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Advancing the Clean Energy Future

2040: The Future Is Now

A Vision for New England's Future, and Essential Steps to Get There

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2025 Restructuring Roundtable

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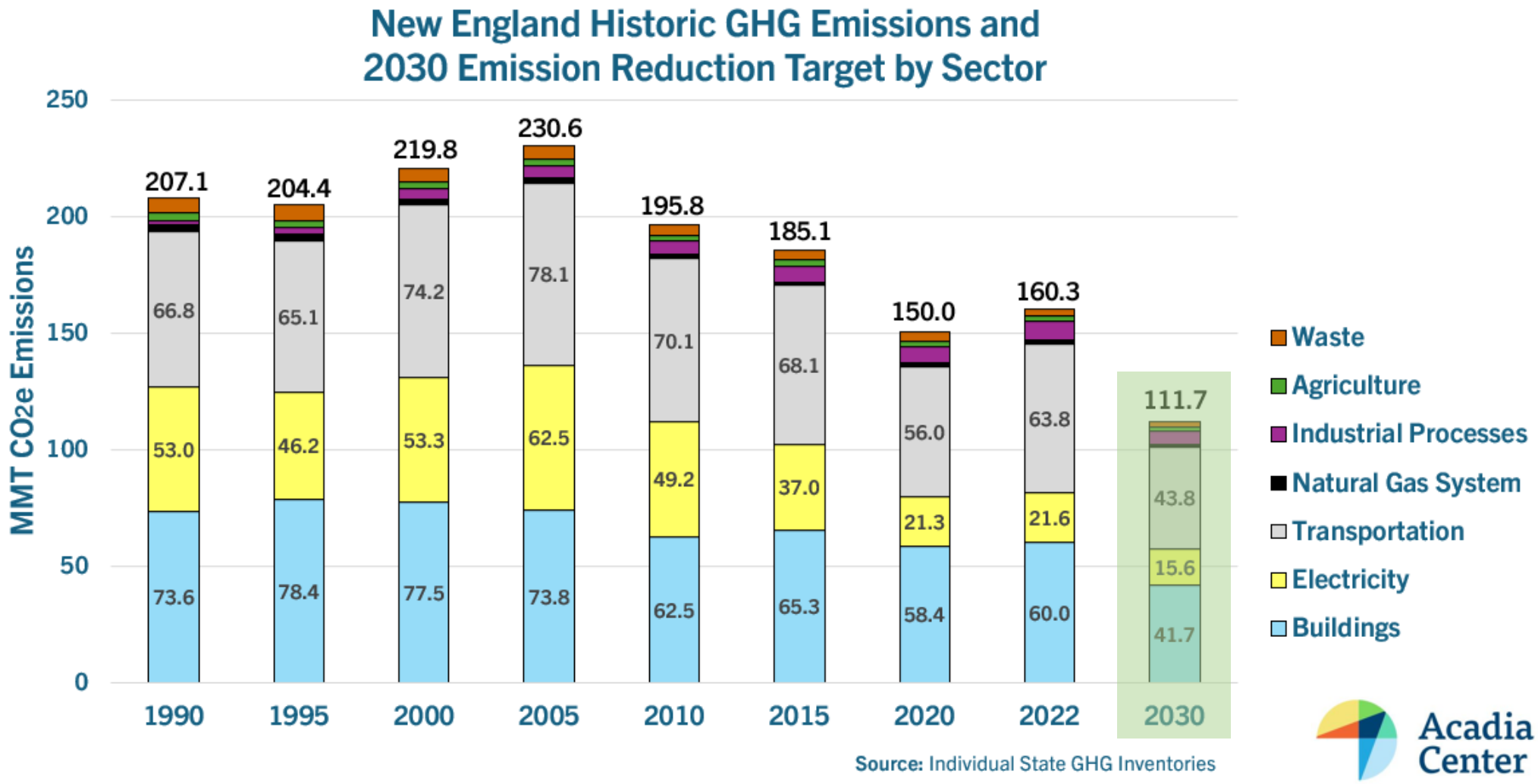
Boston, MA • Hartford, CT • New York, NY • Providence, RI • Rockport, ME

Where We Are Today

Progress made, but region not on track | Still: time and solutions remain



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1. ME 2022 inventory not yet released. Assumes ME 2021 emissions = ME 2022 emissions
2. Assuming NH has a 45% below 1990 levels by 2030 climate target (matching RI & ME)

Where We Must Go From Here: Power Supply and Grid in 2040

Six Achievable Benchmarks for Supplying and Storing Energy

Resource/Topic	Future Vision – New England in 2040
Solar	**100 GW** of installed capacity, mostly distribution-level/BTM/community solar
Wind	Northern Maine wind un-bottled, **GWs flowing** from U.S. and CAN offshore wind
Interregional Transmission	Add **14 GW of low-regrets transmission** to NY (7 GW), QC (5 GW), NB/NS (2 GW)
Energy Storage	**Every home and business** will have a battery; **grid-scale deployments** scale-up
Clean Firm	Clean firm technologies reach **first GW-scale deployment**
Grid Governance	New **ENTSO-e** like model to coordinate NPCC transmission systems, with **Board accountable** to public, communities, and state policy

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Where We Must Go From Here: Demand and Flexibility in 2040

Seven Achievable Market Shifts for Using Energy

Resource/Topic	Future Vision – New England in 2040
Heat Pumps	Heat pumps heat & cool **50% of all households**; 90% sales share for heat pumps
Energy Efficiency	**2 million** deep household retrofits (~30% of households)
Grid Flexibility	**20-25% of on-peak flexibility** via DR, BTM storage, V2G/charging, water heaters, etc.
Rate Design	**100% AMF, universal TOU** availability, and robust retail offerings
Gas Phaseout	Gas **customers down 43%**, residential gas **demand down 63.7%;** demand-side solutions avoid new pipelines, retire Everett Marine Terminal (EMT)
Electric Vehicles	**100% LD ZEV sales**, 73% of LD vehicle stock, and 100% V2G functionality
Vehicle-Miles Travelled	Per capita VMT **reduced by 10%**

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What It Will Take: Essential Steps To Realize This Vision

Five Enabling Steps Needed to Get from Here to There

Topic	Future Vision – Essential Next Steps
Utility Business Model Reform	• PBR and TOTEX put utilities on competitive budget, align incentives with ratepayer value • New entities (ITM, DSO) scrutinize T&D proposals, improve interconnection via flexibility
New Investment & Financing Tools	• Shifting funding **away from rates** and toward progressive wealth tax + bill credits • New public financing **saves 20-30+%** on transmission CapEx
Gas Utility Restructuring	• Significant gas system decommissioning **avoids tens of billions** in pipe replacement costs • Gas/electric **service territory alignment** better manages system wind-down, adds opportunities for cost-effective thermal energy networks (TEN)
Ending LMMI Energy Burdens	• Rate design reforms **(TOU, HP rates, tiered discounts)** eliminate excess energy burdens • Shift to EVs, transit reduces **total energy expenditures** (electricity, heating, transport)
Community Engagement, Ownership, and Wealth-Building	• **Infrastructure siting/permitting** shifts from contentious to collaborative, supported by better planning, accessibility, resources, and trust-building • Opportunities for **host communities to co-design, own, build wealth, and realize benefits** that matter to them

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Advancing the Clean Energy Future

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Sign up: acadiacenter.org/join

How We Got Here

Why today's fossil systems are struggling

- **Inefficiency**: Combustion-based system loses some 2/3 of energy inputs.
- **Inflexibility**: Low utilization of the grid and energy systems (52% load factor in ISO-NE).
- **Lack of scale**: Insufficient connections and planning between neighboring grid regions.
- **Fuel Costs**: Increasingly globalized fuel supply chains leave all users exposed to volatile swings in fuel prices.
- **Innovation**: Failure to invest in low-cost advanced technologies (e.g., GETs/ATTs).
- **Cost recovery**: Legacy utility business models, funding methods, and rate designs for infrastructure investment and programs.

Why a clean, electric future will be better

- **Use less energy** than we did before, replacing the waste of combustion with electrification (3x more efficient).
- **Better utilize the grid**, which sits vastly underutilized most days/hours.
- **Make the grid wider**, to benefit from resource diversity benefits, weather patterns.
- **Stabilize rates** by investing in diverse set of energy resources with free fuel and rapidly advancing technology platforms.
- Make the grid and customers **more resilient** to outages and extreme weather events.
- Improve how we measure and charge customers for energy use, incentivize utilities, and invest in resources to reduce **expensive peaks.**

WHO IS ACADIA CENTER?

MISSION

Acadia Center's mission is to advance bold, effective, and equitable clean energy solutions for a livable climate and a stronger, more equitable economy.

PROGRAMS

Acadia Center focuses on eight areas of climate and clean energy, within which we prioritize consumer benefits, public health, economic growth, and equitable distribution of benefits:

- **Energy Efficiency and Building Decarbonization**
- **Clean Energy and Grid Reform**
- **Utility Innovation and Accountability**
- **Transportation and Mobility**
- **Climate, Energy, and Equity (CLEAN-E) Analysis**
- **State and Regional Climate Policies**
- **Equity, Environmental Justice, and Outreach**
- **Public Engagement and Communications**

SUPPORT

Acadia Center is funded by foundation grants and individual donations. It does not accept corporate or government funding.

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