

ISO New England and How it is Important for Westford's Climate Goals

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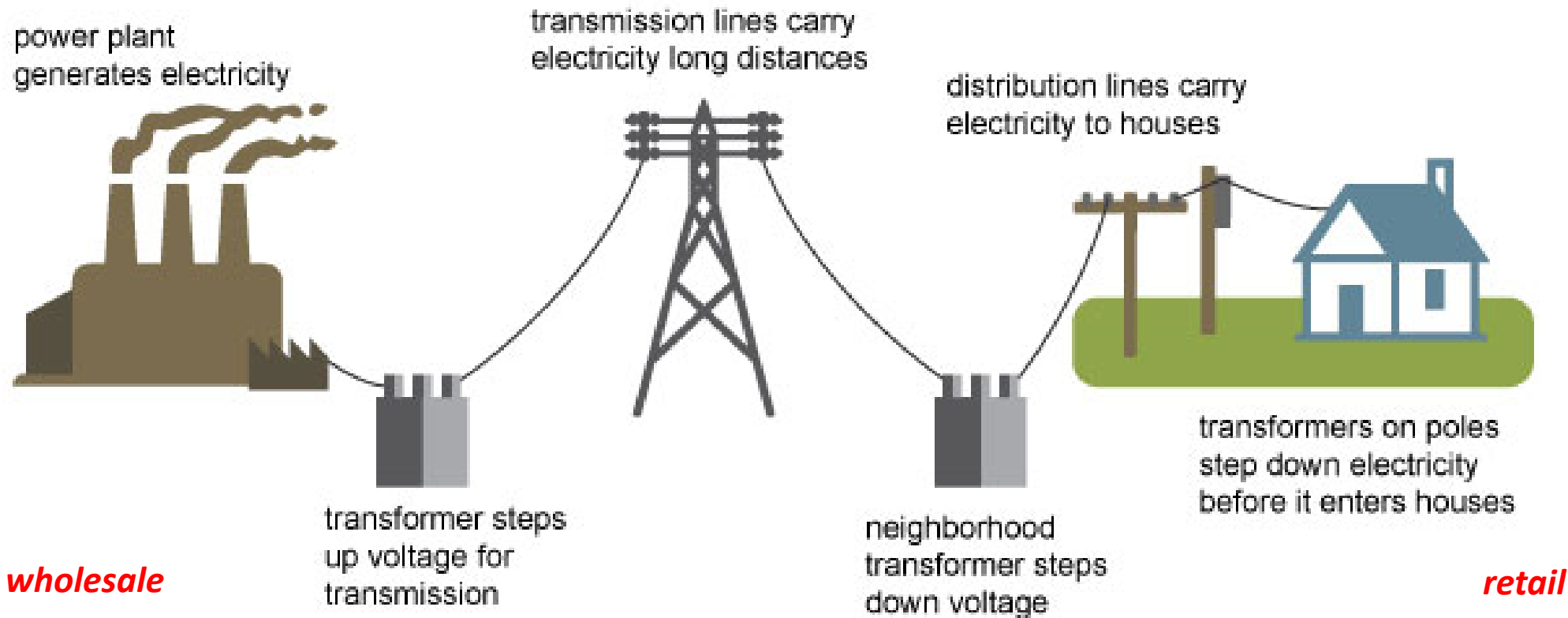
Contents

- What is the Independent System Operator of New England (ISO-NE), and what does it do?
- What is going on with the New England power grid, and how does it affect a state like Massachusetts, a utility like National Grid, and a town like Westford?
- What does it matter for Westford's climate goal of net zero by 2050?
- Info to help answer questions like:
 - Why can't National Grid just decide to make all our electricity 100% renewable*?
 - Why can't the Governor of Massachusetts just decide to make all our electricity 100% renewable?
 - When will all our electricity be 100% renewable?

* Or, carbon-free

Where Electricity Comes From

Electricity generation, transmission, and distribution



Source: Adapted from National Energy Education Development Project (public domain)



About ISO-NE

About Us

Keeping the lights on in New England

We are the independent, not-for-profit corporation responsible for keeping electricity flowing across the six New England states and ensuring that the region has reliable, competitively priced wholesale electricity today and into the future.

Mission: *What we do*

Through collaboration and innovation, ISO New England plans the transmission system, administers the region's wholesale markets, and operates the power system to ensure reliable and competitively priced wholesale electricity

Vision: *Where we're going*

To harness the power of competition and advanced technologies to reliably plan and operate the grid as the region transitions to clean energy

Regulated by the Federal Energy Regulatory Commission

Reliability Coordinator for New England under the North American Electric Reliability Corporation

Independent of companies in the marketplace and **neutral** on technology

ISO New England Performs Three Critical Roles to Ensure Reliable Electricity at Competitive Prices

Grid Operation

Coordinate and direct the flow of electricity over the region's high-voltage transmission system

Market Administration

Design, run, and oversee the markets where wholesale electricity is bought and sold

Power System Planning

Study, analyze, and plan to make sure New England's electricity needs will be met over the next 10 years

About ISO-NE (continued)

Things We Don't Do



Handle retail electricity—the power you buy from your local utility or electric company.



Own, maintain, or repair the power grid's infrastructure, such as power plants, power lines, and substations.



Enact or set energy policy. We do work to ensure competitive markets are open to all resources equally, including renewables.

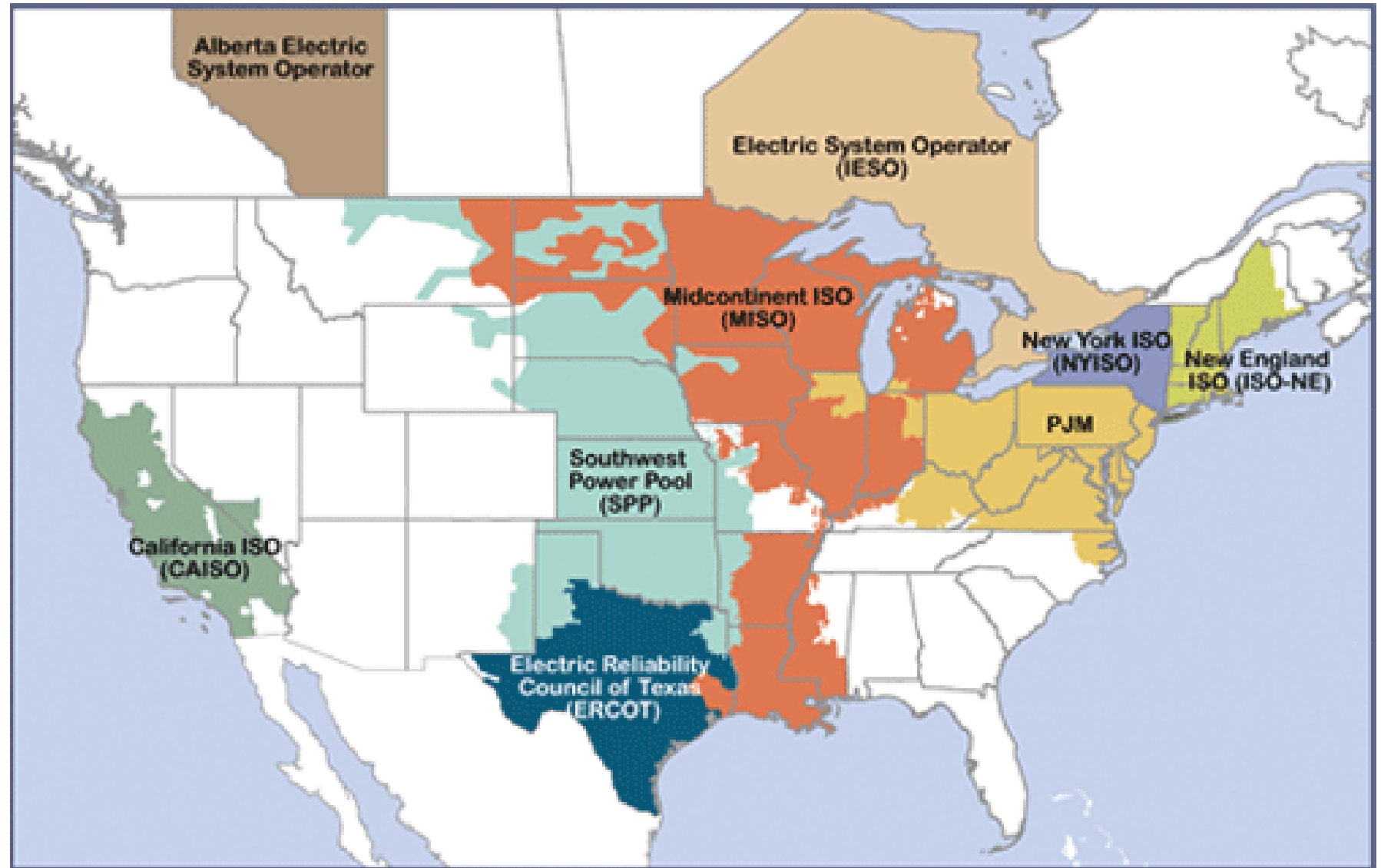


Have a stake in companies that own the infrastructure. We do provide independent data on the state of the grid that informs policy development and solutions that yield the best possible results for the region.

About ISO-NE (continued)

ISO-NE is one of seven ISOs / RTOs* in the U.S.

* Note: An independent system operator (ISO) and a regional transmission organization (RTO) are very similar.



About ISO-NE (continued)

Fast Stats

Electricity Use

7.4 million retail electricity customers; population **15.1 million**

136,355 gigawatt-hours (GWh) all-time highest total annual energy served, set in 2005

28,130 megawatts (MW) all-time summer peak demand, set on August 2, 2006

Resource Mix

350 dispatchable generators

~32,600 MW of generating capability

~283,000 solar power installations totaling **~5,500 MW** (nameplate), with most connected “behind the meter”

Transmission

9,000 miles of high-voltage transmission lines (115 kilo-volts (kV) and above)

13 transmission interconnections to electricity systems in NY and Canada

Markets

~550 buyers and sellers in the wholesale electricity marketplace

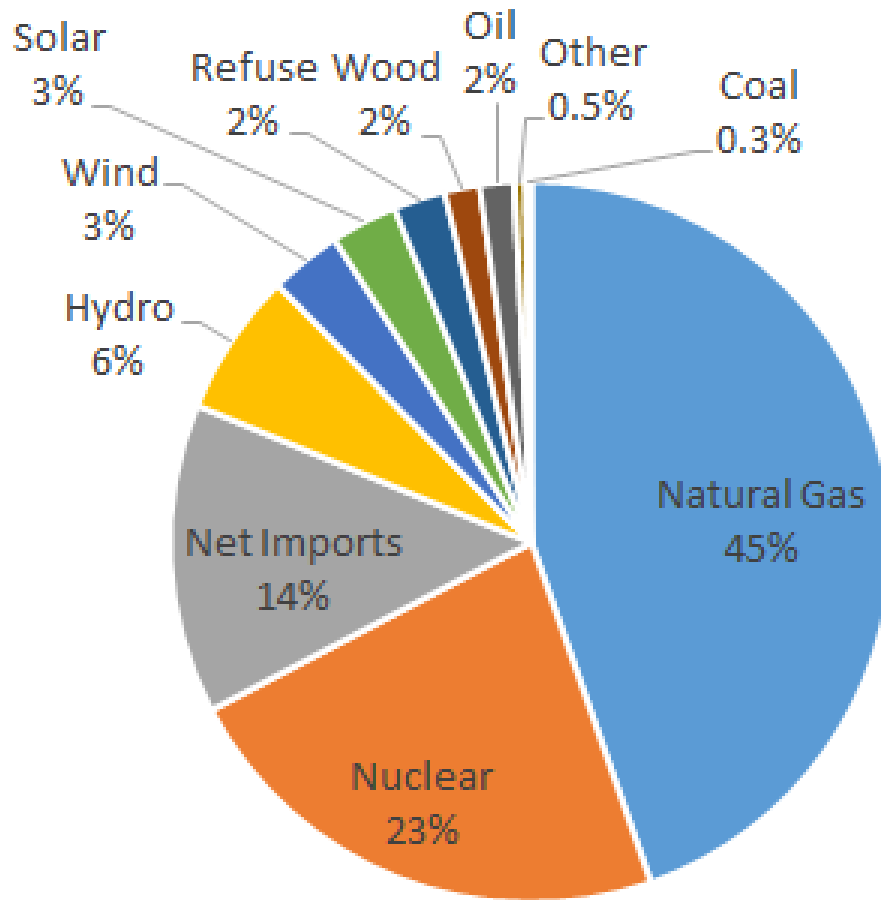
The average price for wholesale power in NE in 2022 was **\$84.92 per megawatt-hour (MWh)** (*which is \$.08492/kWh*)*

\$13.7 billion traded in wholesale electricity markets in 2022: **\$11.7 billion** in energy markets and **\$2.0 billion** in capacity and ancillary services markets. (*Note, Energy and Capacity are two different products in electricity markets. And there are also “Ancillary” products.*)

*Total average retail electricity rate was ~\$0.25/kWh in 2022

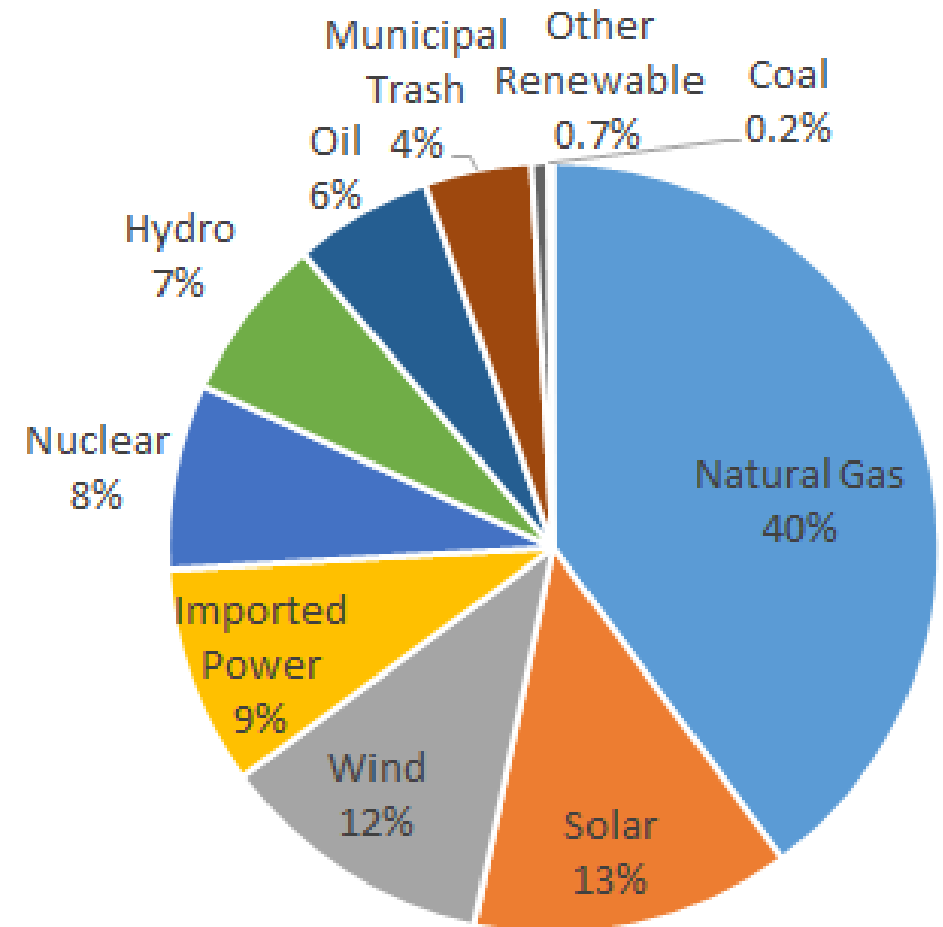
New England, MA Supply Mix

ISO-NE Supply 2022



Source: Data from www.iso-ne.com

NG MA Supply Mix 10/1/21-9/30/22



Source: NG MA Disclosure Label, May 2023

NG MA Supply Mix

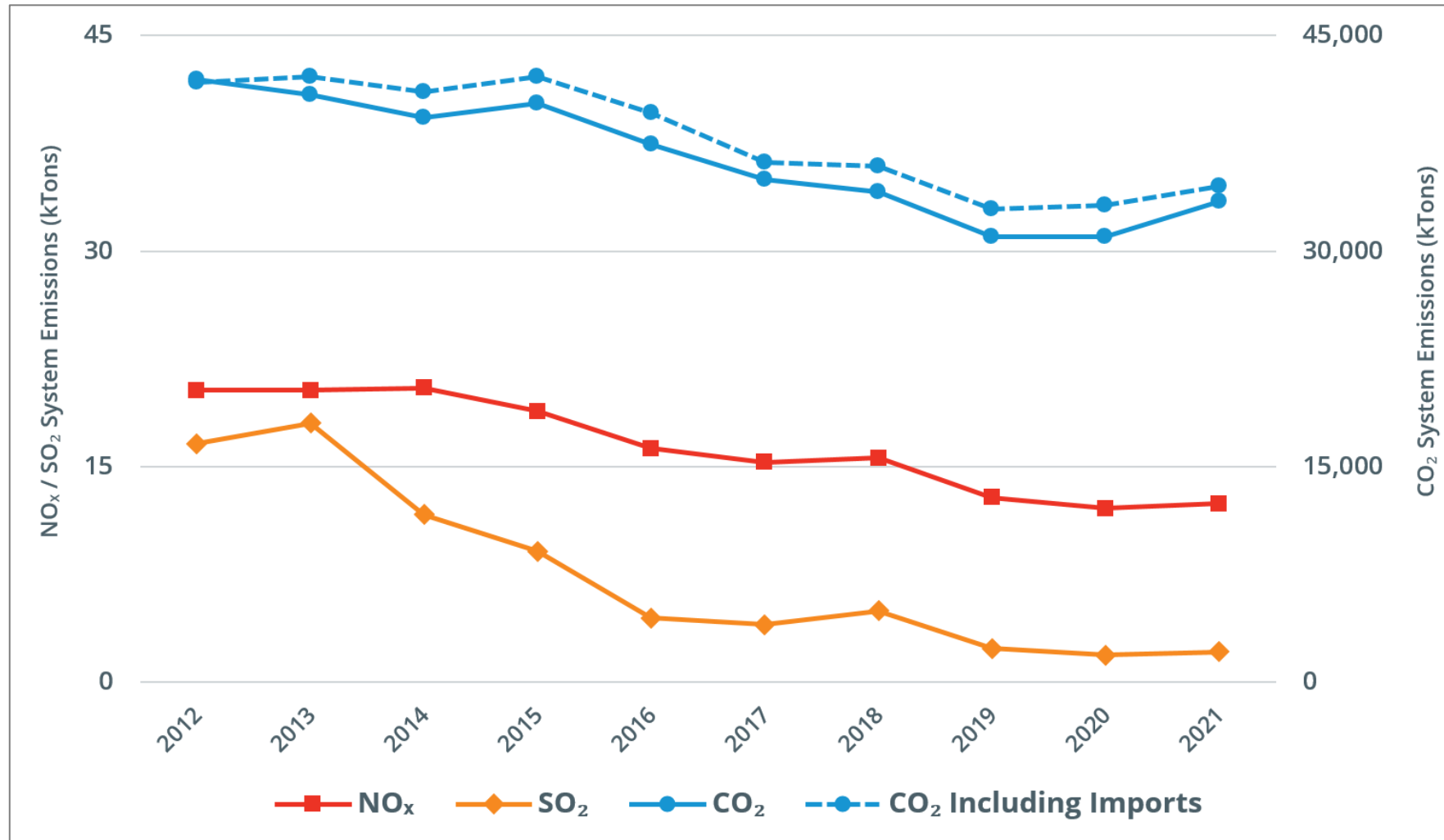
Our customers in New England are served by an integrated power grid, not particular generating units. The information provided is based on the most recent available information provided by our suppliers via the NEPOOL Generation Information System.

National Grid procures its electricity supply for Basic Service, on behalf of its customers, from system power contracts, not from specific generating units.

Source: NG MA Disclosure Label, May 2023

New England System Emissions

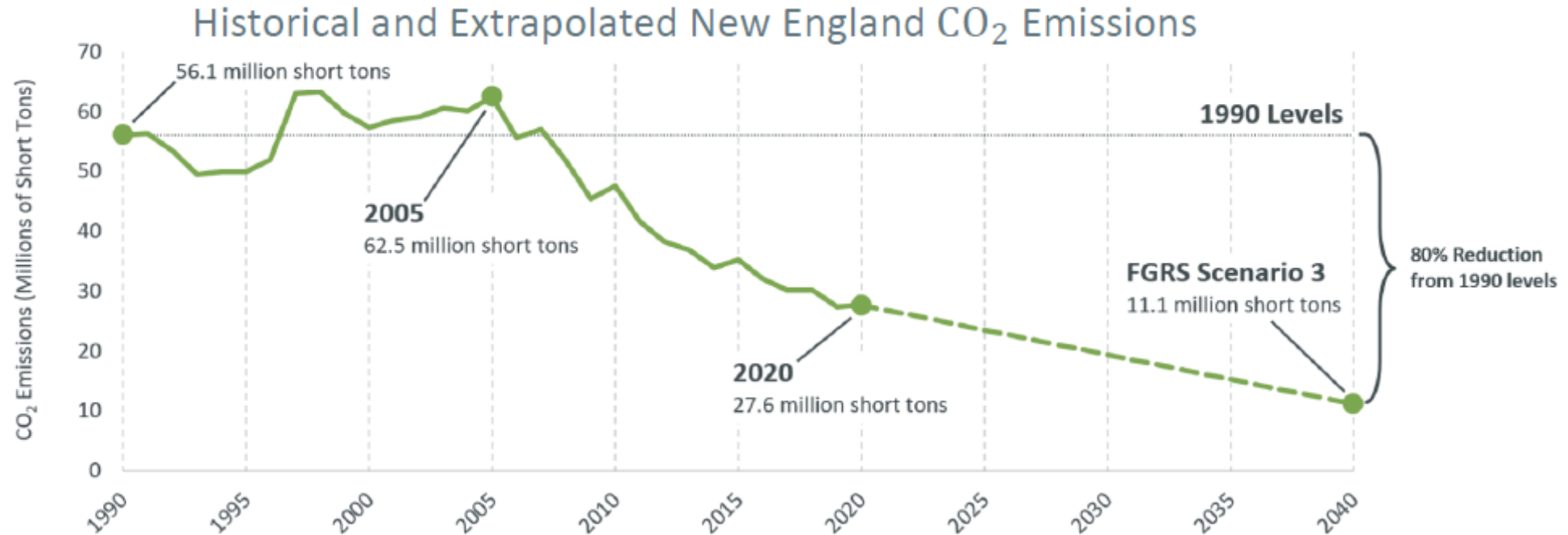
Average New England System Annual Emissions, 2012 to 2021 (Thousand Short Tons)



Source: 2021 ISO New England Electric Generator Air Emissions Report
<https://www.iso-ne.com/about/key-stats/air-emissions/>

New England System Emissions – CO₂

Emissions Reduction of the New England Grid through Decarbonization of the Resource Fleet is The Catalyst for Change to the New England Grid



Note: The dashed line between 2020 and 2040 illustrates the difference between the known emissions in 2020 and the simulated emissions in 2040 from FGRS Scenario 3. We are not predicting what the annual emissions levels or rate of reduction will be between those two years

- State policies to address climate change through emissions reduction outline an **80% reduction from 1990 levels by 2040**
- These policies will result in a drastically different generation profile for the region

Note, Scenario 3 used the Massachusetts 2050 Deep Decarbonization Roadmap Study's "All Options Pathway" as a base assumption

Source: ISO-NE Future Grid Reliability Study

Looking Ahead

ISO-NE recognizes that all six NE states have renewable energy standards, and that five NE states have GHG goals.

ISO-NE is engaging with market participants and state entities, including the New England States Committee on Electricity (NESCOE), to assess the future of the regional power system in light of state energy and environmental laws and to explore potential pathways forward to ensuring a reliable, efficient, and sustainable clean-energy grid.

Work on this high-priority initiative follows **two tracks** taking place within the stakeholder process throughout 2020 and 2021:

- **Future Grid Reliability Study (FGRS):** Stakeholder-led assessment of the future state of New England's power system that includes: defining scenarios; studying whether the ISO can operate the grid reliably under status-quo market mechanisms; considering what products and attributes are missing (through gap analysis); and discussing what market changes could be developed in response to any identified gaps in reliability or resource needs. The ISO is undertaking Phase 1 of the FGRS as its [2021 Economic Study](#).
- **Pathways to the Future Grid:** Regional identification, exploration, and evaluation of potential market frameworks that may help support the evolution of its power grid.

Headlines, including on “MOPR”

Fix the Grid - FERC Comment Party!

The Federal Energy Regulatory Commission (FERC) is about to make several big decisions that will shape our regional energy system for years to come.

FERC needs to use its authority to accelerate
a just transition to clean, renewable energy.
Join us to submit a public comment and make your voice heard:

FERC Comment Party
Thursday, April 14th at 7pm on Zoom
bit.ly/FERC-party

We'll go over talking points and submission steps to streamline the public comment process.



Headlines, including on “MOPR” (continued)

ISO-NE is attempting to delay removing a policy called the Minimum Offer Price Rule, or MOPR. MOPR favors fossil fuel projects in our energy market, making it very hard for big renewable energy projects to come online. Delaying the removal of MOPR would essentially block wind and solar until 2028. That’s why we need to use our people power and write to FERC to oppose this delay.

FERC is the governing body that has authority over ISO-NE. **They have the ability to tell ISO-NE to get rid of MOPR now!**

Join MCAN at the FERC Comment Party on Thursday, April 14th at 7pm. You can work with other advocates in crafting your comments to submit in opposition to the delay. The organizers will also provide information on exactly how to submit comments.

Even if you can’t attend, you can still submit comments by using the Fix the Grid Campaign’s toolkit. It includes detailed background on the issue, specific talking points, and instructions for submitting your comments.

The grid is an opaque, complex, and often confusing part of our energy system. However, the decisions that ISO-NE makes have an enormous impact on the Commonwealth’s ability to combat the climate crisis and transition to a clean energy future.

Key Takeaways on ISO-NE

- Neither National Grid nor the state of Massachusetts can (easily, economically, legally) just decide to make all our electricity 100% renewable / carbon-free.
 - They don't own the generation plants (deregulation, divestment). They don't solely determine what projects get built in New England.
- According to ISO-NE, our electricity likely won't be 100% renewable by 2040. MA says could be net-zero for carbon by 2050.
- Independent System Operator of New England (ISO-NE) is a not-for-profit corporation, responsible for keeping electricity flowing across the six New England states, and ensuring that the region has reliable, competitively priced wholesale electricity, today and into the future.

For more information

- www.iso-ne.com
- www.eia.gov
- <https://www.nationalgridus.com/MA-Home/>
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