WELCOME TO

Sector Spotlights

Renewables Lunch & Learn

Maine International Trade Center

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GOVERNOR'S
Energy Office

Dan Burgess, Director

CLIMATE COUNCIL GOALS

12.01.24
Updated Climate Action Plan Due

Achieve State Carbon Neutrality by
2045

Reduce Maine's Greenhouse Gas Emissions by Targets Outlined in State Law

45%
BELOW 1990 LEVELS BY 2030

80%
BELOW 1990 LEVELS BY 2050

ENSURE MAINE PEOPLE, INDUSTRIES, AND COMMUNITIES ARE RESILIENT TO THE IMPACTS OF CLIMATE CHANGE.

49%

21%

12%

12%

5%

TRANSPORTATION • RESIDENTIAL • COMMERCIAL • INDUSTRIAL • ELECTRIC POWER

Data source: Maine Department of Environmental Protection 9th Biennial Greenhouse Gas Emissions Report.
International bunker fuels (1%) are not depicted in the graphic above.

In Maine, most carbon dioxide emissions from fossil fuel combustion come from transportation, followed by residential, commercial and industrial sources.

Maine Energy Planning: 2040 Analysis

GEO will evaluate avenues to achieve the use of 100% clean energy by 2040.

Increasing Maine's usage of clean energy can help stabilize electricity rates, diversify our sources of energy, fight climate change, and create jobs.

Planning includes:

- Developing a new, comprehensive integrated energy plan
- Build on past modeling, laws, and policies
- Ensuring the plan works for all Maine people and businesses via broad stakeholder engagement

Specifically, the plan will analyze:

- Long-term energy demand
- Multiple scenarios to achieve energy needs
- Modeling actual operation of future energy supply and demand
- Policy options

GOVERNOR'S Energy Office

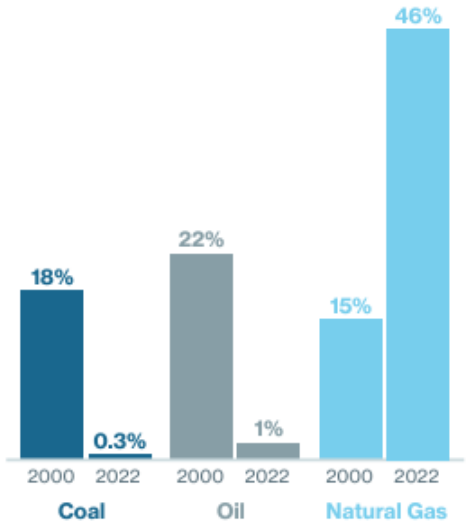
ISO New England: Energy Transition

New England has shifted away from older coal- and oil-fired generation to cleaner burning natural gas.

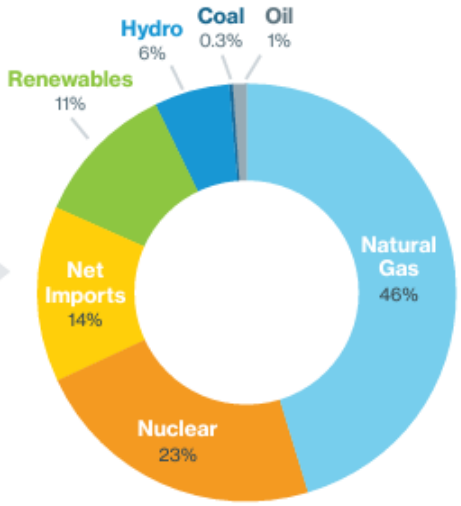
Most of today's electricity comes from lower-emitting energy resources.

The region is transitioning to large-scale clean and renewable energy.

YESTERDAY VS. TODAY



2022 ENERGY RESOURCES



LOOKING TO THE FUTURE

- Wind power dominates new resource proposals: nearly 16,000 MW
- Solar power is growing rapidly: ISO-NE forecasts nearly 12,000 MW within a decade
- Battery storage technologies are emerging at the customer and grid level: more than 11,000 MW proposed
- New transmission proposals would provide access to additional clean or renewable energy in New England or Eastern Canada

The amount of electricity produced by generators in New England and imported from other regions to satisfy all residential, commercial, and industrial customer demand in New England. This is called Net Energy for Load (NEL).

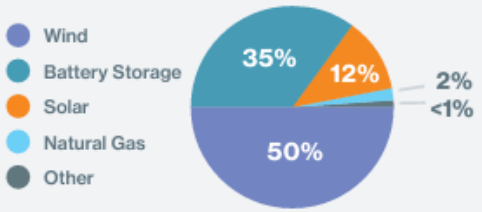
Generation Retirements

Coal- and oil-fired power plants make up almost 20% of the region's electricity generating capacity, but tend to be used only during peak demand periods and are retiring.

- Since 2013, more than 7,000 MW of primarily coal, oil, and nuclear generating capacity have retired or announced retirement as of mid-2020.
- Another 5,000 MW of coal- and oil-fired generators are at risk for retirement in coming years.

Proposed Generation

Developers have proposed nearly 32,000 MW of new generating resources as of January 2023.



Source: ISO New England, N*ew England Power Grid 2022–2023 Profile*, www.iso-ne.com/static-assets/documents/2021/03/new_england_power_grid_regional_profile.pdf

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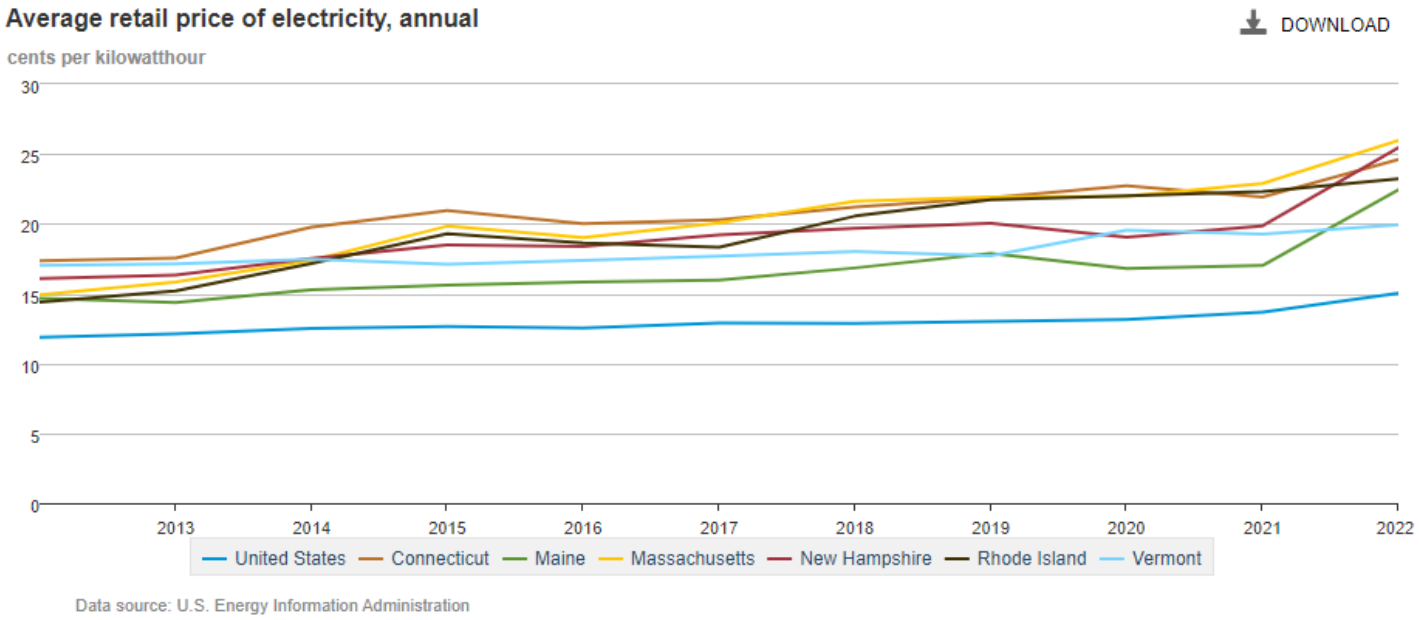
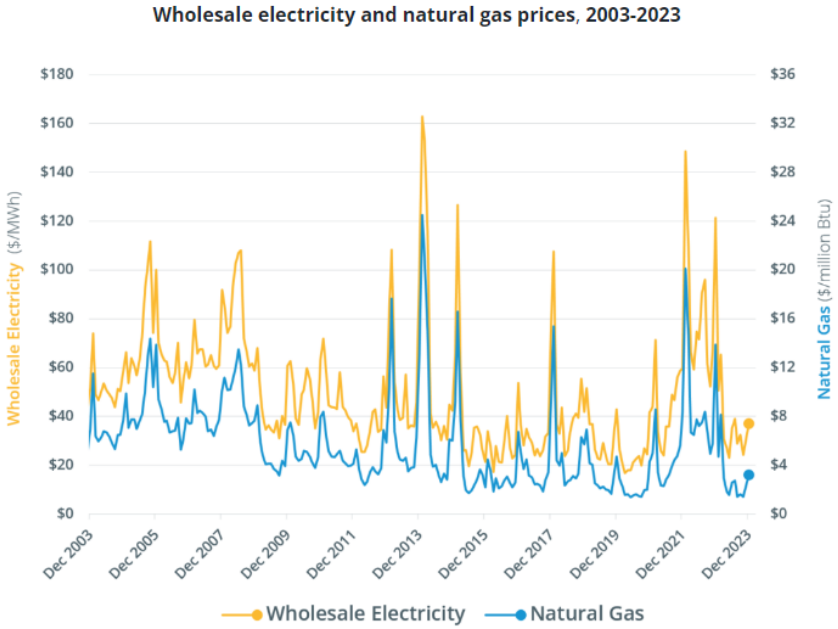
Electricity Prices – Regional

Recent volatility attributable to global events has driven electricity price increases across the U.S. and New England





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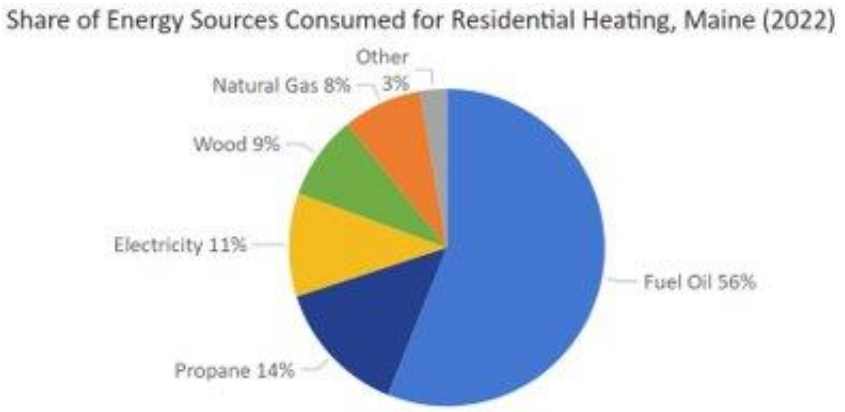
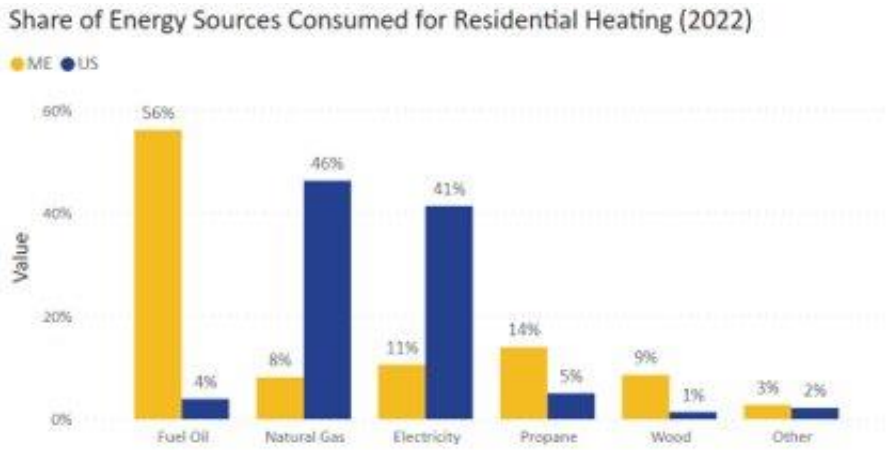
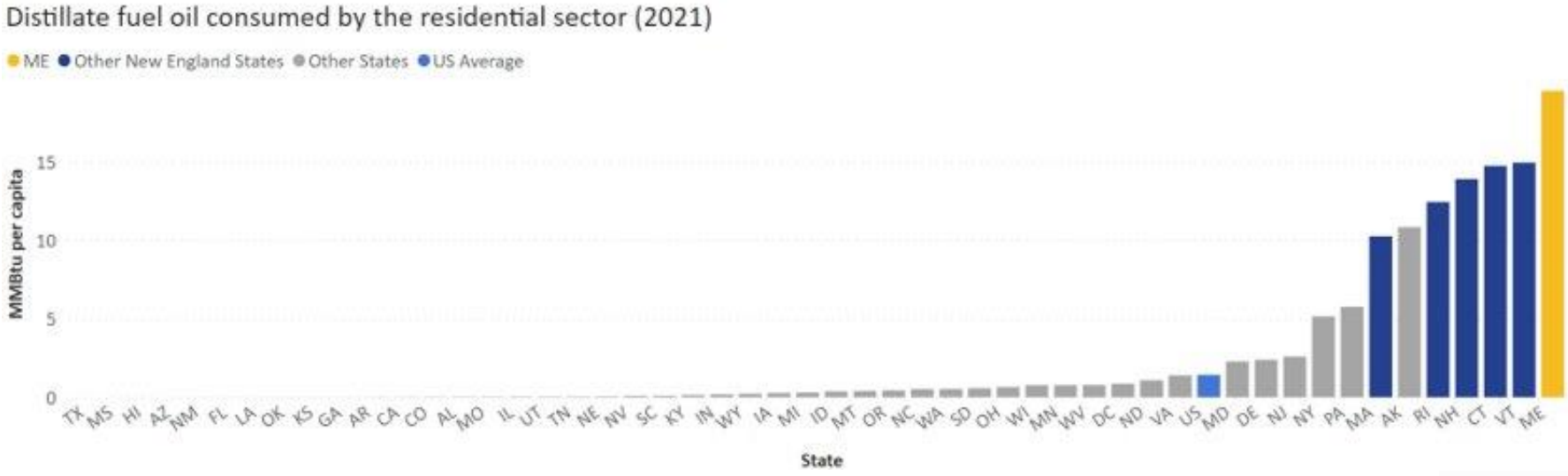
Maine, New England & U.S. Home Heating Data







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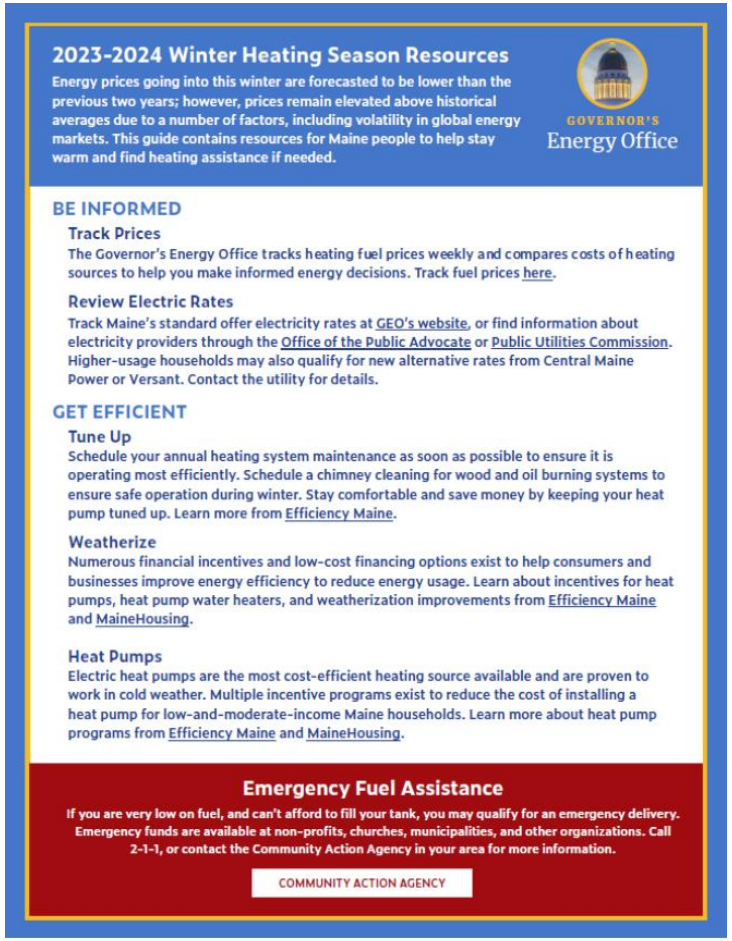
Delivered Fuels



2023-2024 Winter Heating Season Resources

Energy prices going into this winter are forecasted to be lower than the previous two years; however, prices remain elevated above historical averages due to a number of factors, including volatility in global energy markets. This guide contains resources for Maine people to help stay warm and find heating assistance if needed.

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BE INFORMED

Track Prices

The Governor's Energy Office tracks heating fuel prices weekly and compares costs of heating sources to help you make informed energy decisions. Track fuel prices here.

Review Electric Rates

Track Maine's standard offer electricity rates at GEO's website, or find information about electricity providers through the Office of the Public Advocate or Public Utilities Commission. Higher-usage households may also qualify for new alternative rates from Central Maine Power or Versant. Contact the utility for details.

GET EFFICIENT

Tune Up

Schedule your annual heating system maintenance as soon as possible to ensure it is operating most efficiently. Schedule a chimney cleaning for wood and oil burning systems to ensure safe operation during winter. Stay comfortable and save money by keeping your heat pump tuned up. Learn more from Efficiency Maine.

Weatherize

Numerous financial incentives and low-cost financing options exist to help consumers and businesses improve energy efficiency to reduce energy usage. Learn about incentives for heat pumps, heat pump water heaters, and weatherization improvements from Efficiency Maine and MaineHousing.

Heat Pumps

Electric heat pumps are the most cost-efficient heating source available and are proven to work in cold weather. Multiple incentive programs exist to reduce the cost of installing a heat pump for low-and-moderate-income Maine households. Learn more about heat pump programs from Efficiency Maine and MaineHousing.

Emergency Fuel Assistance

If you are very low on fuel, and can't afford to fill your tank, you may qualify for an emergency delivery. Emergency funds are available at non-profits, churches, municipalities, and other organizations. Call 2-1-1, or contact the Community Action Agency in your area for more information.

COMMUNITY ACTION AGENCY

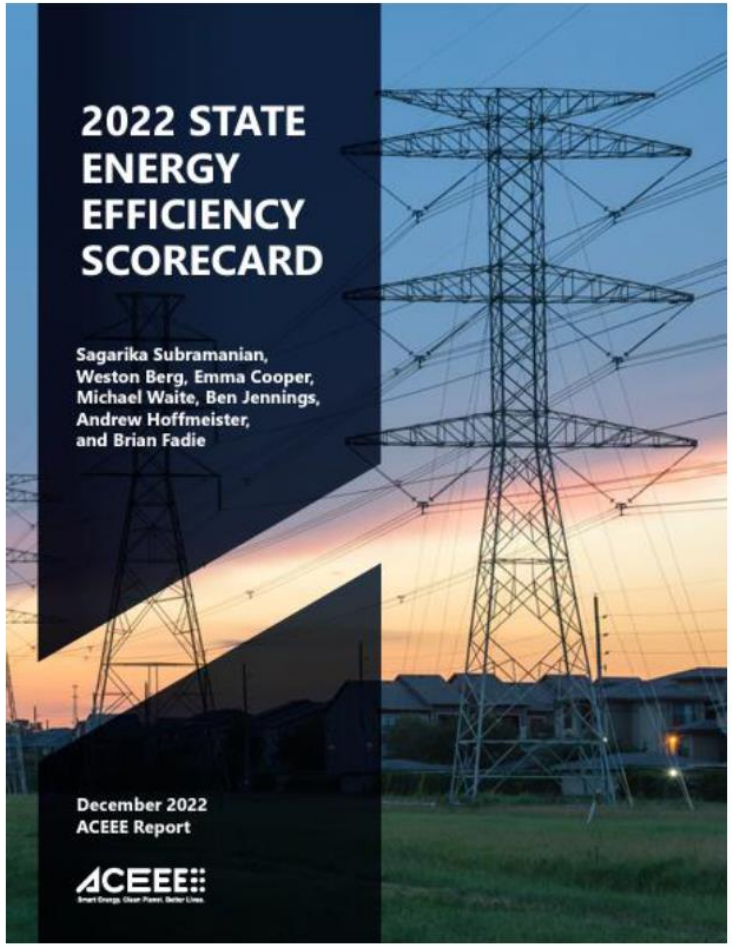
Maine Winter Heating Tips and Resources

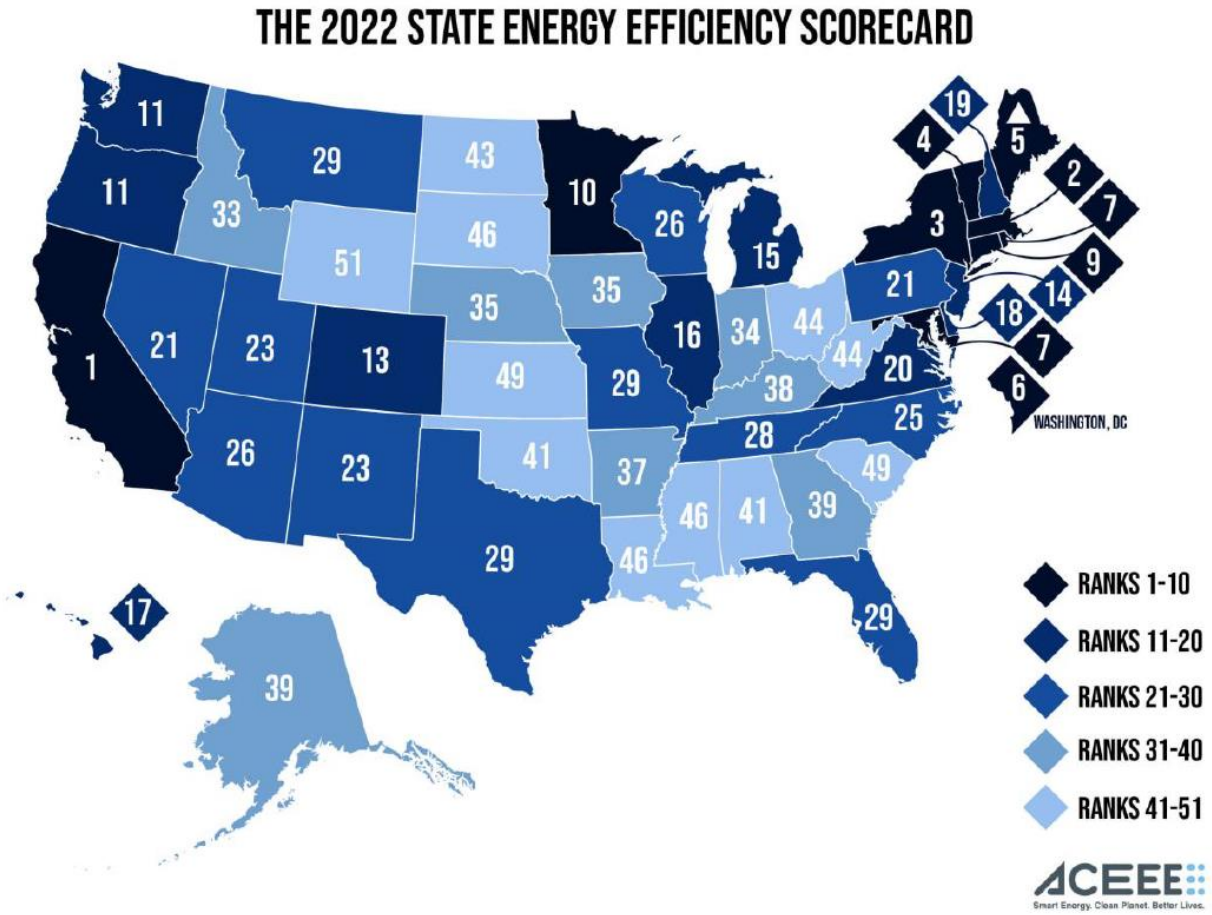
www.maine.gov/energy/winter-heating-resources

GOVERNOR'S Energy Office

Energy Efficiency: Policy and Programs

Maine ranks 5th in the country and most improved state on state energy efficiency policies





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Energy Efficiency: Weatherization

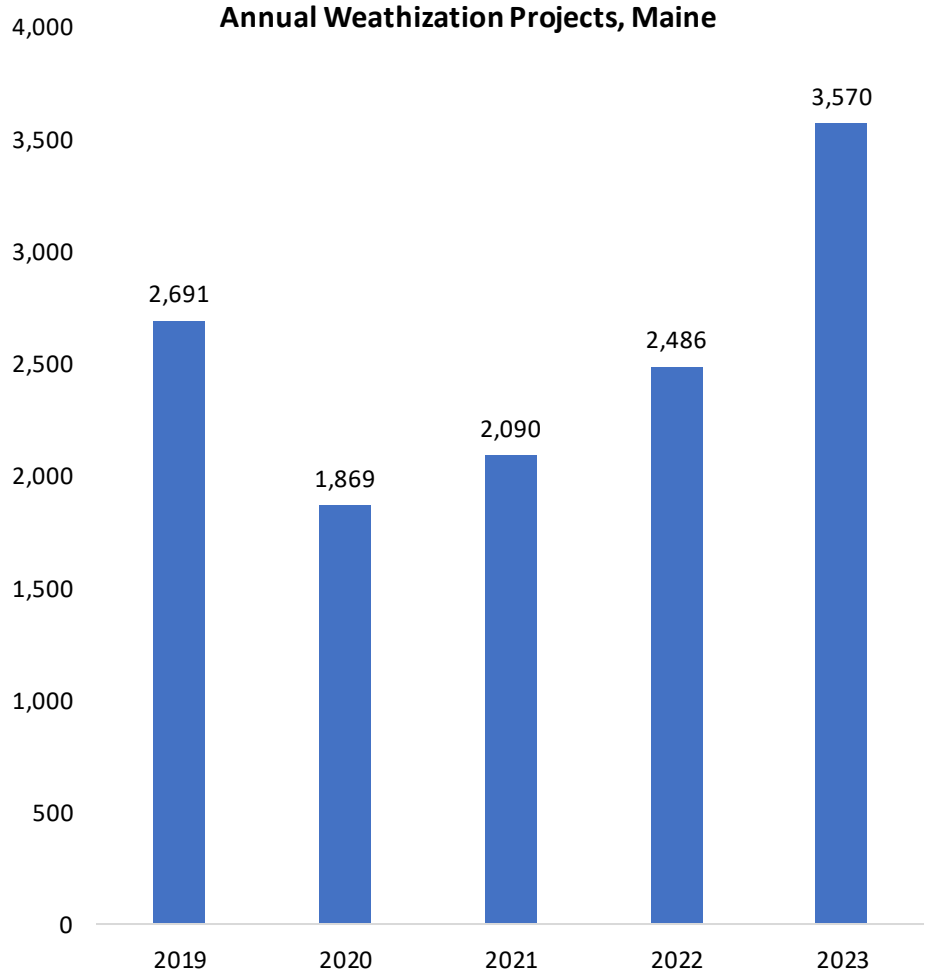
Weatherization projects have surpassed pre-pandemic levels

Legislative and climate goals

- Increase the pace of home weatherization to 35,000 by 2030, including increasing low-income residential units per year
- Weatherized over 12,700 dwellings since 2019, Efficiency Maine + MaineHousing

Additional funding from MJRP

- $25 million from the Maine Jobs and Recovery Plan to Efficiency Maine for home weatherization specifically targeted at low- to moderate-income dwellings in the state



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Energy Efficiency: Heat Pumps

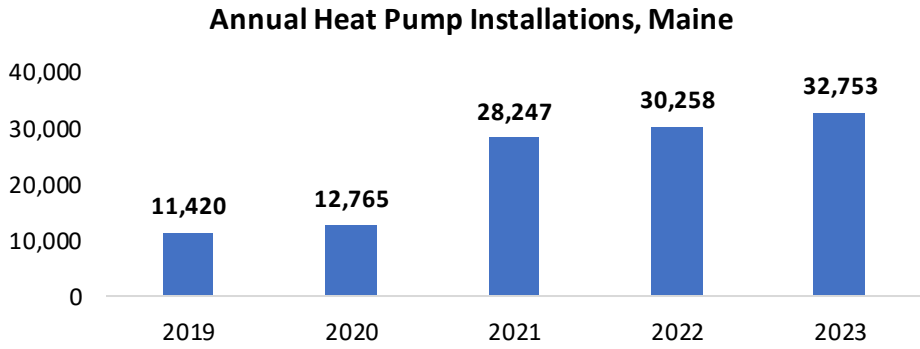
Maine is leading in heat pump installation rates

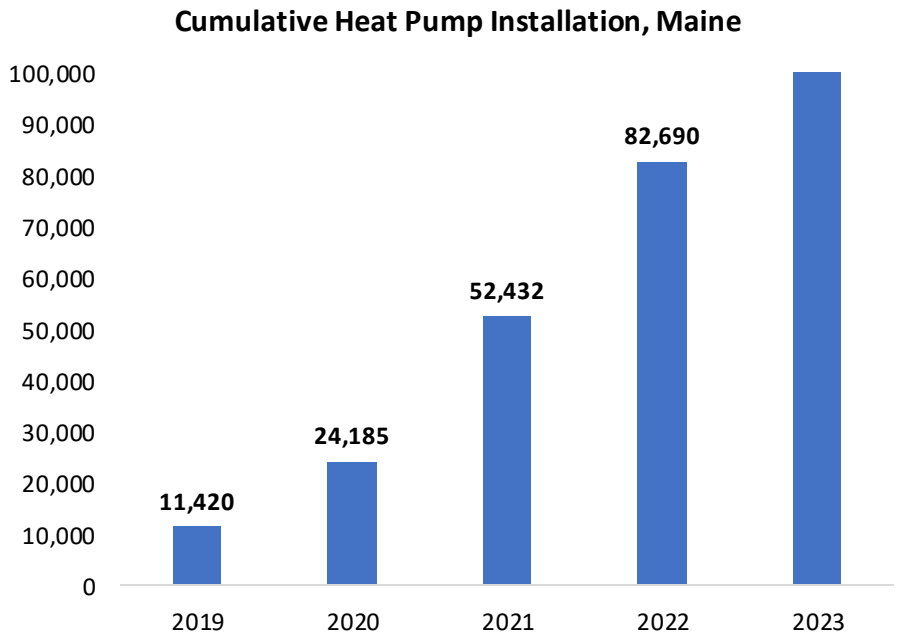
Legislative and climate goals

- Installation of 100,000 new heat pumps by 2025 with at least 15,000 for income-eligible households
  - 100,000 heat pump goal achieved two years ahead of schedule
- New goal: install another 175,000 heat pumps by 2027
- Enhanced focus on whole-home solution (heated and cooled primarily by heat pumps)
- Installed more than 115,000 new heat pumps since 2019 (Efficiency Maine + MaineHousing)

Reduction in oil dependence

- 115,443 heat pumps is *equivalent* to:
  - Nearly 2,900,000 MMBtu offset per year
  - More than 503,000 barrels of oil per year
  - More than 21,100,000 gallons of oil per year





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Clean Transportation

Maine Won't Wait: Embrace the Future of Transportation in Maine

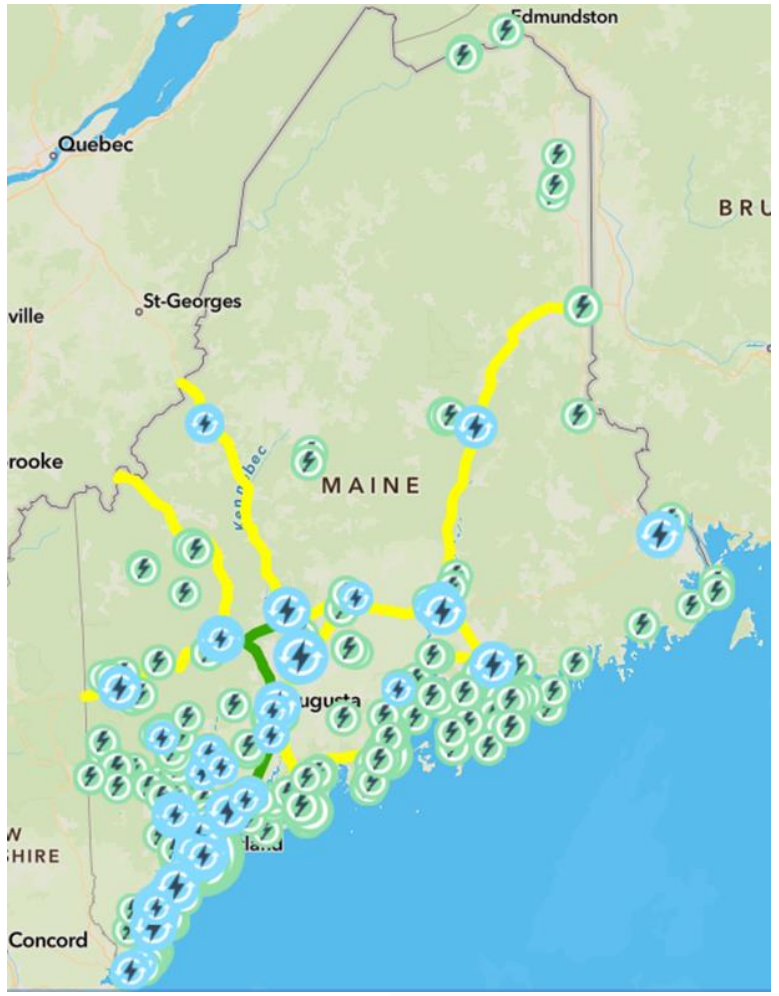
Electric Vehicle Charging Infrastructure

- More than **459** public EV charging stations
- Over **1,000** charging ports, up from 389 stations in 2022

Electric Vehicle Rebates

- Up to $7,500 for individuals through Efficiency Maine
- Also available for businesses, fleets, and other entities

Maine Electric Vehicle Infrastructure Deployment Plan approved by Federal Highway Administration



efficiency MAINE

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Renewable Portfolio Standard (RPS)

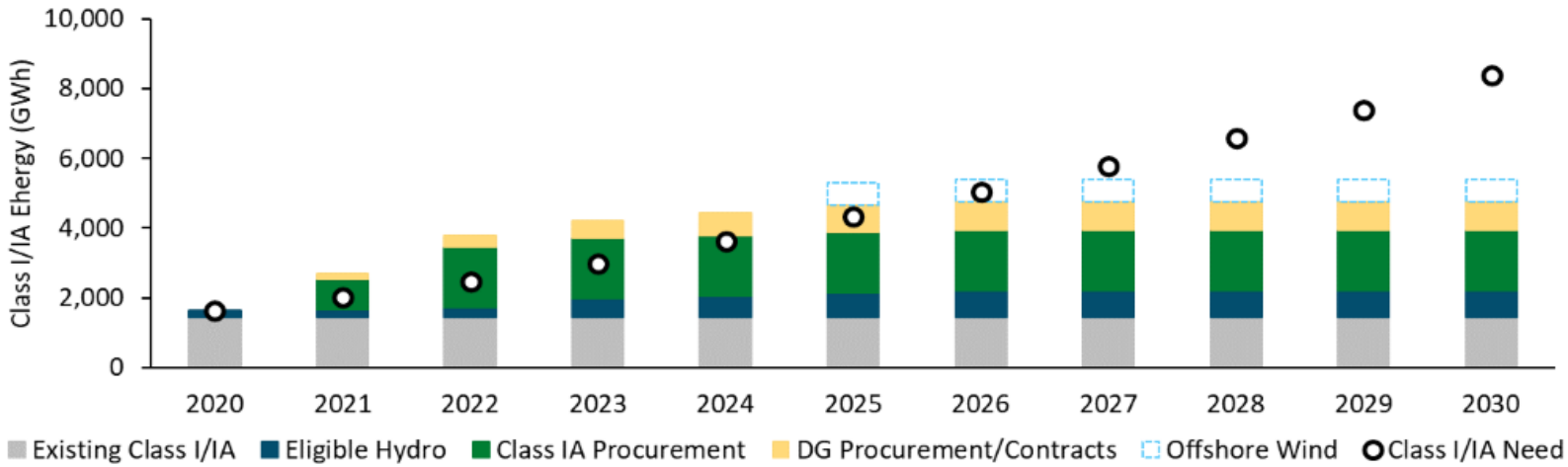
Bipartisan legislation requiring 80% renewable electricity by 2030

10-year Renewable Energy Goals Market Assessment

- 800-900 megawatts of new renewables needed by 2030
- Transmission key driver
- Resource diversity – offshore wind, solar, storage

Competitive procurements

- Two tranches totaling 24 projects across the state
- 14% of statewide electric load at competitive prices
- Mix of new and existing renewables – solar, wind, hydro, biomass



Renewable Energy Goals Market Assessment, February 2021.

§3210-H. Northern Maine Renewable Energy Development Program

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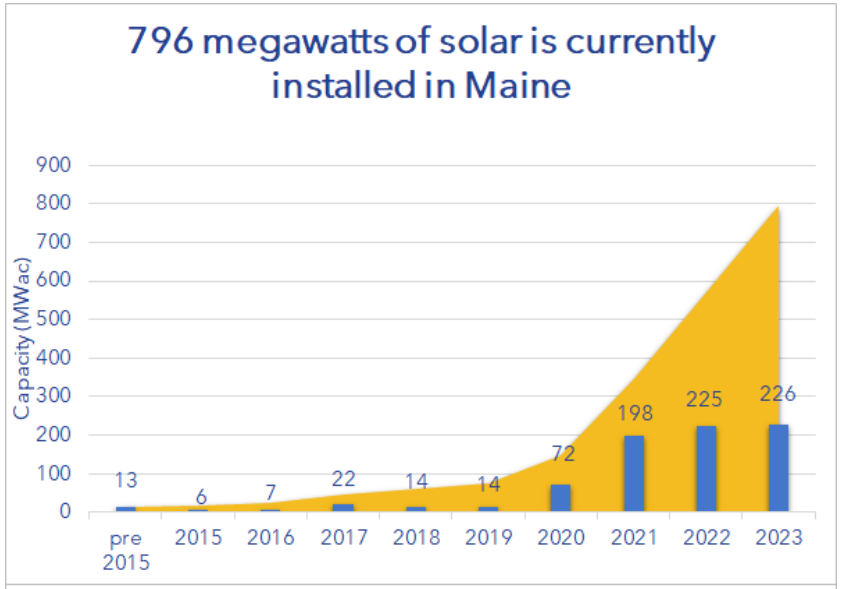
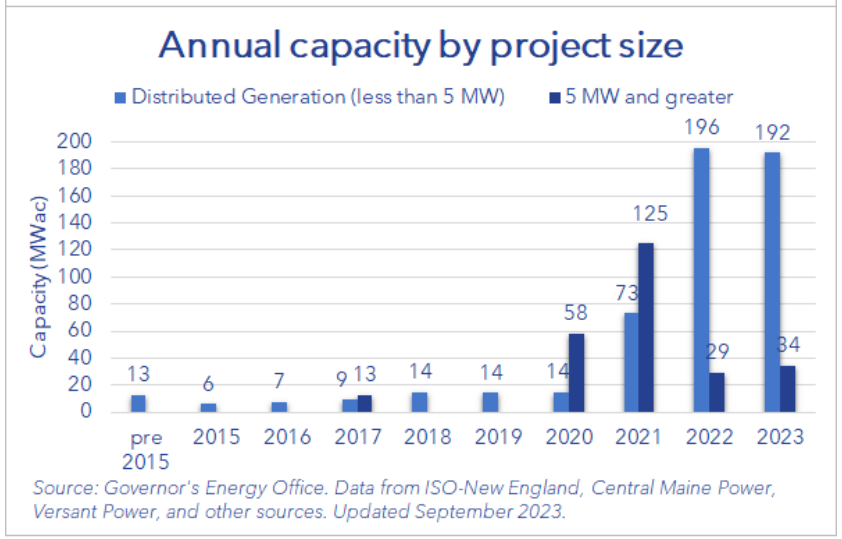
Solar generation is growing in Maine

Solar is growing at all scales to meet Maine's electricity needs





Source: Governor's Energy Office. Data from ISO-New England, Central Maine Power, Versant Power, and other sources. Updated September 2023.

Competitive RPS contracts

- 20 projects totaling 767 MW, highly competitive pricing

Distributed Generation growth

- More than 300 MW solar DG operational to date, benefitting residential, commercial and industrial customers
- Legislation established GEO-led stakeholder process for successor program

Solar for All

- In 2023, GEO requested **$99.5 million** from EPA to establish a statewide Solar for All program
- Seeks to overcome barriers to accessing solar throughout the state through technical support and workforce development.

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Maine Offshore Wind Roadmap

- Published in 2023 with input from an expert advisory committee, working groups, and the public
  - **96** public-private experts on advisory committee and working groups
  - **78** public meetings held
- Focus on energy markets, ports and infrastructure, socioeconomic impacts, manufacturing and supply chains, workforce development, and ocean and environmental compatibility.
- GEO is now implementing the Roadmap deliverables with partners

Technical Studies Completed

- ✓ Supply Chain Opportunity Assessments
- ✓ Maine and New England Energy Analysis
- ✓ Ports Infrastructure Studies
- ✓ Workforce Development
- ✓ Socioeconomic Analysis
- ✓ Transmission Analysis

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New Commercial Offshore Wind Procurement Authorization for Gulf of Maine

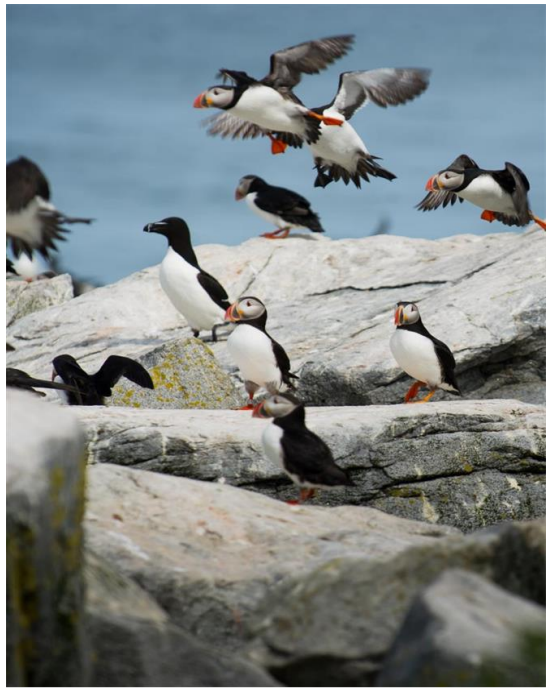
LD 1895 authorizes procurement of at least **3,000 MW** of offshore wind power by installed by **2040**

- Allows for critical port development
- Creates opportunities for all Maine workers and businesses
- Enables joint energy and transmission procurement with other states
- Provisions to minimize siting offshore wind in important fishing areas
- GEO advancing planning process, multiple opportunities for input, draft RFP due to the PUC by July 1, 2025

Floating Offshore Wind Research Array

Maine is advancing a proposed research array in federal waters

- Seeking federal research lease, for up 12 turbines, ~ 40 miles off Portland
- Increasing understanding of floating offshore wind and working to minimize impacts
- Maine PUC reviewing power purchase agreement



Research Consortium

- Established by statute to advance research to better understand the impacts of floating offshore wind in the Gulf of Maine
- Advisory Board of scientists, offshore wind developers, environmental NGOs, fishing industry, state agencies
- Initial research priorities include fisheries coexistence, baseline socioeconomic data inventory, and seafloor mapping
- 2024 focus: seek additional funding, leverage opportunities with regional collaborators, advance technology objectives

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Maine's Energy Storage Goals

Maine has a goal of 300 MW by 2025 and 400 MW by 2030

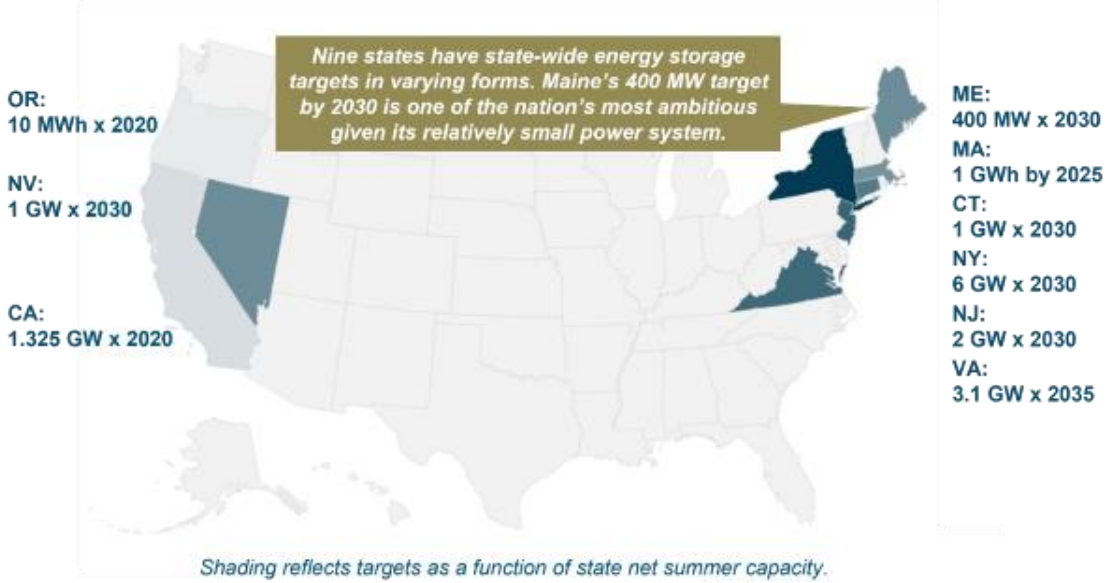
Energy Storage Procurement Design Study

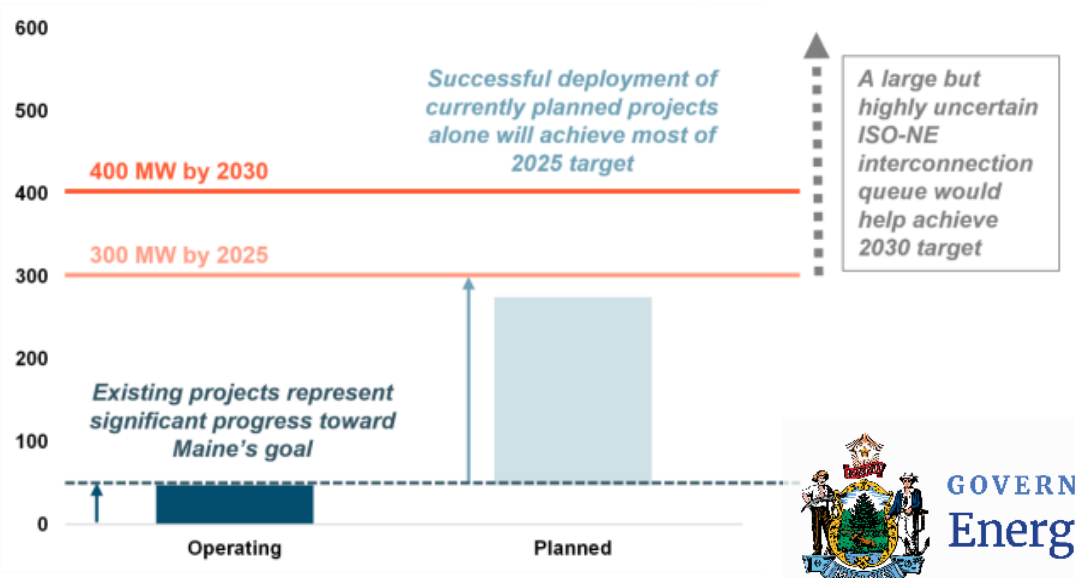
LD 1850 directs GEO to evaluate designs for a program to procure up to 200 MW of storage to:

- Advance clean, affordable, and reliable energy for Maine people and businesses
- Provide net benefits to grid and ratepayers
- Maximize federal incentives
- Enable highest value storage projects

Long Duration Energy Storage Study

The bill also directs GEO to study long duration energy storage solutions for Maine, including new technologies, performance metrics, and cost-effectiveness.





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Clean Energy Partnership

GEO's clean energy workforce development initiative supporting Governor Mills' goal of **30,000 clean energy jobs by 2030.**

Maine Jobs and Recovery Plan

- $2.9M for clean energy workforce development
- $2.25M for clean energy innovation and business support
- $0.8M to develop a clean energy workforce development clearinghouse

Congressionally-Directed Spending

- $2.75M for clean energy job training, job placement services, stipends, equipment, and curriculum

State-Based Energy Efficiency Contractor Training Grants

- $1.3M in federal funding to develop and implement a workforce development program to deliver energy efficiency, electrification, and clean energy improvements, including those covered under the upcoming IRA-funded rebate programs.

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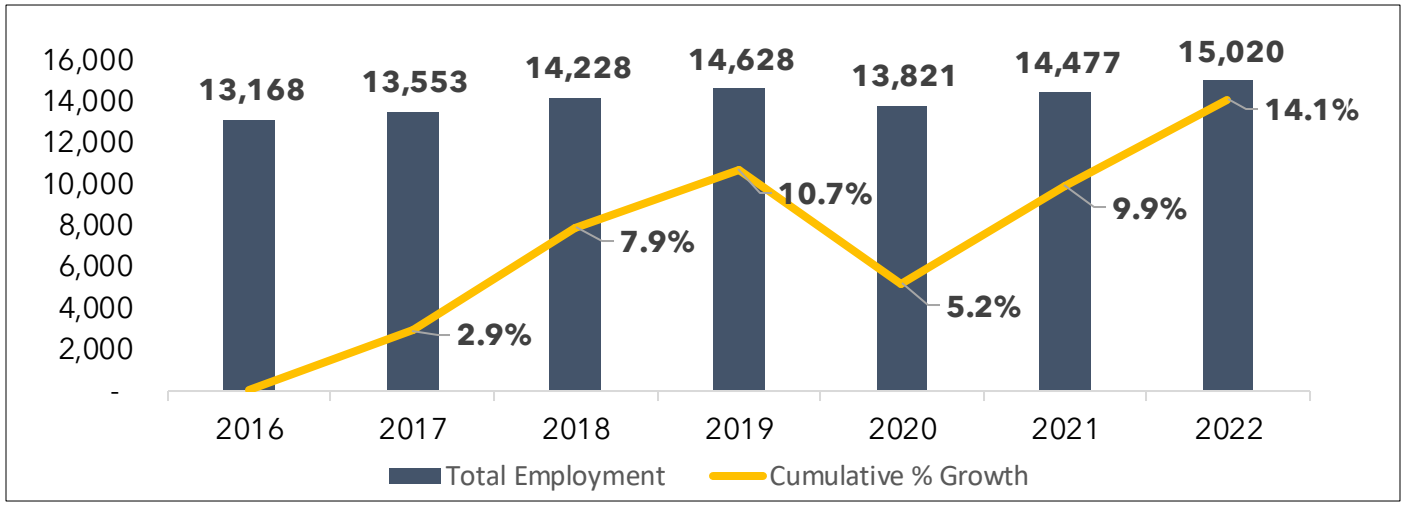
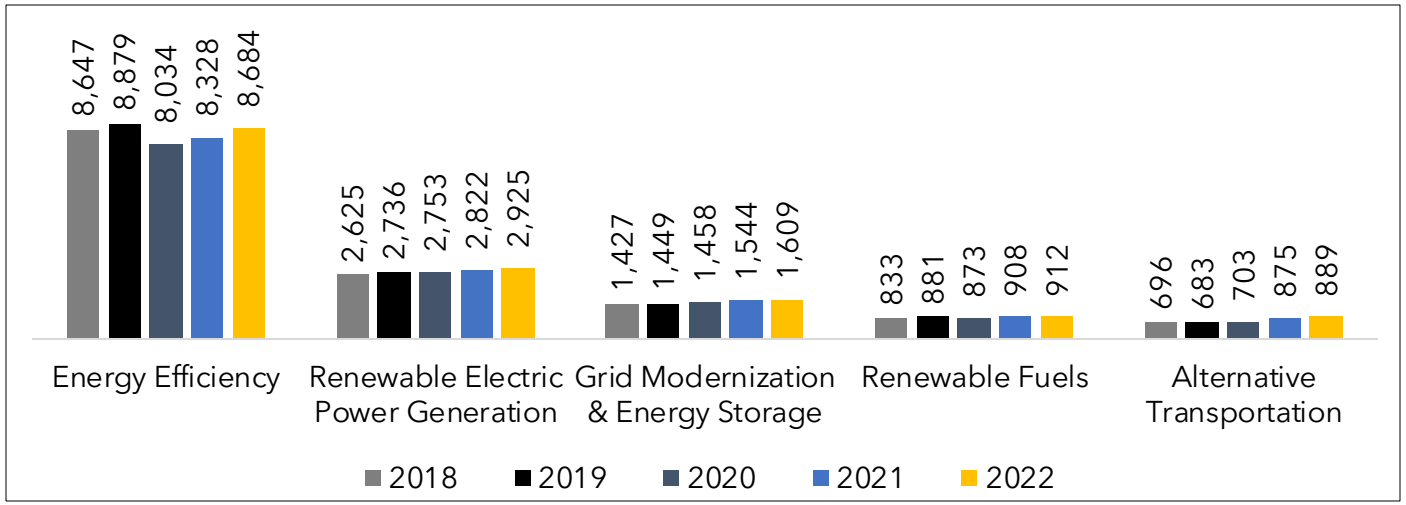
Clean Energy Workforce



15,020

Clean Energy Workers in 2022



4%

+543 jobs

Job Growth from 2021 - 2022

Data source: BW Research, 2021 Maine Clean Energy Industry Report and DOE US Energy and Employment Report 2022

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Clean Energy Partnership - Workforce

The Governor's Energy Office has awarded approximately $2.5 million in grants to nine entities to advance clean energy workforce development programming in the state:

- **Attracting new workers** to the clean energy and energy efficiency workforce
- **Providing career training and upskilling** opportunities to existing workers
- **Increasing diversity and representation** in the clean energy workforce
- **Facilitating entry into rewarding and high-paying jobs** in clean energy through new and expanded internship, Registered Apprenticeship, and pre-apprenticeship models

passivhaus MAINE

International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers IW Local 7

neep Northeast Energy Efficiency Partnerships

Downeast Community Partners

KVCC Kennebec Valley Community College Maine

Revision Energy

Associated General Contractors of America AGC Maine The Construction Association

1865 The University of Maine

Building Performance Association

Governor's Energy Office

Clean Energy Partnership - Innovation

The Governor's Energy Office has awarded approximately $1.3 million in grants to three entities to create business incubator and accelerator programs that advance clean energy and cleantech innovation in the state:

- **The Roux Institute at Northeastern** was awarded $975,000 to develop a clean energy incubator program supporting startup companies by providing mentorship and professional services, access to capital, and hosting community events.

- **Coastal Enterprises Inc** was awarded $300,000 to develop a business advising program aimed at growing and scaling contractor businesses that deliver home weatherization and energy efficiency services in rural and low-income communities.

- The **Central Maine Growth Council** was awarded $111,774 to expand its Dirigo Labs startup accelerator and pitch contest to provide hands-on startup coaching, advisement, and research and development support for clean energy and cleantech startups.

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Federal Funding Programs – Energy Highlights

Available & Awarded:

- **Home Energy Rebates:** $71,664,970 formula for two new rebate programs (w/ EMT, MSHA),
- **Grid Resilience:** Approx. $10.9 million for GEO run grid resilience grant program
- **State Energy Program:** $3.69 million to support GEO activities & Energy Security Plan
- **Energy Efficiency Revolving Loan Fund:** $900k to GEO for revolving loan program (w/EMT)
- **Energy Auditor Training, Building Code Adoption; Career Skills Training:** Formula funding for energy workforce development
- **Energy Efficiency and Conservation Block Program:** $1.67 million to reduce energy use, emissions, and improve efficiency

TBD: Grid Innovation Program; OSW Center of Excellence; Solar for All; Energy in Rural Areas

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