: https://www.epa.gov/cleanschoolbus/clean-school-bus-program-grants
- **Low or No-Emission Vehicle Program:** BIL-funded program that provides competitive grants for the purchase or lease of zero-emission and low-emission transit buses as well as acquisition, construction, and leasing of required supporting facilities.
    - Maine received $2 million from the FY22 iteration of this program to purchase battery electric buses to serve the Biddeford-Saco-Old Orchard Beach Transit district.
        - More information: https://www.transit.dot.gov/lowno

Funding to Increase Heat Pump Usage in Maine (Retrofit and Whole-Home):

Maine Won't Wait set out ambitious goals for modernizing home heating systems throughout the State by:

- Installing at least 100,000 heat pumps by 2025, including 15,000 new heat pumps in income-eligible households
- Ensuring that, by 2030, 130,000 homes are using 1-2 heat pumps and an additional 115,000 homes are using a whole-home heat pump system

Some state and federal programs aimed at increasing the usage of heat pumps in Maine include:

- **Efficiency Maine Trust Weatherization Initiatives:** MJRP-funded program allocated $50 million to fund weatherization upgrades (including heat pumps) at homes, businesses, and public buildings.
    - Residential heat pump installation can qualify for up to $10,600 for whole-home heat pumps or $6,600 for supplemental heat pumps.
    - More information: https://www.efficiencymaine.com/about-heat-pumps/
- **Energy Efficiency Home Improvement Credit:** Existing tax credit program expanded by IRA provides a 30% credit, up to $2,000, for heat pumps installed after Jan. 1, 2023.
    - More information: https://www.irs.gov/credits-deductions/energy-efficient-home-improvement-credit
- **Home Energy Rebates Program:** Two related IRA-funded programs – the Home Efficiency Rebates (HER) program and the Home Electrification and Appliances Rebates (HEAR) program – that provide grants to state energy offices to provide rebates that discount the price of energy-saving retrofits in single-family and multi-family buildings.
    - Through the HER program, Maine will receive $35.9 million to provide incentives for individual and multifamily dwellings for energy efficiency retrofits.
    - Through the HEAR program, Maine will receive $35.7 million to provide point-of-sale rebates for energy efficiency measures in low- to moderate-income dwellings.
    - More information: https://www.energy.gov/scep/home-efficiency-rebates.

Funding to Increase Number of Newly-Weatherized Homes in Maine:

Efficiency Maine and MaineHousing weatherized over 3,500 homes in 2023, including nearly 1,000 low-income homes. This puts the State on track to meet its goals of weatherizing 17,500 homes and businesses by 2025 including 1,000 low-income units per year. BIL, IRA, and MJRP each contain funding to weatherize existing housing stock:

- **Weatherization Assistance Program:** BIL-funded program reduces energy costs for low-income households by increasing the energy efficiency of their homes, while ensuring their health and safety.

    - MaineHousing is receiving $31 million for low-income weatherization from this program. These funds will be used for multifamily weatherization, workforce training and development (e.g., incentives to build contractor capacity, insurance payment assistance, "lease to own" equipment program), and expanding the nonprofit service delivery network.
    - More information: https://www.energy.gov/scep/wap/weatherization-assistance-program
- **Solar for All:** IRA-funded program will expand the number of low-income and disadvantaged communities primed for residential solar investment—enabling low-income households to access affordable, resilient, and clean solar energy through solar installations and battery storage.
    - In October 2023, the Maine GEO submitted an application to this program that, if successful, will invest significant federal funds into residential solar in Maine. Application decision is pending.
    - More information: https://www.epa.gov/greenhouse-gas-reduction-fund/solar-all.
- **Home Efficiency Workforce Programs:**
    - **State-Based Home Energy Efficiency Contractor Training Grants:** IRA-funded program that provides formula grants to State energy offices so they can train, test, and certify residential energy efficiency and electrification contractors.
        - This program is currently open for applications. The Maine GEO is currently in the process of applying.
        - More information: https://www.energy.gov/scep/state-based-home-energy-efficiency-contractor-training-grants
    - **Energy Auditor Training:** BIL-funded program to train individuals to conduct energy audits or surveys of commercial and residential buildings to build the clean energy workforce, save customers money on their energy bills, and reduce pollution from building energy use.
        - This program is currently open for applications. The Maine GEO is currently in the process of applying.
        - More information: https://www.energy.gov/scep/energy-auditor-training-grant-program
    - **Career Skills Training:** BIL-funded program will provide $10 million in grants to pay the Federal share of career skills training programs under which students concurrently receive classroom instruction and on-the-job training for the purpose of obtaining an industry-related certification to install energy efficient building technologies.

        - This program is currently open for applications. The Maine GEO is currently in the process of applying.
        - More information: https://www.energy.gov/scep/career-skills-training-program
- **Home Energy Rebates Program:** Two related IRA-funded programs – the Home Efficiency Rebates (HER) program and the Home Electrification and Appliances Rebates (HEAR) program – that provide grants to state energy offices to provide rebates that discount the price of energy-saving retrofits in single-family and multi-family buildings.
    - Through the HER program, Maine will receive $35.9 million to provide incentives for individual and multifamily dwellings for energy efficiency retrofits.
    - Through the HEAR program, Maine will receive $35.7 million to provide point-of-sale rebates for energy efficiency measures in low- to moderate-income dwellings.
    - More information: https://www.energy.gov/scep/home-efficiency-rebates.

Funding to Upgrade Maine's Electricity Grid to Use 80% Renewable Energy Sources by 2030:

Maine Won't Wait set out the ambitious goal of transitioning Maine's electric grid to run on 80% renewable energy by 2030. Some federal programs aimed at meeting this goal include:

- **Grid Resilience and Innovation Partnerships:** BIL-funded program that provides $5 billion for FY 22-26 to support projects that use innovative approaches to transmission, storage, and distribution infrastructure to enhance grid resilience and reliability.
    - More information here: https://www.energy.gov/gdo/grid-innovation-program
- **Grid Resilience State and Tribal Formula Grants:** BIL-funded program to strengthen and modernize America's power grid against wildfires, extreme weather, and other natural disasters that are exacerbated by the climate crisis.
    - To date, the Maine GEO has received $4.4 million from this program to carry out grid hardening and resilience activities.
    - More information: https://www.energy.gov/gdo/grid-resilience-statetribal-formula-grant-program.

- **Smart Grid Program:** BIL-funded program will increase the flexibility, efficiency, and reliability of the electric power system.
    - In October 2023, Central Maine Power received a $30 million grant from this program to enhance utility resistance throughout the State.
    - More information: https://www.energy.gov/gdo/smart-grid-grants
- **Transmission Siting and Economic Development Grants:** IRA-funded program to help overcome permitting challenges that slow the deployment of critical transmission and provide tangible benefits to communities across the country.
    - This program is currently open for applications. The Maine GEO is currently in the process of applying.
    - More information: https://www.energy.gov/gdo/transmission-siting-and-economic-development-grants-program.

Workforce Planning Analysis

The priority measures included in this PCAP will result in the creation of high-quality jobs for Maine, and leverage the Clean Energy Partnership (CEP) program, an energy workforce and business development initiative of the Governor's Maine Jobs & Recovery Plan.

Growth in Maine's clean energy and efficiency sector will require a skilled workforce, creating good career opportunities for thousands of Maine people, especially when paired with focused education and training opportunities, and policies and incentives that reward quality jobs with family-supporting wages and benefits. Governor Mills has established a target of more than doubling Maine's clean energy and energy efficiency jobs to 30,000 by 2030.

The CEP program is focused on preparing Maine people for jobs in clean energy and energy efficiency, supporting economic development, and advancing innovation and technology in the sector. This section details Maine's strategies and commitments to ensure job quality, strong labor standards, and a diverse, highly skilled workforce for implementation of the priority measures.

Workforce Partnerships

Maine's Clean Energy Partnership (CEP) was established to advance Maine's clean energy, climate, economic development, and workforce goals.

Maine's clean energy sector has high growth potential and is poised to become a leader in the Northeast. This will be accomplished by preparing and expanding our clean energy workforce as well as supporting innovation of clean tech products and services.

Supported by the Maine Jobs and Recovery Plan, the Clean Energy Partnership convenes leading experts to sustain attention and promotes collaboration to address emerging needs, build new and expand existing supply chains, and support opportunities for Maine in these fast-growing fields.

In December 2022, the CEP awarded $2.5 million in grants to clean energy employers, educational institutions, industry associations, and nonprofit organizations to develop new curricula, provide technical training and experiential learning, deploy new job placement services, and other activities related to workforce development and training. The awarded projects will attract new workers to the clean energy and energy efficiency workforce, provide career training and upskilling opportunities to existing workers, increase diversity and representation in the clean energy workforce, and facilitate new and expanded clean energy apprenticeship, pre-apprenticeship, and internship models to facilitate entry into rewarding and high-paying jobs.

Anticipated Labor Changes

The 2022 Maine Clean Energy Workforce Analysis Report, prepared for the Governor's Energy Office, found that as of the end of 2021, there were roughly 14,500 clean energy workers across Maine. The report also found that across all clean energy-related occupations—jobs that could be conducting clean energy work but are not necessarily doing so currently, such as electricians or HVAC mechanics—there were a total of 142,287 clean energy-related jobs across Maine.

The 2023 Maine Clean Energy Industry Report found that the end of 2022, Maine's clean energy workforce had grown to over 15,000 workers.[22] Clean energy workers in Maine are not only growing in numbers, but also in the amount of time they spend on clean energy-related activities. The largest clean energy technology sector in Maine is energy efficiency, accounting for over 8,600 jobs, or 58% of the clean energy workforce. The next largest clean energy segment is renewable electric power generation which employs approximately one-fifth (20%) of the state's clean energy workers. There are just under 900 clean energy alternative transportation workers, constituting 6% of total clean energy workers in Maine.

Key findings from these reports include that overall, Maine's clean energy workforce is strong, economically resilient, and growing, with building electrification, weatherization, and other energy efficient measures accounting for most of the clean energy work in the State. With clean energy workers in the State indicating high satisfaction with their careers, Maine has a significant opportunity to bridge the

[22] 2023 U.S. Energy and Employment Report, BW Research, and 2023 Maine Clean Energy Industry Report (Draft report), BW Research.

workforce gap by expanding outreach and raising awareness of the benefits of clean energy careers amongst key populations in the State, including individuals seeking asylum, individuals with refugee status, migrant workers and their families, middle and high schoolers, and disenfranchised or underserved communities.

From the reports:

CLEAN ENERGY OCCUPATIONAL OVERVIEW

As of the last quarter of 2022, over 15,000 workers are employed in Maine's clean energy industry. These 15,000 workers spend at least some amount of their labor hours dedicated to clean energy goods and services and are spread across multiple technology sectors. Energy efficiency accounts for the majority of employment, with more than half of all clean energy jobs in the State. The remaining jobs are spread across renewable electric power generation, grid modernization and energy storage, renewable fuels, and alternative transportation technologies. In addition to these clean energy-specific jobs, there were a total 142,287 clean energy-related jobs across Maine as of the last quarter of 2021. This includes all workers in occupations that are clean energy-related, such as electricians and HVAC mechanics, who are not necessarily conducting clean energy work currently but could in the future.

In Maine, construction jobs comprise the largest concentration (49%) of the clean energy workforce, accounting for over 7,300 jobs in 2022. Other services employment, which makes up almost 10% of clean energy jobs, grew at the highest rate (10%) from 2021 to 2022 while professional and business services added the greatest absolute number of clean energy jobs (199) from 2021 to 2022.

Maine has an above-average concentration of clean energy-related construction jobs compared to the national, Northeast, and New England average. In 2021, the concentration of clean energy-related construction jobs in Maine was 1.2 times greater compared to the concentration across the U.S., 1.37 times more than the Northeast concentration, and 1.27 times more than the New England concentration. There were 33,306 clean energy-related construction workers in Maine in the third quarter of 2021, representing 5.1% of all jobs in Maine. The State also has above-average concentrations of clean energy-related installation, maintenance, and repair; production; transportation and material moving; and agriculture jobs compared to both national and regional averages.

Maine also has a significantly higher concentration of layout workers in metal and plastic compared to the national, Northeast, and New England average. In the third quarter of 2021, the concentration of layout workers in metal and plastic in Maine was 22.8 times greater compared to the U.S. average, 18.77 times more than Northeast concentration, and 6.93 times more than the New England concentration.

Among the establishments in Maine that are involved with clean energy-related activities, most (51%) are involved in the construction value chain, followed by 23% working in the professional and business services value chain. Manufacturing firms make up the smallest share (2%) of clean energy businesses in the state.

CLEAN ENERGY CAREERS PROFILE

Experience and professional licenses and certifications are key to working in the clean energy industry. Survey results from both current clean energy workers and clean energy employers highlight the importance of work experience and professional certifications. Most clean energy workers indicated that their highest level of educational attainment was either a high school diploma or vocational technical training, and the majority either already have a professional license or certification or are currently working towards one. Most clean energy workers also had at least several months of experience before landing their current clean energy position, with 58.5 percent noting that they had more than three years of related work experience. Similarly, employers indicated that experience is key, particularly for their entry-level production/assembly and installation/repair workers.

Clean energy workers have the opportunity for upward wage mobility and other career benefits. Many surveyed workers began their careers with annual wages that were less than $50,000 but have since grown their salaries to $50,000 to $100,000 per year; about a quarter of surveyed clean energy workers indicated earning more than $100,000 per year. Clean energy employees also indicated other career benefits, including healthcare, retirement, paid vacation and sick time, flexible work hours and schedules, company vehicles, the ability to work from home, tuition support, and transportation stipends.

Career satisfaction is high among clean energy workers. About nine in ten surveyed clean energy workers are satisfied (very or somewhat satisfied) with their current careers (87.8 percent). At least six in ten workers are satisfied with each of the following aspects of their clean energy careers: sense of belonging and acceptance at their company for individuals of all backgrounds, opportunities for promotion and

higher wages, opportunities to learn new skills and move up a promising career ladder, current wages, and the overall benefits packages received from their employers. These high levels of satisfaction indicate that career retention in the clean energy industry is also high.

Career navigation in the clean energy industry most often relies on word of mouth. Six in ten current clean energy workers indicated that they regularly rely on word of mouth when searching for new job opportunities. Fewer than 11 percent of respondents reported regularly connecting to new job opportunities via apprenticeships or internships.

Participation in on-the-job training through clean energy apprenticeships and internships is low. Few surveyed clean energy workers indicated having participated in an apprenticeship or internship program related to their current position. About a third of surveyed clean energy workers (32.6 percent) reported that they had participated in a related apprenticeship program and only 15 percent indicated they had participated in an internship program. Of those who participated in these programs, fewer than 40 percent noted that it improved their ability to land a job.

CLEAN ENERGY EMPLOYER NEEDS & CHALLENGES

At the end of 2021, clean energy employers were projecting job growth over the next 12 months. Forty-five percent of surveyed clean energy employers indicated that they will hire more full-time employees in the next year, and 16.7 percent expect to add more part-time employees as well. The majority of employers predicted to have at least the same number of full-time workers (54.8 percent) and part-time workers (71.4 percent) in 12 months.

Clean energy employers have had difficulty filling open positions. Nine in ten surveyed clean energy employers reported that hiring was either very or somewhat difficult (90.5 percent), with almost half indicating it had been very difficult (47.6 percent). The most difficult positions to fill include managers and supervisors, HVAC and field or repair technicians, installation positions, and engineering positions.

Employers indicated that a small applicant pool was the greatest challenge to filling open clean energy positions. Six in ten surveyed employers agreed (strongly or somewhat) that there are not enough applicants for their firm's open positions (61.9 percent). When asked with an open-ended question the top two reasons for hiring difficulty, more than half of surveyed employers indicated it was a small applicant

pool (52.6 percent) followed by lack of experience or industry-specific knowledge and insufficient non-technical skills.

Working with advanced technologies is common among clean energy employers, though there are some challenges and barriers to entry. About six in ten employers indicated that they do currently offer or work with advanced technologies, citing reasons such as environmental benefits, customer demand, and supportive rebates and incentives. However, firms did cite some barriers to offering these technologies, including expense, lack of demand, and insufficient cost savings. Insufficient training or certification for current employees to work with advanced technologies was a particularly significant barriers; in fact, eight in ten firms who do not currently work with advanced technologies indicated that they would support a program that provided funds or reimbursement for the costs of additional training or certification that would allow their employees to work with advanced technologies.

CLEAN ENERGY AWARENESS, PERCEPTIONS, & INTEREST

Maine residents searching for a new job want better wages or benefits and a more fulfilling career that relates to their long-term goals. More than half of surveyed potential clean energy workers are searching for a new job in order to secure better pay or benefits (53.8 percent), while one in seven would like to find a career that is more fulfilling and relates to their long-term goals (15.0 percent).

Healthcare, high wages, and retirement benefits are important for potential clean energy workers. These items topped the list of tested employment characteristics, with at least 85 percent of survey respondents indicating that healthcare, high wages, and retirement benefits are either very important or important to them when they are deciding where to work. Additionally important career characteristics include opportunities for advancement, professional growth and skill development as well as flexible work schedules; these were cited as important by at least three-quarters of respondents. Half of survey respondents also indicated that the opportunity to go back to school while working and company commitment to sustainability and a positive environmental impact are also key decision points in choosing a new job.

While there is some notable interest in building a career in clean energy sectors, the general population is hesitant to apply for clean energy job listings; this may be due to lack of awareness as noted below. About three to five in ten survey respondents reported that they would be interested in building a career in the solar energy (48.6 percent), building efficiency (41.1 percent), wind energy (39.4 percent), and electric

vehicle sectors (30.1 percent). However, few survey respondents indicated that they would apply for a new job listing or opportunity in the clean energy industry. More than half of potential workers indicated they were not likely to apply, and one in eight reported it depends; about a third indicated that they were very or somewhat likely to apply for a new clean energy job posting.

Potential workers are mostly unaware of what types of clean energy jobs or positions are available and where to find clean energy job postings or related training and education. When asked about their awareness of any clean energy jobs or positions, nearly all survey respondents indicated that they could not specify any job titles or occupations. Furthermore, seven in ten survey respondents indicated that they are not aware of clean energy training opportunities in their area (68.8 percent), and 54.8 percent indicated that they are not sure where to look for or find clean energy job postings.

Maine's general population is largely unaware of the attributes and characteristics of clean energy careers. At least half to just over two-thirds of respondents indicated that they neither agreed nor disagreed regarding clean energy firms' salary and benefit offerings, work schedules, geographic desirability, equitable and diverse workplace environments, and opportunities for career advancement. Furthermore, few surveyed potential workers know people who work in the clean energy industry; 45.5 percent of survey respondents disagreed with this statement.

Coordination and Outreach

The Governor's Office of Policy Innovation and the Future and the Maine Climate Council conducted extensive intergovernmental coordination and outreach in the development of the strategies included in this PCAP. This section describes the robust and meaningful engagement strategies that were included in the State's climate action plan, *Maine Won't Wait* to ensure comprehensive stakeholder representation and overcome obstacles to engagement, including linguistic, cultural, institutional, geographic, and other barriers. This PCAP includes all of the measures from *Maine Won't Wait*.

Identification of Stakeholders

The Maine Climate Council is an assembly of scientists, industry leaders, bipartisan local and State officials, and engaged citizens established to develop a four-year plan to address the impacts of climate change on Maine, build resiliency to climate effects, and meet State statutory targets to reduce greenhouse gas emissions. The 39 members of the climate council include members of the State Legislature, members representing environmental non-profit organizations and foundations, representing Maine's Tribes, youth, and older adults, members with expertise in climate change science, with expertise in resilience, members representing municipal government, small and large businesses, members representing agriculture, forestry and marine fisheries, and members of quasi-governmental agencies, and of the Executive Branch.

The Council includes six working groups and two subcommittees: the scientific and technical subcommittee and the equity subcommittee. The working groups helped to develop the strategies in the State's climate action plan, and include the: Transportation Working Group; Buildings, Infrastructure and Housing Working Group; Energy Working Group; Coastal and Marine Working Group; Community Resilience Working Group; and Natural and Working Lands Working Group. The Scientific and Technical Subcommittee of the Maine Climate Council is responsible for delivering a report that summarizes the impacts of climate change in Maine and how it might impact our State in the future. The Equity Subcommittee was established to support planning and implementation of climate strategies to ensure benefits across diverse populations of Maine people.

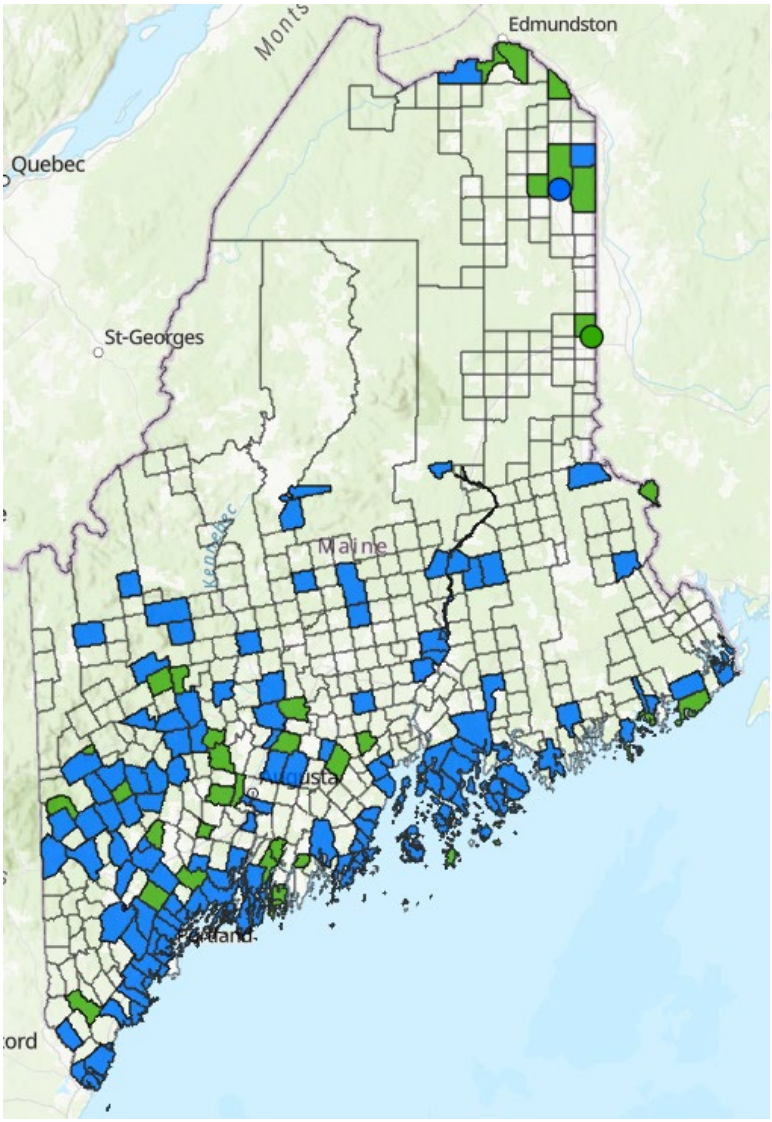
Together, the Climate Council and its working groups and subcommittee include more than 200 Maine people with a diverse set of experiences and backgrounds to develop the climate action plan.

Interagency and Intergovernmental Coordination

The Maine Climate Council is co-chaired by Hannah Pingree, Director of GOPIF, and Melanie Loyzim, Commissioner of the Maine DEP. State agency members include the Commissioner of the Department of Agriculture Conservation and Forestry, Director of the Governor's Energy Office, Commissioner of the Department of Inland Fisheries and Wildlife, Commissioner of the Department of Defense, Veterans and Emergency Management, Commissioner of the Department Administrative and Financial Services, Commissioner of the Department of Labor, Commissioner of the Department of Economic and Community Development, Commissioner of the Department of Marine Resources, Commissioner of the Department of Education, Commissioner of the Department of Transportation, and the Commissioner of Department of Health and Human Services. The Council also includes the Directors of Maine's Housing Authority and Efficiency Maine Trust, the State administrator for State efficiency programs.

In addition to the municipal and Tribal representative members of the climate council and each working group, collaboration with Maine's municipal and Tribal governments occurs through the Community Resilience Partnership, a state program that provides grants and direct support to municipal and tribal governments and unorganized territories to assist communities to reduce carbon emissions, transition to clean energy, and become more resilient to climate change effects.

A recommendation of Maine's climate action plan, the Community Resilience Partnership was launched by Governor Janet Mills in December 2021 with an initial goal of assisting 100 communities in its first year. To date, 174 communities are now participating, and the program has awarded $6.1 million in grants for 103 climate resilience and clean energy initiatives in communities across the state.



The Partnership includes a List of Community Actions that align with the strategies of *Maine Won't Wait*. The list of actions provides direction to communities looking to get started. Over three grant rounds, municipal and Tribal governments have applied for Community Action Grants to implement actions in the following strategy areas:

- Strategy Area A: Embrace the Future of Transportation – 27
- Strategy Area B: Modernize Maine's Buildings – 87
- Strategy Area C: Reduce Emissions through Clean Energy Innovation – 57
- Strategy Area D: Grow Jobs and Protect Natural Resource Industries – 6
- Strategy Area E: Protect the Environment & Promote Natural Climate Solutions – 49
- Strategy Area F: Build Healthy & Resilient Communities – 58
- Strategy Area G: Invest in Climate-Ready Infrastructure – 53

- Strategy Area H: Engage Maine People – 69

The most requested actions to implement are:

- B4 – 31 - Install a heat pump system or VRF system for heating/cooling and heat pump water heating in municipal/tribal buildings.
- G1 – 29 - Conduct a vulnerability assessment for critical community infrastructure
- H2 – 29 - Create a climate change education, outreach, and engagement program, focusing on mitigation and adaptation for residents and businesses.
- F1 – 26 - Conduct a community vulnerability assessment that identifies climate risks and vulnerable populations.
- B1 – 24 - Adopt and execute a plan for energy efficiency and building envelope weatherization improvements for municipal/tribal buildings.

Outreach Plan

Hearing directly from Maine people — stakeholders, experts, local and regional leaders, legislators, businesses, youth, and the general public — was central in creating the State's climate action plan and the strategies contained in the PCAP. Council working groups includes 30-40 members with diverse perspectives and expertise. Each working group developed its draft recommendations in public via public meetings, conference calls, surveys, and individual and organizational input — a process that endured the rapid transition to virtual communication demanded by the COVID-19 pandemic. In summer 2020, the Maine Climate Council released feedback surveys on climatecouncil.maine.gov about climate change and the working group strategies, which garnered more than 4,400 responses from more than 75% of Maine's zip codes. The Council also received many comments through its website from hundreds more people, stakeholders, advocacy, and industry groups. Staff, working group chairs, and members also conducted several presentations to stakeholder and community groups about aspects of the Plan.

Conclusion

This PCAP is the first deliverable under the CPRG planning grant awarded to the State of Maine. A public copy is available at https://www.maine.gov/future/climate/climate-pollution-reduction-grant. The Governor's Office of Policy Innovation and the Future and its partners will continue planning, engagement, and action to reduce emissions; invest in sustainable infrastructure, technologies, and practices; build our economy; and enhance the quality of life for all Mainers. In 2025, the Governor's Office of Policy Innovation and the Future will publish a comprehensive climate action plan (CCAP) that establishes equitable and sustainable economic development strategies that reduce emissions across all sectors. The CCAP will include near- and long-term emissions projections, a suite of emission reduction measures, a robust analysis of measure benefits, plans to leverage federal funding, and a workforce planning analysis. In 2027, the Governor's Office of Policy Innovation and the Future will publish a status report that details implementation progress for measures included in the PCAP and CCAP, any relevant updates to PCAP and CCAP analyses, and next steps and future budget and staffing needs to continue implementation of CCAP measures.

If you have questions about this PCAP or suggestions for the upcoming CCAP and status report, please contact maineclimatecouncil@maine.gov.

Appendix A-1. Emissions Inventory Supporting Documentation

Excerpted from the Maine Department of Environmental Protection 9th Report on Progress toward GHG Reduction Goals, submitted to the EPA in July 2022. P 4-6.

In addition, Maine has a QAPP on file and approved by the EPA.

II. Methods

Chapter 167 As required by 38 M.R.S. §576-A, the Department adopted rule Chapter 167, Tracking and Reporting Gross and Net Annual Greenhouse Gas Emissions. 10 This rule establishes methods for the calculation of both gross and net annual GHG emissions, and the Department used these methods to measure progress toward the GHG reduction goals. Please refer to Chapter 167 for additional details on the methods used to develop the complete gross and net GHG emissions inventories shared in this report.

GHGs
The following GHGs are included in the evaluation of gross GHG emissions:
• carbon dioxide (CO2)
• methane (CH4)
• nitrous oxide (N2O)
• perfluorocarbons (PFC)
• hydrofluorocarbons (HFC)
• nitrogen trifluoride (NF3)
• sulfur hexafluoride (SF6)

State Inventory Tool
The Department utilized the State Inventory Tool (SIT)11, a computer model developed by the U.S. Environmental Protection Agency (EPA), to complete much of the gross biennial GHG inventory. The SIT provides states with a comprehensive, standardized approach to estimating GHG emissions. This tool considers the same sources that are in the national GHG inventory and is based on the recommendations of the Intergovernmental Panel on Climate Change (IPCC). Since activity data are the driving force for emissions estimation, the tool contains default activity data while at the same time providing flexibility for states to input state-specific data. Default data

are based on national databases, and much of the data in these national databases are compilations of state submitted data; however, some data are modeled when state-specific data are unavailable. The Department augments the SIT with data from Maine state programs when available (e.g., state vehicle miles travelled, industrial-process-specific data, and solid waste data) to best estimate GHG emissions in Maine. Most of the inventory data in the SIT comes from the U.S. Department of Energy's Energy Information Administration (EIA).12 The EIA breaks the energy source category down into five energy sectors — electrical power, industrial, commercial, residential, and transportation — to align with policies and programs for GHG emission reductions that target each of these sectors 10 Chapter 167, Tracking and Reporting Gross and Net Annual Greenhouse Gas Emissions, was adopted on July 7, 2021 and is available on the DEP website: https://www.maine.gov/sos/cec/rules/06/096/096c167.docx 11 EPA updated its State Inventory Tool (SIT) for greenhouse gases through 2019 in March 2022: https://www.epa.gov/statelocalenergy/download-state-inventory-and-projection-tool. Most of the inventory data in the SIT comes from the Department of Energy's Energy Information Administration (EIA), and at the time of this report, EIA data was available through 2019. 12 The State Energy Data System (SEDS) is the source of the U.S. Energy Information Administration's (EIA) energy statistics. These data are typically released two years after a reporting year. For example, the 2019 data used by EPA in the SIT was released in October 2021. Maine Department of Environmental Protection 5 9th Report on Progress toward GHG Reduction Goals separately. For some of the categories, this information is apportioned to the states from national and regional inventories. For this Ninth Biennial Report, the Department performed a comprehensive analysis of the data provided in the tool and updated it with information from Maine reporting programs. At the time of this report, EIA data were available through 2019.

Biogenic Emissions

Pursuant to 38 M.R.S. §577, gross GHG emissions now include biogenic emissions for the entire reporting period. Since biogenic emissions are not included in the SIT, the Department added biogenic emissions into the gross GHG inventory based on state and national data sources. Biogenic emissions include emissions from the combustion of carbon that was originally removed from the atmosphere by photosynthesis and would eventually naturally be released back to the atmosphere through degradation processes. Biogenic emissions include those from the combustion of biofuels, such as wood, ethanol, biodiesel, and waste. Wood includes wood, wood waste, and wood-derived fuels, including black liquor. Waste refers to biomass waste, which includes municipal solid waste from biogenic sources, landfill

gas, sludge waste, and agricultural byproducts. Biogenic emissions also include emissions from organic waste, such as landfill off gassing and wastewater treatment.

Units

GHG emissions are expressed in units of carbon dioxide (CO2) or carbon dioxide equivalents (CO2e). Emissions values are expressed in millions of metric tons of CO2 (MMTCO2) when only CO2 is considered. Emissions values are expressed in millions of metric tons of CO2 equivalent (MMTCO2e) when additional GHGs are included and converted to CO2e. Each type of GHG traps heat in the atmosphere differently, and some are far more potent than others. Emissions from GHGs other than CO2 are converted to carbon dioxide equivalent emissions using 100-year global warming potential (GWP) values reported by the IPCC. Results in both MMTCO2 and MMTCO2e units are included throughout this report. Fuel consumption values are expressed in billions of British thermal units (BBtu).

Source Categories and Energy Sectors

GHG inventory results are often broken down by source category or energy sector. Source categories include energy, industrial processes, agriculture, and waste. These categories represent the category of activity generating the GHG emissions (e.g., are the emissions the result of an activity used to create energy or are they the result of an industrial process?). Results for gross GHG emissions in MMTCO2e are reported by source category. The energy source category is responsible for most GHG emissions and encompasses energy consuming entities, such as electric power producers, and energy consumption from the following sectors: industrial, commercial, transportation, and residential. The agriculture category captures emissions from livestock, manure management, plant and soil residue, and cultivation practices. The industrial processes category encompasses non-combustion activities that create emissions, such as cement production, semiconductor manufacture, and electrical power transmission and distribution. The waste category includes emissions from municipal solid waste disposal and wastewater treatment activities. The energy source category can be further broken down into energy sectors. The five energy sectors are residential, commercial, industrial, transportation, and electric power. Emissions from the Maine Department of Environmental Protection 6 9th Report on Progress toward GHG Reduction Goals combustion of fossil fuels are presented by energy sector in MMTCO2, which includes CO2 emissions only, as well as MMTCO2e. Note: The industrial processes source category is not the same as the industrial energy sector. The industrial processes source category represents emissions from industrial processes that do not involve the production of energy (e.g., refrigeration, air conditioning, fire extinguishing, foam

blowing, and sterilization), while the industrial energy sector describes emissions from fuels combusted to generate energy within an industrial setting (e.g., fuel oil or natural gas combusted in a boiler or engine).

Economic Analysis

To show the relationship between economic activity and GHG emissions, the Department has included an analysis of GHG emissions relative to state gross domestic product (GDP) in real dollars adjusted for inflation.

Net GHG Inventory (Maine Carbon Budget)

Researchers at the University of Maine, Bates College, and the Maine Forest Service developed an estimate of the State of Maine's Carbon Budget 14 in collaboration with the Department. Data from their analysis are presented here as the net GHG inventory and represent a 10-year data window ending in 2016. Estimates of net GHG emissions were made for each of the following categories: fossil fuels, waste, forests, wood products, wetlands, agriculture, urban, inland waters, and coastal waters. The difference between carbon emitted and carbon sequestered from each of these categories was used to estimate the net carbon emissions. Additional details about the methodology for this analysis can be found in Chapter 167.

Carbon Markets

Because participation in carbon markets is growing in Maine, the Department collaborated with the University of Maine to tally the carbon offset credits reserved by Maine landowner participation in carbon market projects. Currently, there is no single formal tracking system for Maine forestland enrolled in carbon markets; details about Maine land allocated to carbon offsets were collected from the handful of available out-of-state carbon market registries.

Appendix A-2. Emissions Modeling Description from Synapse Energy Economics, Inc

Excerpted from "Assessing the Impacts Climate Change May Have on the State's Economy, Revenues, and Investment Decisions: Summary Report" presented to the Governor's Office of Policy Innovation and the Future November 25, 2020.[23]

VOLUME 3. MAINE EMISSIONS ANALYSIS
3.1. INTRODUCTION Synapse provided energy sector modeling services, focused on greenhouse gas reduction strategies, in support of the Maine Climate Council working groups. Modeling was performed for the three primary energy sectors: transportation, buildings, and electricity generation. Synapse used the following modeling tools for each sector:
• Transportation sector. EV-REDI is a custom-built stock-flow model for modeling multiple impacts of transportation electrification for individual states. EV-REDI contains data on vehicle sales, stock, efficiencies, CO2 emissions, and criteria pollutant emissions. It allows the modeler to quickly develop different projections of electrification and emissions for light-, medium-, and heavy-duty vehicles and other parts of the transportation sector. Synapse used EV-REDI to evaluate the emissions impacts of light-duty electric vehicle (e.g., cars, pickup trucks, and SUVs) adoption trajectories, as well as the emissions impacts of non-light-duty vehicles (e.g., tractor trailers).
• Buildings sector. The Buildings Decarbonization Calculator (BDC) is a custom-built calculator for modeling the evolution of building energy consumption for space and water heating in the residential and commercial sectors. Synapse used the model to calculate the impact of changes in heating system technology market share on both total heating system stock and energy consumption by fuel type. It accounts for the expected lifetimes of space and water heating technologies, the efficiencies of

[23]Assessing the Impacts Climate Change May Have on the State's Economy, Revenues, and Investment Decisions: Summary Report" presented to the Governor's Office of Policy Innovation and the Future November 25, 2020, available at https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/ERG_MCC_AssessingImpactsClimateChangeMaine_Summary_11.25.20.pdf

systems installed each year, and changes in the total number of households and commercial buildings over time.

• Electricity sector. EnCompass is a linear optimization model of production cost and capacity expansion for the electricity sector. It combines inputs and constraints relating to electricity load projections (including impacts of energy efficiency and electrification), existing power plants, new renewable and conventional resources, state legislation and regulations (such as renewable portfolio standards), and transmission topology (i.e.,spatial characteristics of the transmission asset) to analyze system dispatch, costs, and emissions. For this project, Synapse modeled the entire New England electric grid. Synapse also modeled imports and exports from adjacent power control areas because of the high level of interconnection among New England and its neighboring states and Canadian provinces, as well as the importance of keeping track of greenhouse gas emissions produced in other regions for electricity consumed in Maine and vice versa.

Appendix B. 2020 Inventory of Criteria Pollutant and HAP Emissions Inventory by Sector, County and Pollutant Data from EPA 2020 Co-pollutants Inventory

Sector: Agriculture	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County	80.18594	48.03278519	NA	8.1500458	3.90706
Aroostook County	697.7855	372.4842073	NA	8.86635098	2.92628
Cumberland County	114.0512	25.83100522	NA	10.12773378	2.56288
Franklin County	91.14223	20.20781597	NA	4.80374416	1.7738
Hancock County	91.58507	10.69480938	NA	4.72799011	1.16303
Kennebec County	128.8969	58.00830626	NA	20.3248903	9.64375
Knox County	33.59535	12.54798802	NA	3.82569272	0.94797
Lincoln County	39.15932	4.58693078	NA	7.4657085	1.47304
Oxford County	108.5699	27.02817901	NA	5.688410039	1.4854
Penobscot County	219.56	70.11307043	NA	18.69447606	9.90673
Piscataquis County	158.3727	13.36666273	NA	2.635643359	0.85864
Sagadahoc County	34.56914	10.23403436	NA	2.800615616	0.61864
Somerset County	211.038	44.46024873	NA	14.48513776	7.46998
Waldo County	78.44213	35.86418568	NA	11.89897152	4.59918
Washington County	157.5256	2.00785162	NA	2.10488111	0.41288
York County	106.9537	32.39854515	NA	7.27409095	1.82603
State Total	2351.43268	787.8666258	NA	133.8743828	51.57529
Sector: Biogenics	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County	NA	NA	NA	4355.627	483.8085
Aroostook County	NA	NA	NA	36198.13	3,706.45
Cumberland County	NA	NA	NA	7557.04	818.852
Franklin County	NA	NA	NA	9701.537	971.6353
Hancock County	NA	NA	NA	9425.67	908.2627
Kennebec County	NA	NA	NA	6358.329	702.6916
Knox County	NA	NA	NA	2349.53	237.60204
Lincoln County	NA	NA	NA	3623.452	361.80307

Oxford County	NA	NA	NA	12062.66	1723.2177
Penobscot County	NA	NA	NA	18143.59	1965.2477
Piscataquis County	NA	NA	NA	19620.3	1956.632
Sagadahoc County	NA	NA	NA	2539.17	281.96298
Somerset County	NA	NA	NA	20269.01	2052.7647
Waldo County	NA	NA	NA	5300.017	547.25024
Washington County	NA	NA	NA	15796.33	1559.3627
York County	NA	NA	NA	8691.378	836.8249
State Total	NA	NA	NA	181991.77	19114.36493

Sector: Bulk Gasoline Terminals	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County				0.001664443	
Aroostook County				0.001664443	
Cumberland County					
Franklin County					
Hancock County					
Kennebec County					
Knox County					
Lincoln County				0.009986656	
Oxford County					
Penobscot County				0.04850662	0.00219
Piscataquis County					
Sagadahoc County					
Somerset County					
Waldo County					
Washington County					
York County					
State Total				0.061822162	0.00219

Sector: Commercial Cooking	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County		54.8264855	NA	8.07840756	2.6482
Aroostook County		20.937542	NA	3.17970823	1.04322
Cumberland County		214.558945	NA	31.362039	10.28607
Franklin County		15.1101612	NA	2.142088169	0.70114
Hancock County		36.8940042	NA	5.37914573	1.76481
Kennebec County		54.9373348	NA	8.27624087	2.71724
Knox County		31.1149046	NA	4.54399588	1.49048

Lincoln County		22.5925893	NA	3.24068583	1.06357
Oxford County		20.856988	NA	3.08538915	1.0114
Penobscot County		68.1513437	NA	10.19770183	3.34607
Piscataquis County		8.30709194	NA	1.194250659	0.38911
Sagadahoc County		15.9838845	NA	2.306239619	0.75699
Somerset County		17.1082594	NA	2.52631124	0.8284
Waldo County		12.2742704	NA	1.780776347	0.58377
Washington County		15.2995653	NA	2.209970686	0.72479
York County		116.685229	NA	17.12897809	5.624427
State Total		725.6385988	NA	106.6319289	34.979687

Sectors: Fires - Agricultural Field Burning, Prescribed Fires, Wildfires	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County	1.98814121	9.6030771	0.96466888	25.327202	5.24469482
Aroostook County	22.5233744	126.794752	11.6312792	339.168932	67.33687662
Cumberland County	0.88217164	4.8907659	0.45577804	13.164341	2.54701228
Franklin County	1.1689111	6.7861408	0.61738848	18.378321	3.2707195
Hancock County	8.95812323	73.087838	5.2819509	193.37417	26.7722817
Kennebec County	1.04635045	5.8968347	0.54482433	15.9075478	2.9813776
Knox County	1.11106473	6.9144672	0.60728089	18.888622	3.35948406
Lincoln County	1.9136302	26.86525346	1.70474316	78.28182505	8.55436459
Oxford County	1.24533354	6.397277	0.62108068	17.03325	3.98526372
Penobscot County	3.23663939	21.834078	1.84357964	60.198699	10.25077103
Piscataquis County	2.92207956	19.922827	1.67369	54.992769	9.8850382
Sagadahoc County	0.19070418	1.32071169	0.11013264	3.651663	0.5842745
Somerset County	3.95273953	35.220437	2.62833075	99.688115	13.97936359
Waldo County	3.08619926	19.0064955	1.5877204	49.027858	8.57492029
Washington County	6.7725758	52.720721	3.7158514	133.3395	20.82964263
York County	3.23638625	17.288749	1.64329514	46.295566	9.18019893
State Total	64.23442447	434.5504254	35.63159453	1166.718381	197.3362841

Sector: Fuel Combustion - Commercial	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County	510.880474	59.3448688	29.2904044	32.67867547	1.083246264
Aroostook County	227.4537984	26.42147751	13.04065198	14.54917918	0.481414571
Cumberland County	2184.555445	253.7621206	125.247515	139.7359196	4.637302788
Franklin County	102.430949	11.8985769	5.87269128	6.552037479	0.216303391
Hancock County	198.3103619	23.03611614	11.36976538	12.68499779	0.419731098

Kennebec County	616.753466	71.6432794	35.360433	39.45089191	1.307733396
Knox County	159.7000854	18.55107352	9.15611493	10.21528313	0.337809353
Lincoln County	103.2363706	11.9921352	5.91886864	6.603556532	0.218004341
Oxford County	148.3320535	17.23053536	8.50434695	9.488118941	0.313525822
Penobscot County	706.395878	82.0563098	40.4999149	45.18489823	1.498078498
Piscataquis County	45.8530007	5.326372775	2.62889833	2.933006236	0.095896449
Sagadahoc County	97.3599919	11.30952467	5.58195709	6.227671665	0.205348444
Somerset County	125.830287	14.61668895	7.21425001	8.048785245	0.265716074
Waldo County	110.9920719	12.89305309	6.36352829	7.099652664	0.234382133
Washington County	76.5732678	8.89489866	4.39018834	4.898040197	0.161049417
York County	636.360147	73.9208212	36.4845489	40.70504074	1.349306532
State Total	6051.017648	702.8978526	346.9240774	387.055755	12.82484857

Sector: Fuel Combustion - Industrial	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County	318.9158263	483.897358	32.02466759	22.8167954	7.552891478
Aroostook County	148.1891499	224.8503363	14.88075481	10.6021787	3.508464017
Cumberland County	758.4701783	1150.842133	76.16353704	54.2646659	17.96605609
Franklin County	58.16513124	88.25487669	5.840785864	4.161417962	1.376554517
Hancock County	98.0576683	148.7848907	9.846686928	7.015526253	2.321368874
Kennebec County	199.7777092	303.1267431	20.06113989	14.29308122	4.730161514
Knox County	123.3793933	187.2059796	12.389427	8.827165565	2.921081153
Lincoln County	58.91336541	89.390173	5.915921896	4.214950237	1.394263948
Oxford County	140.9943783	213.9335319	14.15827601	10.0874246	3.338122079
Penobscot County	269.4932232	408.9074344	27.06178551	19.28086614	6.382172568
Piscataquis County	57.25937074	86.88055949	5.749832797	4.096616455	1.355120323
Sagadahoc County	300.9464841	456.6320454	30.22023609	21.53118261	7.127331374
Somerset County	144.9205789	219.8908533	14.55253755	10.36832722	3.431079839
Waldo County	65.48203842	99.35721049	6.575530941	4.684905668	1.549982254
Washington County	66.56501016	101.0004619	6.684279641	4.762386997	1.575613943
York County	443.7404839	673.296334	44.55922476	31.74736526	10.51005154
State Total	3253.26999	4936.250921	326.6846243	232.7548562	77.04031551

Sector: Fuel Combustion - Residential	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County	299.1117017	1008.922809	33.8838918	978.9230807	394.2900867
Aroostook County	254.6356492	1701.045636	60.08777917	1639.980575	664.076516
Cumberland County	746.972866	2056.717275	68.4896054	1991.304687	799.7982949
Franklin County	113.5952627	828.7686959	29.30101502	799.5093487	323.8715616

Hancock County	179.6893025	806.5595982	26.95499362	788.2239891	318.4167515
Kennebec County	381.5766259	1616.976853	54.60379735	1572.393231	634.8703704
Knox County	122.5318053	415.563412	14.00528578	404.2788902	162.8819952
Lincoln County	117.2638341	525.94116	17.69619037	513.4890387	207.4213338
Oxford County	208.7979199	1462.441981	51.63351727	1411.765381	571.7854806
Penobscot County	430.9421897	1839.913843	61.48748663	1791.154199	723.176966
Piscataquis County	71.47000118	540.0837455	19.16891138	520.892005	211.0349987
Sagadahoc County	109.865964	401.9676938	13.41098776	391.6213187	157.9079224
Somerset County	198.4148225	1380.278615	48.67349403	1332.51116	539.6696822
Waldo County	129.2760461	648.2868769	21.56769638	634.2253112	256.4338271
Washington County	112.8161925	561.2624816	19.05562276	546.8303797	221.0611753
York County	616.3430256	2126.612542	71.17266099	2068.014286	833.4271622
State Total	4093.303209	17921.34322	611.1929357	17385.11688	7020.124125

Sector: Gas Stations	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County				75.07722652	8.422888858
Aroostook County				56.80424526	6.382542542
Cumberland County				134.1826641	9.348889395
Franklin County				28.11376811	3.178616942
Hancock County				55.97658404	7.193376235
Kennebec County				99.08680823	12.07898324
Knox County				33.55838064	3.484412565
Lincoln County				26.60990899	3.326713191
Oxford County				54.92393547	5.907642409
Penobscot County				125.9564339	13.945623
Piscataquis County				23.23970583	2.11577604
Sagadahoc County				27.76145249	3.490509902
Somerset County				57.47960768	6.235730241
Waldo County				29.15255829	3.754129912
Washington County				31.85443606	3.610871026
York County				116.9491003	7.971676821
State Total				976.7268159	100.4483823

Sector: Miscellaneous	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County	0.7924048	4.80135341	0.09156674	66.35904532	4.683340818
Aroostook County	0.5728168	3.43241612	0.06965372	48.62679197	3.544803523
Cumberland County	2.2633761	14.2356738	0.2145526	60.82148524	10.15499173
Franklin County	0.23625591	1.47305543	0.0235576	27.66091837	1.818204044

Hancock County	0.48531128	3.00964661	0.04985778	16.04772094	2.020459209
Kennebec County	0.9539465	5.82820815	0.1059041	148.2581193	9.042289671
Knox County	0.34527713	2.15400214	0.03432019	13.40422469	1.690898762
Lincoln County	0.31197879	1.92330278	0.03308057	15.67906422	2.112511835
Oxford County	0.42676207	2.55777619	0.0518446	21.57689505	1.988523385
Penobscot County	1.1535637	6.9724874	0.1348516	151.0116689	9.602026565
Piscataquis County	0.14942024	0.90002372	0.01774816	13.98093774	1.124869399
Sagadahoc County	0.29871296	1.90103332	0.02631001	9.507948054	1.118802051
Somerset County	0.41314152	2.49599203	0.04840082	122.3801589	6.61790926
Waldo County	0.32049634	1.98690301	0.03298408	63.59687394	3.557601398
Washington County	0.28265343	1.65528675	0.03783323	5.785439891	1.017593633
York County	1.6535631	10.3003355	0.1657485	36.66970893	5.544136329
State Total	10.65968067	65.62749636	1.1382143	821.3670015	65.63896161

Sector: Mobile Sources	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County	687.3657844	36.18636574	2.996918707	429.9772621	127.0987547
Aroostook County	1243.871752	60.36687729	2.596499393	866.2997059	274.9819581
Cumberland County	2679.932885	159.3520756	16.13876505	1992.649807	616.6294586
Franklin County	442.7558952	33.98549139	1.227062818	815.5711565	266.3308539
Hancock County	1118.139393	52.55805333	3.574086309	1325.456728	419.6611888
Kennebec County	1230.918182	62.70462551	4.652606683	857.8800274	262.518381
Knox County	1079.446023	49.0360874	3.945761131	939.039302	299.7975853
Lincoln County	499.2338572	41.02164511	1.493624836	977.8762879	317.3928565
Oxford County	631.7484756	36.7826042	1.910248317	787.8249251	250.2920353
Penobscot County	1499.305053	74.32495202	5.421433656	1023.516418	315.8808563
Piscataquis County	709.2665946	50.6543939	1.154296761	1859.920537	609.2156545
Sagadahoc County	456.6173198	32.01929555	1.653496434	742.4049421	240.6659873
Somerset County	943.6315485	48.71844726	2.37569243	908.6851449	289.667996
Waldo County	512.2374746	31.75704904	3.678958523	721.9508769	232.7573228
Washington County	1106.988421	49.2962184	8.174851367	1445.673917	464.336727
York County	1587.272584	90.76624349	7.565468959	1137.649647	343.7353917
State Total	16428.73124	909.5304253	68.55977137	16832.37668	5330.963008

Sector: Solvent	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County	NA	NA	NA	841.1612657	115.2796288
Aroostook County	NA	NA	NA	552.5669281	70.05006799
Cumberland County	NA	NA	NA	1869.373603	267.6974304
Franklin County	NA	NA	NA	181.4784797	25.81417541

Hancock County	NA	NA	NA	366.0709977	70.63469475
Kennebec County	NA	NA	NA	1085.642406	145.1849839
Knox County	NA	NA	NA	282.1942724	57.30088038
Lincoln County	NA	NA	NA	212.5842476	36.93309024
Oxford County	NA	NA	NA	322.3738159	46.18290478
Penobscot County	NA	NA	NA	908.7678942	139.6285575
Piscataquis County	NA	NA	NA	105.6049238	18.52303803
Sagadahoc County	NA	NA	NA	955.5978767	352.9444054
Somerset County	NA	NA	NA	296.7423321	41.79954915
Waldo County	NA	NA	NA	244.1557128	39.84614348
Washington County	NA	NA	NA	179.6815669	26.94792341
York County	NA	NA	NA	1220.059396	183.0187708
State Total	NA	NA	NA	9624.055719	1637.786244

Sector: Waste Disposal	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County	35.0641022	165.627367	10.89283424	75.887653	18.81681976
Aroostook County	26.8679128	128.121486	6.63130796	47.178739	22.05945043
Cumberland County	96.8133006	455.796928	32.2124708	223.892522	42.5572591
Franklin County	17.4687062	82.6397178	5.24908752	36.54943	10.14386578
Hancock County	28.3894704	134.719093	7.94026845	55.71949	19.13330435
Kennebec County	57.3018857	270.691976	17.7682701	123.430767	30.83288586
Knox County	13.525506	64.6319368	3.55561599	24.8210654	10.47057201
Lincoln County	17.9265913	85.2614556	4.74036454	33.337255	13.28269154
Oxford County	46.5413202	219.071536	15.54942366	107.376269	20.05801775
Penobscot County	61.1090195	289.057257	18.4090814	128.574779	35.35514775
Piscataquis County	7.7990576	37.2339568	1.86301485	13.2295829	6.665237012
Sagadahoc County	12.0748871	57.350272	3.30597291	23.1995083	8.44689235
Somerset County	28.5564684	135.10864	8.55845875	236.43182	40.4616995
Waldo County	19.0747053	90.6538424	5.14077168	36.1188	13.70756894
Washington County	13.1519256	62.8325994	3.08044283	51.415507	15.48276299
York County	101.322063	477.335642	33.2708142	230.966575	46.41625407
State Total	582.9869219	2756.133706	178.1681999	1448.129763	353.8904292

Sector: Dust	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County		210.863915			
Aroostook County		292.9052313			
Cumberland County		421.520894			
Franklin County		172.8851378			

Hancock County		256.912994			
Kennebec County		320.463441			
Knox County		91.5465402			
Lincoln County		151.5915454			
Oxford County		266.8817742			
Penobscot County		390.835525			
Piscataquis County		84.8612344			
Sagadahoc County		81.9491445			
Somerset County		260.3561919			
Waldo County		148.3035211			
Washington County		157.882139			
York County		440.726973			
State Total		3750.486202			

Sector: Industrial Processes	**NOx** (tons)	**$PM_{2.5}$** (tons)	**SO_2** (tons)	**VOC** (tons)	**HAP** (tons)
Androscoggin County		8.144423		5.220367	
Aroostook County				5.110898	
Cumberland County				352.011749	
Franklin County				0.5056272	
Hancock County		23.26978		5.0573144	
Kennebec County		11.63489		1.849002	
Knox County				0.5297094	
Lincoln County				24.9076961	
Oxford County		8.144423		0.7644026	
Penobscot County		8.144423		120.512821	
Piscataquis County				0.441698	
Sagadahoc County				0.6184677	
Somerset County				1.002105	
Waldo County		48.86654		129.3555267	
Washington County		8.144423		0.6584723	
York County		31.58042		2.692099	
State Total		147.929322		651.2379554	

Appendix C. Low-income and Disadvantaged Communities in Maine

Map available at: https://www.epa.gov/environmentaljustice/inflation-reduction-act-disadvantaged-communities-map

EPA IRA Disadvantaged Communities
Orange signifies yes, identified as disadvantaged
Blue signifies no, not identified as disadvantaged