



New Jersey 2024 Energy Master Plan

Public Hearing #2

New Jersey Board of Public Utilities

May 22, 2024

ILLUME



Energy+Environmental Economics

New Jersey Energy Master Plan Goals



The overarching goal of this study is to create New Jersey's 2024 Energy Master Plan (EMP), which outlines the state's strategic use, management, and development of energy. The 2024 EMP will reflect the State's accelerated goal of reaching 100% clean energy by 2035.

The 2024 EMP will consist of several elements:



A progress report on New Jersey's successes and barriers toward meeting 2019 EMP goals



A policy analysis that includes a literature review of national best practices, executive orders, funding opportunities, and actions to inform the decarbonization scenarios



An Integrated Energy Plan based on economy-wide energy system modeling of New Jersey's pathways for meeting near and long-term climate and energy goals



An analysis of the impact that electrification and decarbonization will have on customer costs



Strategic stakeholder engagement and incorporation of feedback throughout the EMP process

What is new for 2024?

The current analysis aims to build off and improve on the 2019 EMP by:

- + Conducting a deeper and more robust study on the costs of climate mitigation for NJ residents**
 - The study will include detailed gas and electric rate modeling, in addition to the up-front capital costs of decarbonization
- + Exploring how a diverse range of energy demand reduction strategies may help alleviate peak electric load**
- + Exploring the potential of using gas to provide back-up heating during the coldest hours of the year**
- + Studying the cost and required infrastructure of achieving a zero-emissions electric sector**
- + Including detailed inputs and assumptions on the offshore wind industry that are being developed as part of the Offshore Wind Strategic Plan 2**

2024 EMP UPDATE TIMELINE

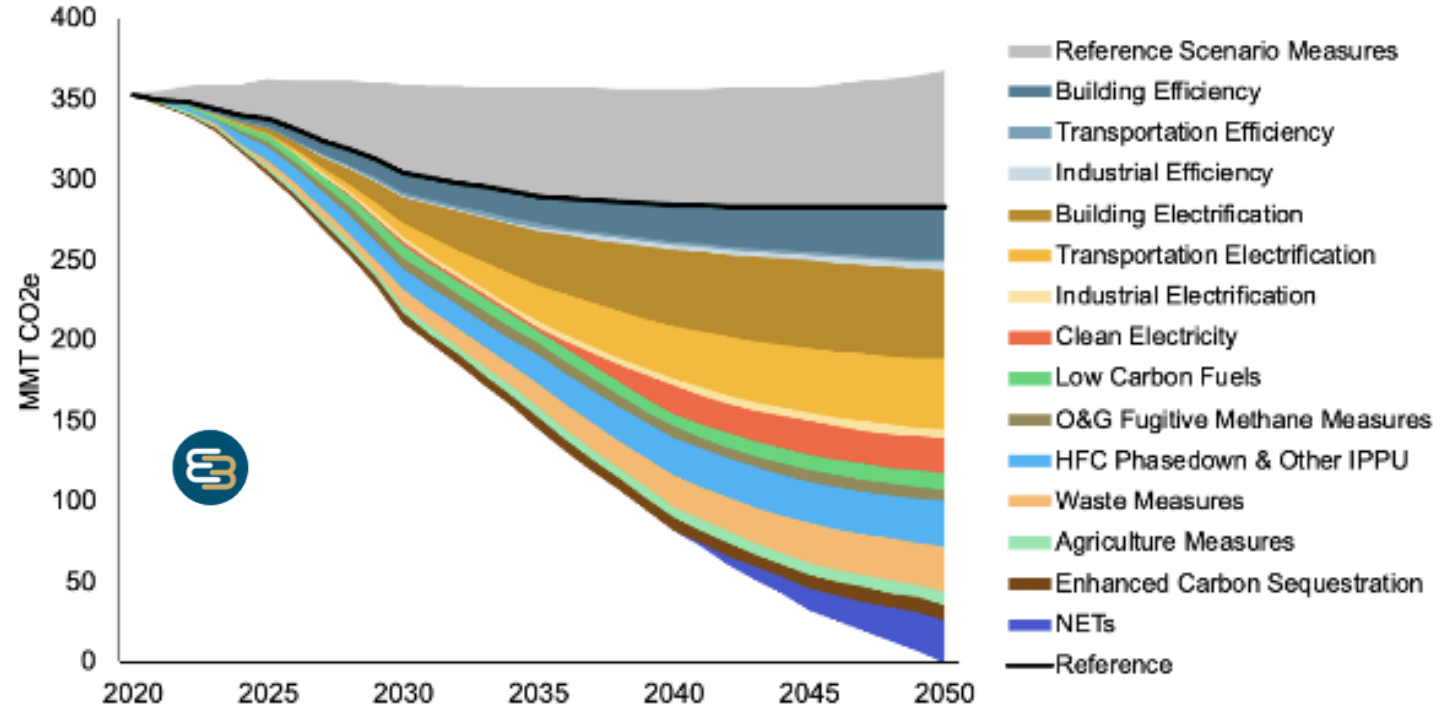


Milestone	Timeline
Consultant Selection	Q4 2023
Four Public Hearings	Q2 2024
Draft EMP	Q3 2024
Final EMP	Q4 2024
Final Comprehensive Climate Action Plan	Q3 2025



E3 is the national leader in developing rigorous, state-level and utility-specific clean energy plans

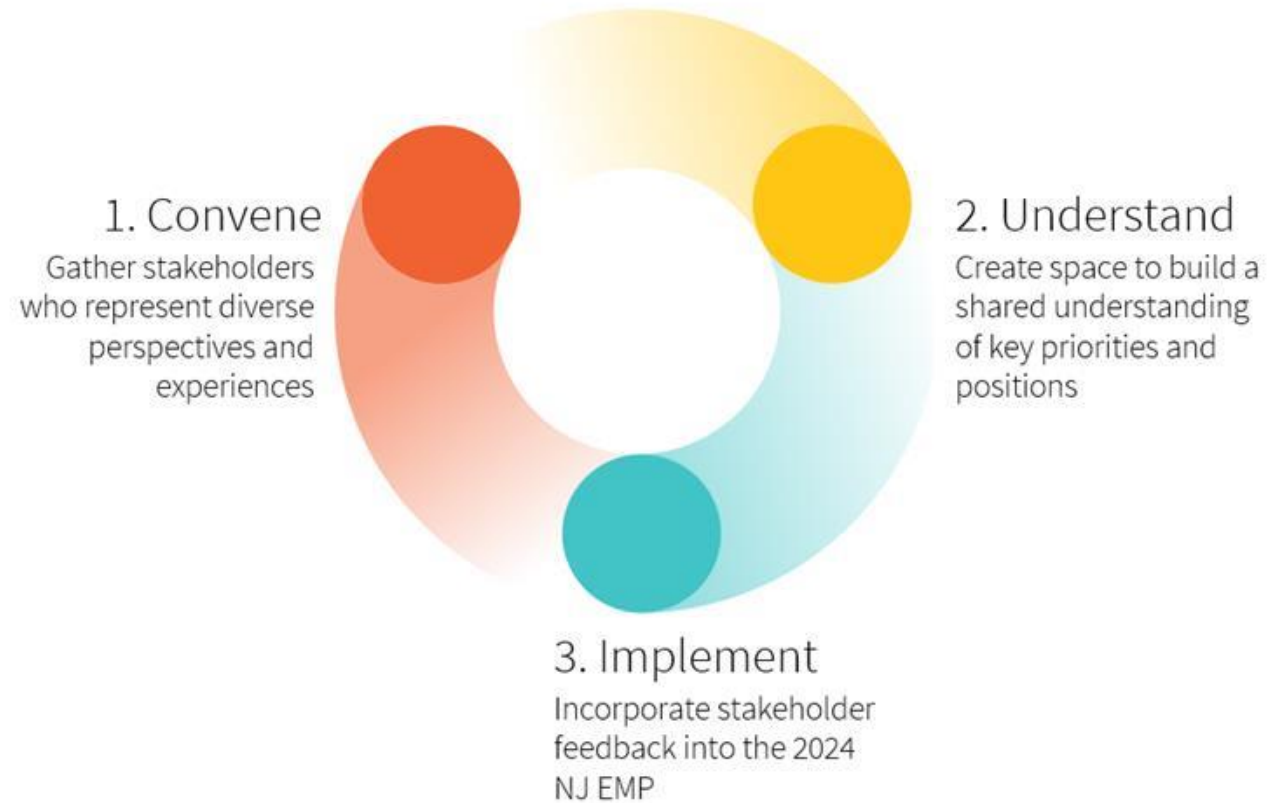
E3 models GHG emissions reduction measures to decarbonize states and regions, and addresses the challenges associated with deep decarbonization across North America and the east coast. Notable states E3 has completed energy master planning for include New York, Maryland, Maine, North Carolina, Colorado, California, Oregon, Minnesota, and New Mexico



Recent Projects

- US Climate Alliance Greenhouse Gas Emissions through 2050
- New York Climate Action Council Scoping Plan
- Impact of Massachusetts's Decarbonization Goals on Local Gas Distribution Companies

ILLUME provides expertise in elevating the perspectives of **stakeholders to shape a more equitable energy future. To support the development of the Energy Master Plan, ILLUME will convene small-group workshops to understand the perspectives of key community stakeholders and incorporate these findings into the planning process.**





**MAY 22, 2024 – PUBLIC HEARING 2
STRATEGIES 3 & 4 IN THE 2019 EMP**



Strategy 3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

Goal 3.1: Increase New Jersey's Overall Energy Efficiency

- ***The Board established a clearinghouse for home energy and health and safety programs targeted to low-income households (3.1.4) – Whole House Pilot***
 - Barriers to weatherization most frequently include asbestos and moisture issues, including mold, foundation leaks, and roof leaks.
 - Trenton Whole House Pilot takes a holistic approach to health housing, coordinating energy efficiency improvements while remediating health and safety hazards that pose a threat to human health and cause efficiency upgrade work to be deferred or delayed.
 - Program Goals: (1) Streamline and integrate programs that provide services for single- and multi-family residences occupied by low- to moderate-income residents to improve energy savings and health and safety outcomes; (2) Support progress toward EO 316 goal to make 10% of LMI housing stock electrification ready by 2030.
 - Pilot objectives: Complete Whole House interventions in 100 homes and electrification or electrification-readiness measures in a subset of 20 homes that have greatest potential for energy and cost savings

Strategy 3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

- ***Whole House Pilot Progress***

- Planning

- Green and Healthy Homes Initiative (GHHI) published asset gap analysis to identify central challenges and pilot city
- Developed protocols for braiding GHHI and partner resources
- Developed comprehensive evaluation and data collection infrastructure
- Built collaborative partnership with PSE&G and Comfort Partners implementer, CMC Energy

- Implementation

- Received almost 300 deferrals from Comfort Partners
- Conducted environmental assessments and pre-intervention surveys for 53 households
- Scheduling bids and deploying contractors to first 15 units utilizing new State Energy Program federal funds to BPU to treat for mold, asbestos, and other hazards
- Launching new program this month for lead paint hazard remediation and abatement with partners at NJ Department of Community Affairs
- Actively building contractor pool and capacity, adding 9 qualified lead contractors over past month.

- Electrification/Electrification Readiness

- Developed electrification/electrification readiness pilot; working through implementation details with CMC

Strategy 3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

Goal 3.2: Manage and Reduce Peak Demand

- ***The Board supported new pilots and programs to manage and reduce peak demand (3.2.1)***
 - The Clean Energy Act emphasizes the importance of energy efficiency and peak demand reduction and calls upon New Jersey's electric and gas public utilities to play an increased role in delivering EE and PDR programs to customers.
 - The Board recently directed the electric public utilities and invited the gas public utilities to propose new DR programs, and established Demand Response Guiding Principles to guide the development of pilot programs, all as part of the second triennium of the utility- and State-run energy efficiency programs slated for operation from 2025 to 2027.

Strategy 3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

Goal 3.3: Strengthen Building and Energy Codes and Appliance Standards

- ***The Board established transparent benchmarking (3.3.2)***
 - The Board approved a benchmarking program for large commercial buildings in September 2022. Commercial buildings over 25,000 square feet are required to benchmark their energy and water usage annually.
 - Regulated utilities: Data aggregation and data access services
 - Help desk: Responds to benchmarking program inquiries
 - Submission deadline: July 1, 2024 for 2023 reporting year (plus automatic 90-day grace period)
- ***New Jersey adopted more stringent appliance standards (3.3.7)***
 - Signed in 2022, the New Jersey Appliance Standards Law (P.L. 2021, c. 464) established minimum efficiency standards for several categories of residential and commercial appliances.
 - Estimated first-year savings ([BPU study](#)) led to [adjusted Triennium 2 goals](#)
 - Electricity savings: 66–85% of annual State electricity reduction goal (2025–2027)
 - Natural gas savings: 103–107% of annual State natural gas reduction goal (2025–2027)

Strategy 3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

Case Study: Triennium 1 & 2 Programs

- ***The Board implemented the Clean Energy Act requirement that electric and gas utilities reduce consumption by at least 2% and 0.75%, respectively, including the establishment of clear performance indicators and evaluation, measurement, and verification methods (3.1.1)***
 - The Board recently approved the framework for the second triennium of the utility- and State-run energy efficiency programs slated for operation from 2025 to 2027.
 - Six quantitative performance indicators
 - Robust EM&V approach will document achieved outcomes and identify opportunities for operational improvements through evaluation, market, and other studies
 - All seven investor-owned electric and gas utilities submitted program proposals in December 2023
- ***The Board established strategic and targeted energy efficiency programs to increase energy reductions and customer engagement (3.1.3)***
 - The first two years of the energy efficiency programs statewide (2021 to 2023) saved residential customers approximately \$300 million in electric and gas utility bill savings.



STRATEGY 4 OF THE 2019 EMP



Strategy 4: Reduce Energy Consumption and Emissions from the Building Sector

- **Executive Order No. 316 (Feb. 2023): Clean buildings targets by 2030**
 - 400,000 residential dwelling units electrified (retrofitted or constructed with electric space heating and cooling and electric water heating systems);
 - 20,000 commercial spaces and/or public facilities electrified; and
 - 10% low- and moderate-income residential units made ready for electrification (necessary electrical system repairs and upgrades)
- **The Board authorized the first building decarbonization (BD) programs in NJ for operation from 2025 to 2027.**
 - Each utility proposing a BD program shall design the program to scale to achieve EO 316 goals with an annual budget maximum of approximately 7%, 8%, and 9% of the utility's EE budgets annually (totaling approx. \$84M, \$120M, and \$144M statewide in each year, respectively).

Strategy 4: Reduce Energy Consumption and Emissions from the Building Sector

- **Inflation Reduction Act (IRA) home rebates (efficiency and electrification)**
 - Request for Information released May 8, 2024
 - Interested parties and members of the public invited to provide written responses to the RFI regarding the design of programs to implement the IRA Home Efficiency Rebates and Home Electrification and Appliance Rebates funding
- **Regional Greenhouse Gas Initiative Funding (2023 – 2025)**
 - 40% of proceeds (NJBPU and NJ Economic Development Authority) dedicated to accelerate healthy homes and building decarbonization, with NJBPU focus on LMI residences.
 - Funding will accelerate the pace of decarbonization of buildings in the state through investing in projects and programs that promote building electrification and reduce energy consumption, energy burden, and overall emissions from the building sector, including programs that promote workforce readiness to build, install, repair, and maintain the technologies critical to meeting these goals.

Strategy 4: Reduce Energy Consumption and Emissions from the Building Sector

Goal 4.2: Start the Transition to Electrify Existing Oil- and Propane-Fueled Buildings

- ***The Board is incentivizing the transition to electric heat pumps, hot water heaters, and other appliances (4.2.1)***
 - The Board recently directed the electric public utilities and invited the gas public utilities to propose new building decarbonization start-up programs as part of the second triennium of the utility- and State-run energy efficiency programs slated for operation from 2025 to 2027. Pursuant to the Board's Building Decarbonization Programs Framework, the BD programs should offer financial incentives for New Jersey consumers currently using fossil-fueled equipment to voluntarily adopt more efficient electric equipment, prioritizing fuel-switching of space heating and water heating from delivered fuels to electric heat pumps.
- ***The Board helped develop a transition plan to a fully electrified building sector (4.2.2)***
 - Co-led the NJ Clean Buildings Working Group in 2023

Case Study: New Construction Program (NCP)

- **The NCP is designed to:**

1. Broaden and Expand the Scope of Energy Savings
2. Support Electrification and the Reduction of GHG Emissions
3. Create a Single Point of Entry and Eliminate Market Gaps
4. Optimize Program Process Flow
5. Increase Equity and General Participation
6. Inform Code Development and Support Code Compliance

New Construction Program

- **The NCP offers three pathways to earn incentives:**

1. The **Bundled Pathway** requires the implementation of a bundle of relatively typical above-code energy conservation measures. Eligible measures consist primarily of electric efficiency equipment, building envelope measures, and insulation.
2. The **Streamlined Pathway** encourages deeper energy savings than the Bundled Pathway but requires less time and expense than the High-Performance Pathway. Although it requires some modeling of ECMs, the modeling is performed in a web-based user interface that requires minimal inputs and generates quick and accurate projected savings.
3. The **High-Performance Pathway** encourages the deepest energy savings by requiring that applicants take a whole-building approach and either exceed code requirements by a certain percentage or meet one of several sets of stringent technical standards for new construction.

New Construction Program

- **Workforce Development**

- The Workforce Development Incentive offers up to 100% reimbursement for successful completion of pre-approved trainings and certifications for persons who live in New Jersey, whose principal place of work is in New Jersey, or who have another nexus to New Jersey as approved by the Program Manager and Board Staff.
- Examples
 - LEED Green Associate
 - ASHRAE Building Energy Modeling Professional
 - ENERGY STAR New Homes or Multi-Family New Construction Rater Certification
 - Passive House Institute Certified Passive House Designer

New Construction Program

- **Garden State Challenge**

- Pilot program that supports the design and development of innovative, sustainable, and energy efficient new construction buildings.
- The Garden State Challenge is a competition with monetary awards distributed in three successive rounds of the building design process and upon construction completion.
 - Round 1: Schematic Design
 - Round 2: Design Drawings
 - Round 3: Final Design and Construction
- Designs should represent buildings that will be aesthetically pleasing, low to no-carbon, will provide superior comfort, enhance health and safety, be replicable and quicker to construct than other comparable buildings, and most importantly, inspire the industry to promote and ultimately achieve New Jersey's strategy for 100% Clean Energy by 2035.

New Construction Program

- **The NCP will support many of the EMP's strategies and goals, including, among others:**
 - *Strategy 3.1: Increase New Jersey's overall energy efficiency.*
 - *Strategy 4.1: Start the transition for new construction to be net zero carbon.*
 - *Strategy 7.2.3: Establish vocational training to establish a pipeline of well-qualified, modern energy specialists.*
- **In addition, the NCP will support the Executive Order 316 target to install zero-carbon emission space heating and cooling systems in an additional 400,000 homes and 20,000 commercial properties, and to make an additional 10% of all LMI properties electrification-ready by 2030.**