



MAINE GOVERNOR'S
Energy Office

Draft Maine Energy Plan: Overview and Objectives

December 16, 2024

Dan Burgess, Director

Meeting Agenda

- Introduction and overview of Maine Energy Plan process
- Presentation of Maine Energy Plan objectives
- Input and reaction
- Next steps
- Adjourn



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Maine Energy Plan - Background

- Per statute, the Governor's Energy Office (GEO) is required, biennially, to develop a state Energy Plan
- In 2023, Governor Mills directed GEO to develop a pathway to achieve Maine's goal of **100 percent clean energy by 2040**.
- GEO retained The Brattle Group (Brattle) and Evolved Energy Research (EER) to conduct a **modeling and technical analyses to inform the planning process**: "Pathway to 2040" which is the foundation of the comprehensive Maine Energy Plan



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Maine Energy Plan Timeline



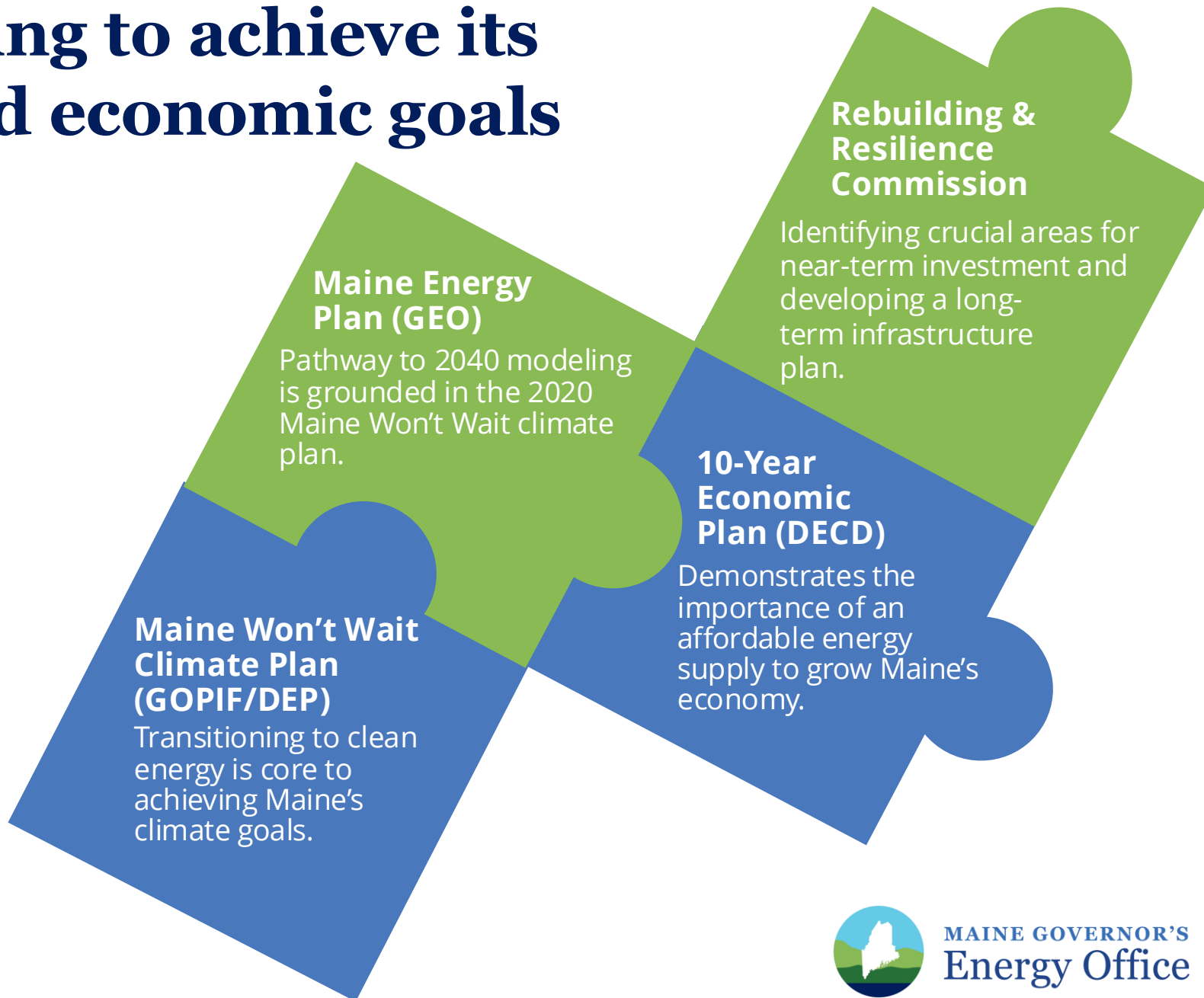
The Maine Energy Plan and Maine Won't Wait Climate Action Plan are aligned to achieve Maine's energy and climate goals

- Representatives from GEO served on the Climate Council throughout the Maine Won't Wait process
- The Pathway to 2040 modeling is grounded in the 2020 Maine Won't Wait plan and energy and demand analysis
- The draft Energy Plan is aligned with key action from the Maine Won't Wait 2024 Climate Action Plan



Maine is coordinating to achieve its energy, climate, and economic goals

- **100%** of Maine's electricity sourced from **clean** resources **by 2040**
- 3,000 megawatts of offshore wind installed by 2040;
- 750 megawatts of distributed solar generation;
- 400 megawatts of energy storage capacity by 2030;
- 30,000 clean energy jobs by 2030;
- 175,000 additional heat pumps by 2027;
- Emissions reduction requirements of 45 percent below 1990 levels by 2030 and 80 percent by 2050;
- Carbon-neutral by 2045.



An Assessment of Maine's Renewable Portfolio Standard

Prepared for:
the Maine Governor's Energy Office, in collaboration with
the Public Utilities Commission



Prepared by:
Sustainable Energy Advantage
161 Worcester Rd, Suite 503
Framingham, MA 01701
www.seadventure.com

Distribution System Operator (DSO)
Initial Study



CADM



Maine Offshore Wind Roadmap

February 2023

Northern Maine & Rural Energy Monitoring Report

Submitted to the Joint Standing Committee on Energy, Utilities and Technology, Pursuant to LD 682: Resolve, to Monitor Northern & Rural Energy



2023

MAINE CLEAN ENERGY INDUSTRY REPORT

Maine Energy Assessment

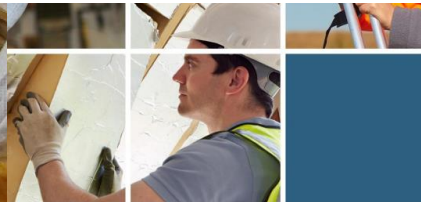
Sponsored by the State Office

March 2022

MAINE CLEAN TRANSPORTATION ROADMAP FOR MEDIUM- AND HEAVY-DUTY VEHICLES EXECUTIVE SUMMARY



CONTRACTOR



2022 Maine Clean Energy Workforce Analysis Report

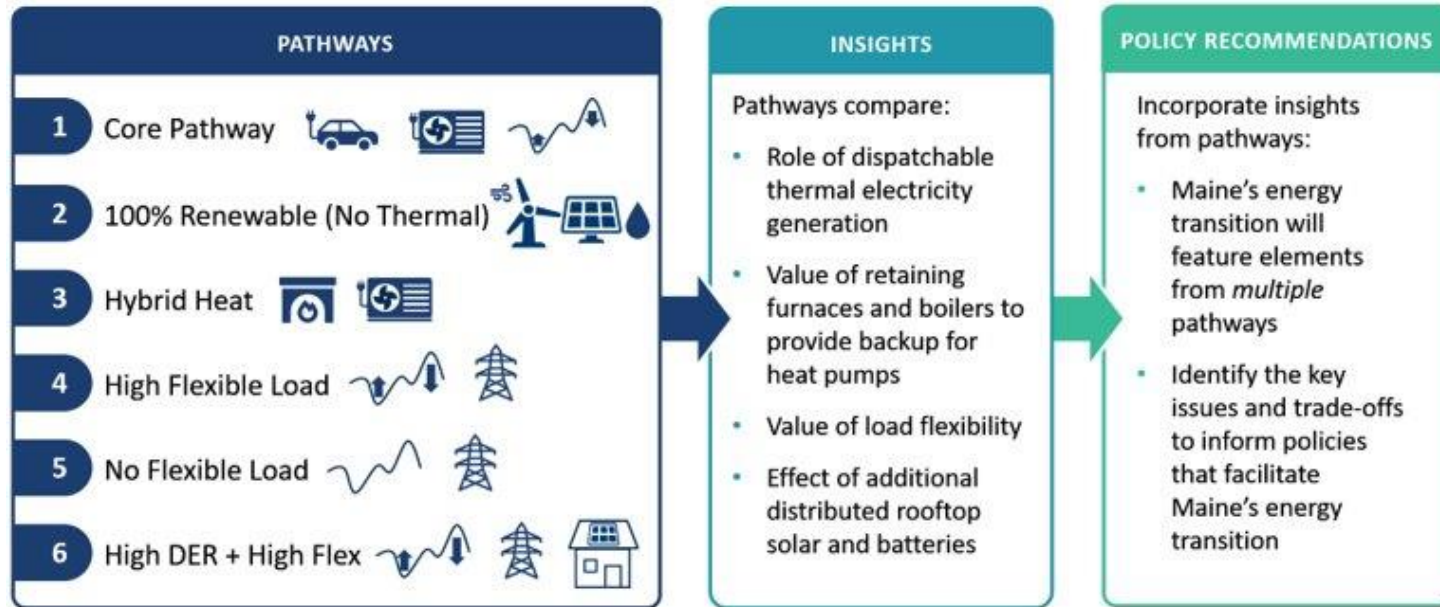
PRODUCED FOR THE STATE OF MAINE, GOVERNOR'S ENERGY OFFICE



The Maine Energy Plan is informed by years of studies, working groups, research, and analysis.



The “Pathway to 2040” technical report demonstrates the viability of 100 percent clean by 2040

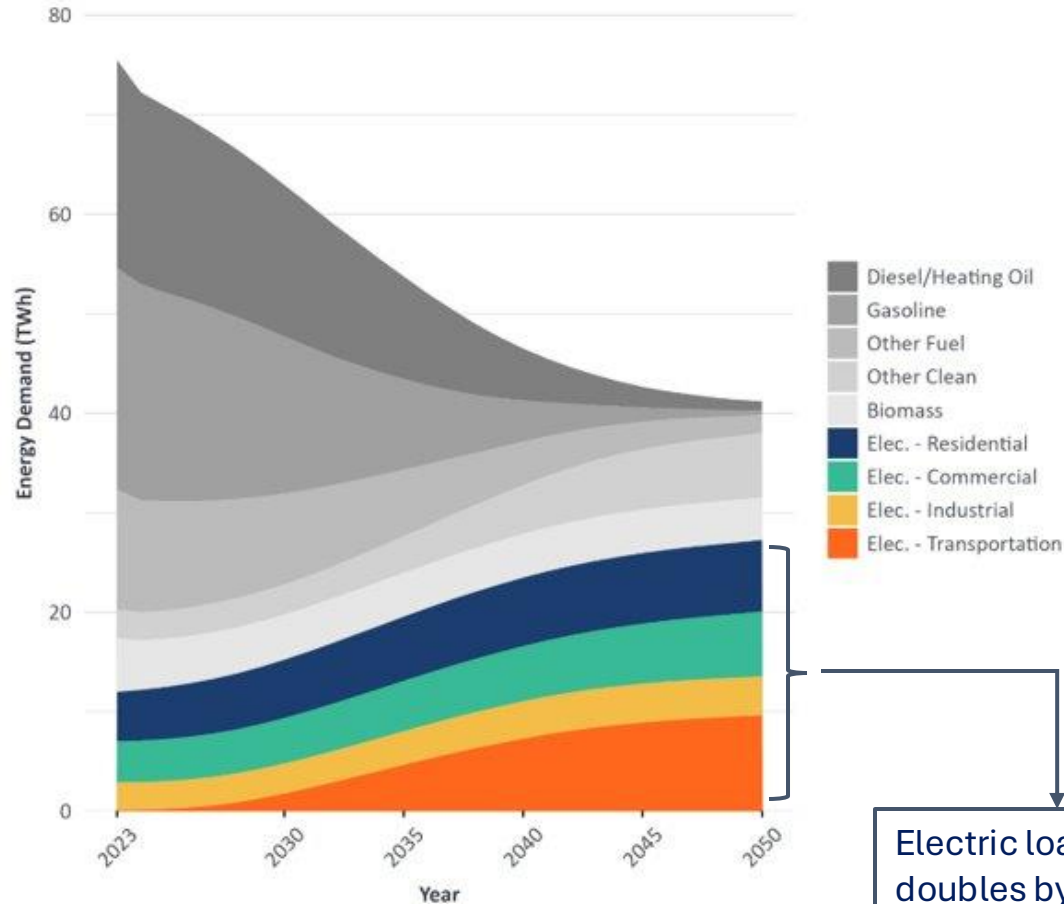


Key Takeaways

- 100% clean energy by 2040 is **achievable, beneficial, and results in reduced energy costs** across the economy
- Electrification; diversity of supply are key to ensuring more affordable, reliable, clean energy for Maine
- Key considerations:
 - Innovation; emerging technologies and applications for load flexibility

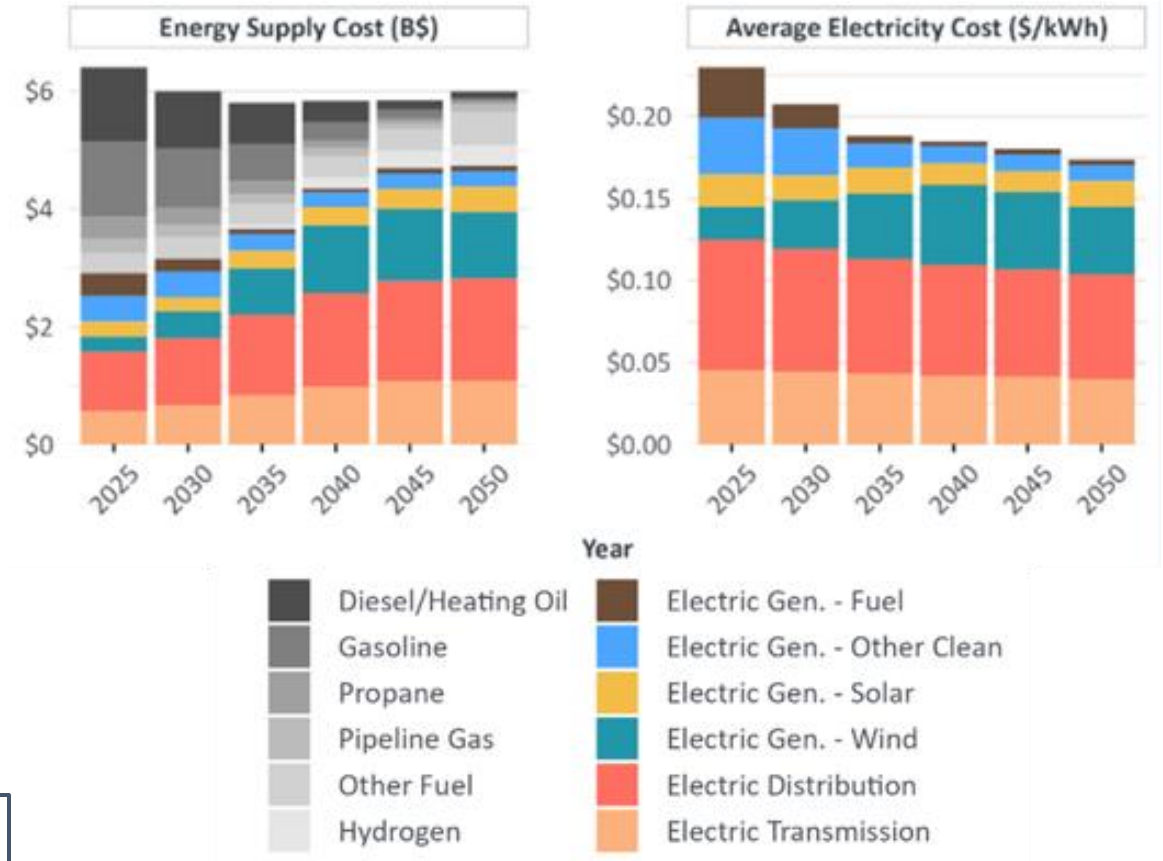
Widespread electrification will reduce total energy consumption and supply costs

Forecasted Energy Demand in Maine



Electric load almost doubles by 2050, but overall energy demand is reduced

Energy Supply Costs and Average Societal Electricity Cost For Maine (2022\$)



Comments on the Pathways to 2040 report are reflected in the draft Maine Energy Plan

Summary of comments received:

The Maine Energy Plan outlines:

Procurement

Vehicle miles traveled

Load flexibility

Transmission

Time of use (TOU) rates

Equity

Data availability

Future of gas

Clean fuels

Offshore wind

Energy efficiency

Economic impacts

Long duration energy storage

a pathway to a Clean Energy Standard

support for energy storage deployment, including reviewing permitting and zoning best practices

equity considerations throughout

mechanisms to support distributed energy resource (DER) adoption and promote load flexibility

a regular schedule of competitive energy purchases



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Maine Energy Plan

*Advancing affordable, reliable and
clean energy for Maine people and
businesses*



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Maine Energy Plan Objectives



A

Deliver
affordable
energy for
Maine people
and
businesses



B

Ensure Maine's
energy systems
are reliable and
resilient in the
face of growing
challenges



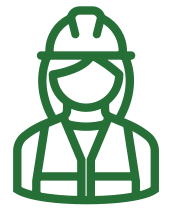
C

Responsibly
advance clean
energy



D

Deploy efficient
technologies to
reduce energy
costs



E

Expand clean
energy career
opportunities
for Maine
people and
advance
innovation



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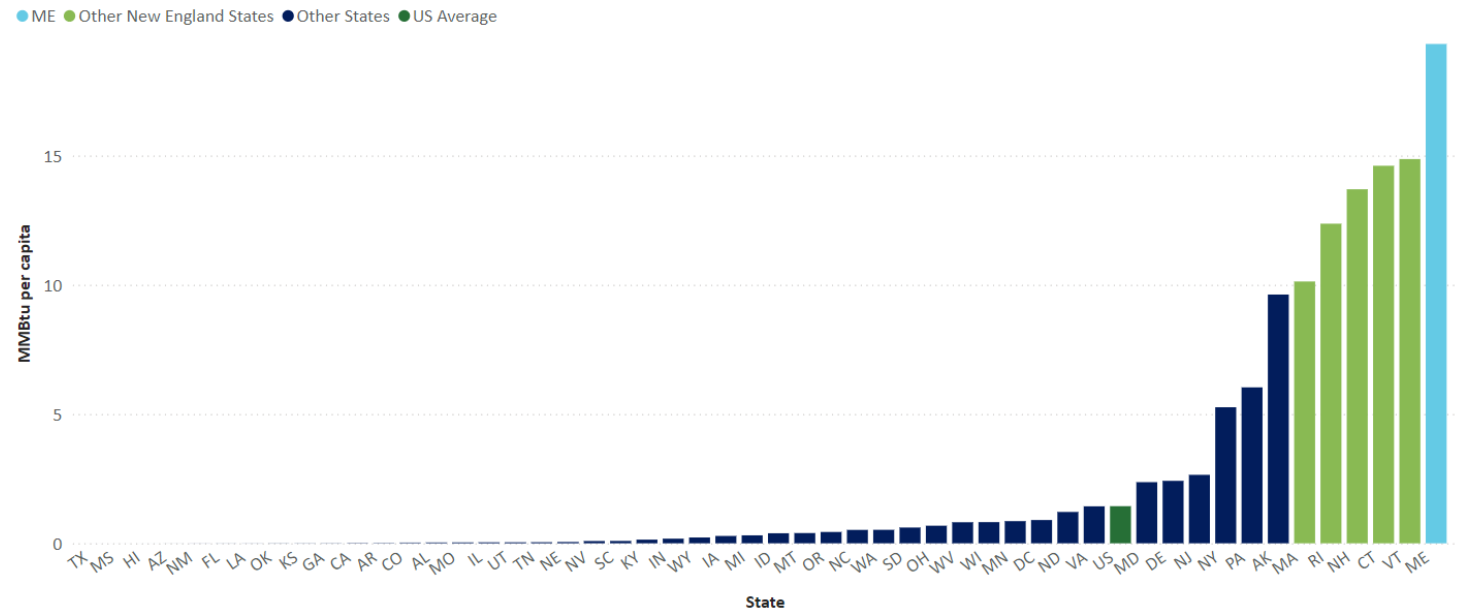
Objective A: Deliver affordable energy for Maine people and businesses

Strategy A: Reduce Maine's dependence on imported fossil fuels for heating and electricity

Strategy B: Reduce energy burden for low- and moderate-income households

Strategy C: Review existing approaches to identify additional electricity cost control opportunities

Distillate fuel oil (e.g., heating oil) consumed by the residential sector by location (2022)



Objective B: Ensure Maine's energy systems are reliable and resilient in the face of growing challenges

Strategy A: Establish ambitious, data-driven targets for energy resilience

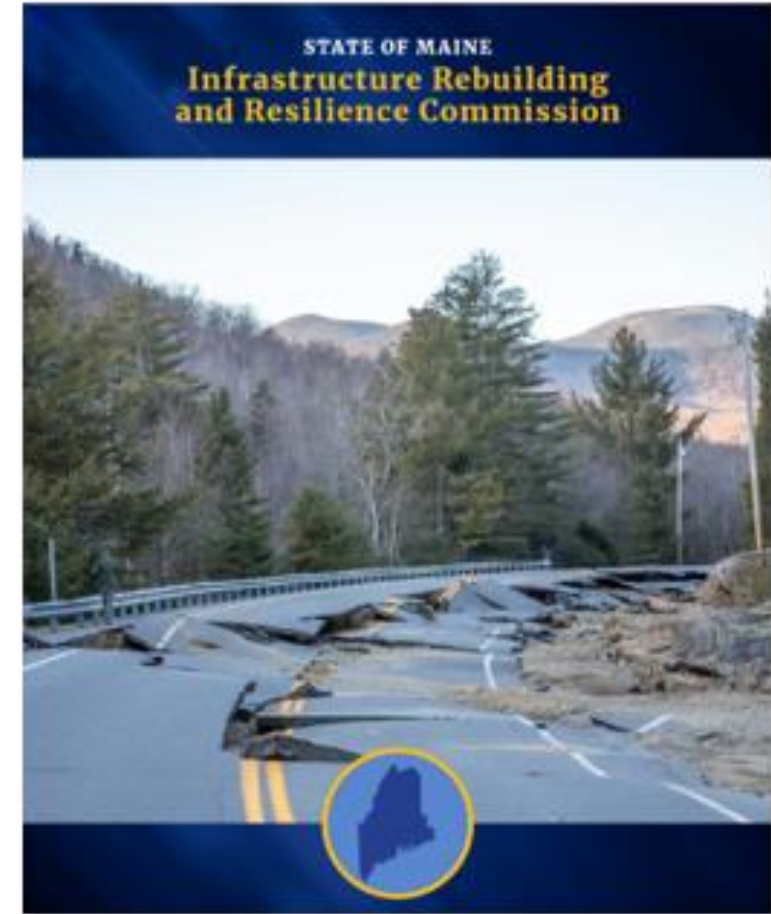
Strategy B: Increase coordination and information-sharing across energy-related emergency management and resilience entities

Strategy C: Deploy targeted resources to advance innovative and modern resilient solutions including microgrids

Strategy D: Leverage innovative technologies including energy storage to increase resilience and reduce greenhouse gas emissions.

Strategy E: Strengthen planning and engagement by utilities to identify and address climate and resilience threats cost-effectively.

Strategy F: Advance partnerships and coordination to enhance Maine's energy security and maximize relevant federal and other funding opportunities.



Objective C: Responsibly advance clean energy

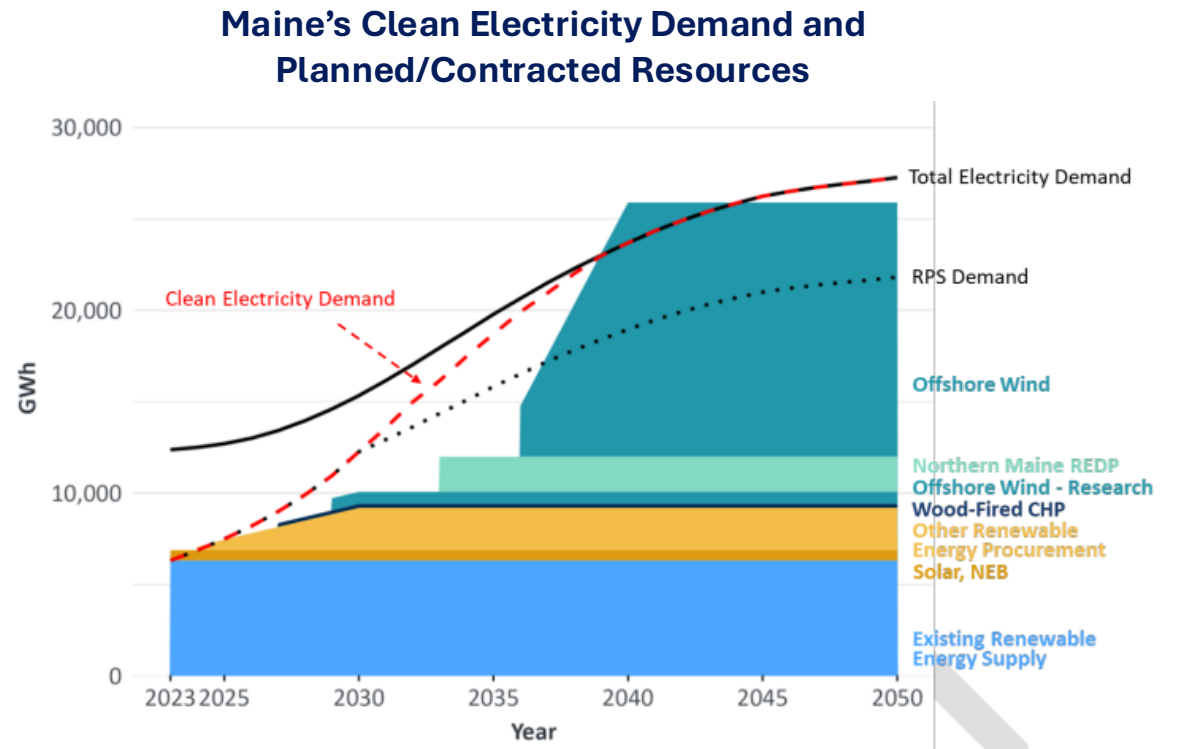
Strategy A: Establish a new Clean Energy Standard (CES) to ensure all Maine people have affordable access to 100% clean energy by 2040.

Strategy B: Establish a regular schedule of competitive energy purchases

Strategy C: Advance responsible deployment of offshore wind energy

Strategy D: Advance efficient, necessary infrastructure to modernize Maine's energy systems

Strategy E: Coordinate and collaborate regionally to maximize benefits and achieve shared goals



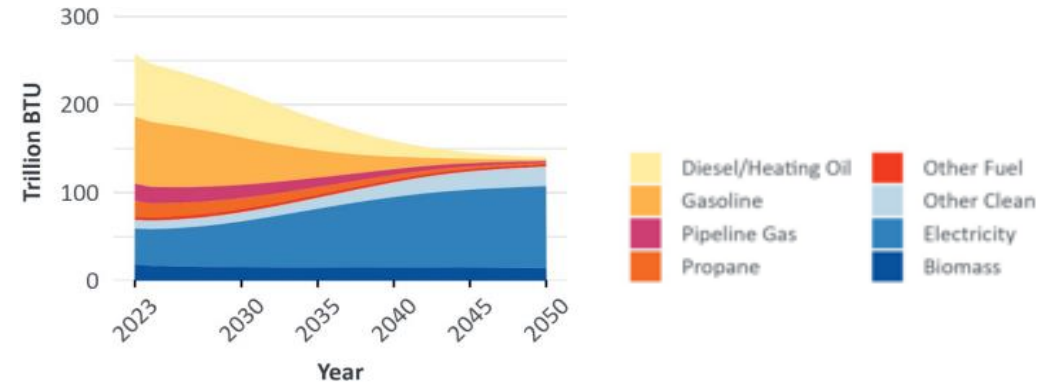
Objective D: Deploy efficient technologies to reduce energy costs

Strategy A: Advance beneficial electrification and weatherization to reduce energy costs and increase overall grid efficiency

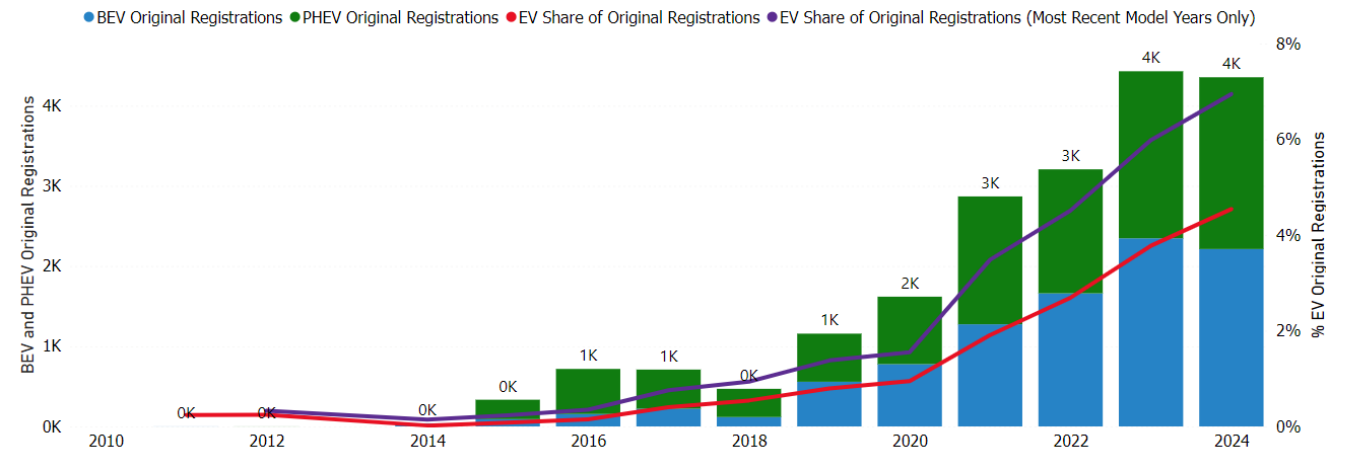
Strategy B: Leverage electrified technologies to unlock grid benefits to consumers

Strategy C: Expand Maine's EV charging network

Forecasted Overall Energy Use in Maine



Registrations of EVs and plug-in hybrids in Maine



Objective E: Expand clean energy career opportunities for Maine people and advance innovation

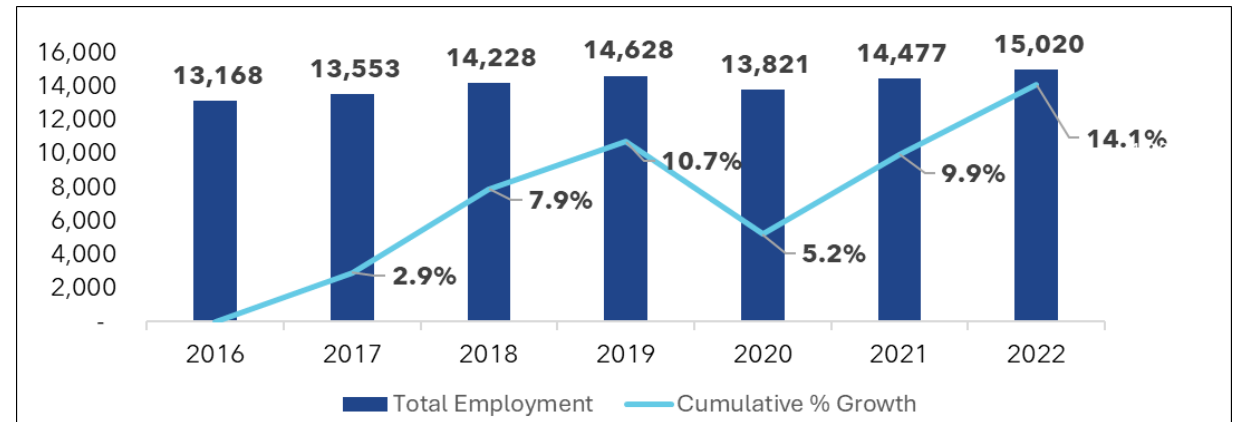
Strategy A: Raise awareness of clean energy careers and connect employers to the local workforce through the Clean Energy Partnership

Strategy B: Advance clean energy curricula development, technical training, and experiential learning

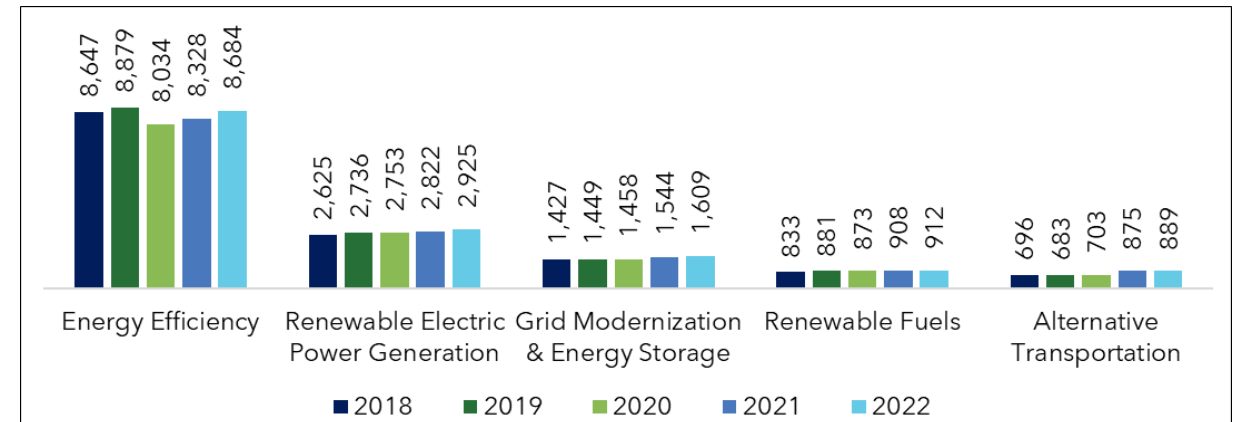
Strategy C: Coordinate with educational institutions, technical and vocational training centers, labor unions, and employers to expand and promote clean energy career pathways

Strategy D: Expand pilot programs, technical assistance, and funding for clean energy innovation and foster partnerships with research, education, and innovation institutions and the private sector to advance clean energy innovation

Clean Energy Job Growth in Maine



Clean Energy Jobs in Maine by Sector



Next Steps

- The draft report is available at maine.gov/energy
 - The final report is due by Jan. 15 to the Governor and Legislature
- Comments on the implementation of the objectives, strategies, and actions within the Plan are welcome
 - This isn't the last opportunity to engage—implementing this plan will require sustained engagement and pathways for feedback. Please stay tuned!
- Please submit comments to geo@maine.gov by Dec. 30

