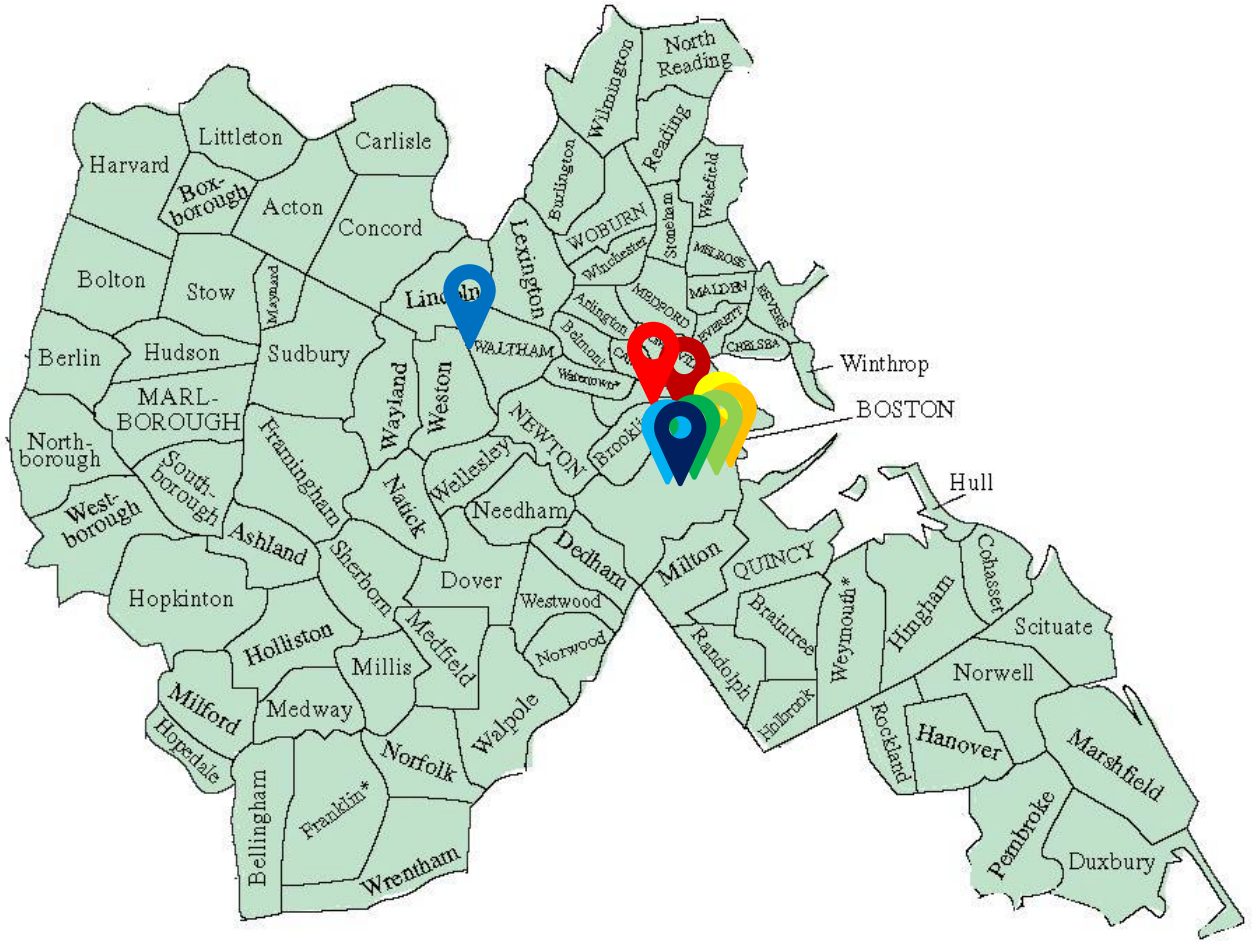
The Network for Networks

GEODE Study Trip

Boston, Massachusetts, USA



Massachusetts Institute of Technology (MIT)
Harvard University
Department of Public Utilities
Massachusetts Clean Energy Center
Grid Modernization Advisory Council
Boston Community Choice Electricity
Eversource Energy
National Grid
Avangrid

Boston, Massachusetts, USA

UNIVERSITIES

Massachusetts Institute of Technology (MIT)

Harvard University

REGULATORY

Department of Public Utilities (DPU)

Massachusetts Clean Energy Center (MassCEC)

Grid Modernization Advisory Council (GMAC)

Boston Community Choice Electricity

UTILITIES

National Grid

Eversource Energy

Avangrid

INNOVATION

Vineyard Wind One

Bay Transportation Authority (MBTA)

Microgrid projects

Medway Grid Energy Storage System

Massachusetts Institute of Technology

77 Massachusetts Ave, Cambridge, MA 02139, United States

- Considered by numerous rankings as **one of the best and most prestigious universities** at the international level.
- The **MIT Department of Electrical Engineering and Computer Science** brings the world's most brilliant faculty and students together to innovate and explore. From foundational hardware and software systems, to cutting-edge machine learning models and computational methods to address critical societal problems.
- The **MIT Energy Initiative** is MIT's **hub for energy research, education, and outreach**. Their mission is to develop low- and no-carbon solutions that will efficiently meet global energy needs while minimizing environmental impacts and mitigating climate change.
- The **Future Energy Systems Center** examines the accelerating energy transition as emerging technology and policy, demographic trends, and economics reshape the landscape of energy supply and demand.

Massachusetts Institute of Technology

MIT Energy Initiative

Harvard University

Massachusetts Hall, Cambridge, MA 02138

- Private **Ivy League research university** in Cambridge, Massachusetts. Founded in 1636 as Harvard College and oldest institution of higher learning in the United States.
- Harvard University established the **Visitor Center** in 1962 as the front door to the University, where students greet visitors from all over the world, answer questions about campus, and provide official tours of Harvard.
- The **Harvard University Center for the Environment**, a center of the Salata Institute for Climate and Sustainability, is an interdisciplinary hub of research, learning, and collaboration for all things related to the environment on campus and beyond. Some of its research areas include **Climate and Energy**.

HARVARD UNIVERSITY

Harvard University
Center for the Environment

Department of Public Utilities (DPU)

1 South Station, 3rd floor, Boston, MA 02110

- **Regulator** of Massachusetts.
- Adjudicatory agency overseen by a three-member Commission responsible for **oversight of investor-owned electric power, natural gas, and water utilities** in the Commonwealth.
- Charged with developing alternatives to traditional regulation, **monitoring service quality, regulating safety in the transportation and gas pipeline areas**, and the siting of energy facilities.
- Its mission is to **ensure that consumers' rights are protected**, and that utility companies are providing the **most reliable service at the lowest possible cost**.

Massachusetts Clean Energy Center

294 Washington St Suite 1150, Boston, MA 02108, United States

- **State economic development agency** dedicated to accelerating the growth of the Massachusetts clean energy sector.
- Fosters cutting-edge clean transportation technologies, enables new finance and business models for electric vehicle deployment, and accelerates the growth of clean transportation companies in Massachusetts.
- **Supports technologies** that enable a transition to a modernized and smarter grid, **innovative business models**, and market development policies for delivering resiliency, risk management, and clean energy.
- The **Northeast Clean Hydrogen Hub partnership**, formed in March 2022, included the States of Connecticut, New York, New Jersey, the Commonwealth of Massachusetts, the States of Rhode Island and Maine. The proposal represents a **$3.62 billion investment** and includes over one **dozen projects across seven Northeast states** that advance clean **electrolytic hydrogen production, consumption, and infrastructure projects**.
- The **Massachusetts Clean Energy Center** and Massachusetts Department of Energy Resources are working with the New York State Energy Research and Development Authority, as well as agencies in Connecticut, New Jersey, Rhode Island and Maine.

Grid Modernization Advisory Council (GMAC)

100 Cambridge Street, 9th Floor, Boston, MA 02114.

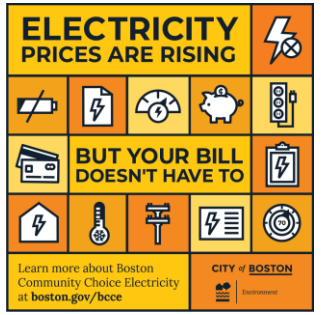
- **Reviews and provides recommendations** on Massachusetts **investor-owned electric distribution companies**' (EDCs) **electric-sector modernization plans** (ESMPs).
- It is an integral part of increasing transparency and stakeholder engagement in the **grid planning process**. The GMAC provided its recommendations on the EDCs' first draft ESMPs on November 20, **2023**.
- The Governor appoints GMAC members who serve for five-year terms. The Commissioner of the DOER chairs the GMAC, which is supported by DOER staff. GMAC members, voting and non-voting, represent a wide array of organizations and interests.

Boston Community Choice Electricity

75 Arlington Street, 7th Floor, Boston, MA 02116.

- Boston Community Choice Electricity (BCCE) is a **municipal aggregation program**. Through this program, a municipality (town or city) **purchases electricity** in bulk from a competitive supplier **on behalf of the residents and businesses** within the community.
- The Program allows the City to secure electricity at a competitive rate. By using the City's collective buying power, they aim to provide **affordable and renewable electricity** to the program's customers
- BCCE gives Bostonians greater control over the electricity that powers their homes, places of worship and small businesses.

CITY of BOSTON



Eversource Energy

800 Boylston St, Boston, MA 02199.

EVERSOURCE

- Founded in 1966, Eversource Gas and Energy generates, **transmits and distributes electricity and natural gas**. In 2015, the company and all its subsidiaries rebranded themselves as "Eversource Energy".
- Currently serves nearly **4.4 million electric and natural gas customers** in New Hampshire, Massachusetts, and Connecticut.
- Focuses include maintenance activities, station enhancements, transmission and distribution line upgrades and more. Some **projects in Boston** include:

  - Andrew Square to Dewar Street Reliability Project - A new transmission line will address reliability concerns in the Boston area.

  - Hyde Park to Dorchester Supply Initiative - There is an imminent need for electrical infrastructure in Boston to enable clean energy delivery and meet electrification goals.

  - Mystic to East Eagle to Chelsea Project - Two new transmission lines have been constructed and a new substation will be built to increase electric supply in the area.

  - Seaport Transmission Line Relocation Project - Relocate two existing transmission lines to accommodate the new alignment of Northern Avenue in Boston's Seaport District.

National Grid

170 Data Dr, Waltham, MA 02451.

- One of the largest investor-owned energy companies in the US — **serving more than 20 million people** throughout New York and Massachusetts.
- They aim to transform their electricity and natural gas networks with smarter, cleaner, and more resilient energy solutions to meet the goal of reducing greenhouse gas emissions. They work with stakeholders to promote the development and implementation of more sustainable, innovative and affordable energy solutions.
- Some of the most **innovative and state-of-the-art technologies** they're trialling or adopting, to solve issues or evolve their electricity systems.
    1) Robot dog: sniffs out faults and keeps humans safe.
    2) Autonomous drones: performing pilot-free infrastructure inspections of overhead wires, pylons and substations.
    3) LineVision: helping up to 40% extra flow through power lines.
    4) AI satellite technology: supporting our biodiversity and natural environment.
    5) Molten metal manipulation: Stopping SF6 leaks without pausing power.
    6) Solar Grazing: a natural way to keep solar panels working effectively.

Avangrid

Avangrid A member of the Iberdrola Group

GEODE

75 Arlington Street, 7th Floor, Boston, MA 02116.

- Part of the **Iberdrola Group**, Avangrid Networks **owns and operates eight electric and natural gas utilities**, serving **more than 3.3 million customers** in New York and New England.
- Leading sustainable energy company transitioning America toward a clean and connected future headquartered in Orange, CT, and has a footprint in 24 states with $41 billion in assets.
- The Berkshire Gas Company was established in 1853, Berkshire Gas operates 738 miles of natural gas distribution pipeline, serving approximately 40,600 customers across 20 Western Massachusetts communities.
- Avangrid as part of a 50-50 Joint Venture with Copenhagen Infrastructure Partners, is constructing the **first large-scale offshore wind project** in the United States, **Vineyard Wind One**. The project is located 14 miles south of Martha's Vineyard, off the coast of Massachusetts.

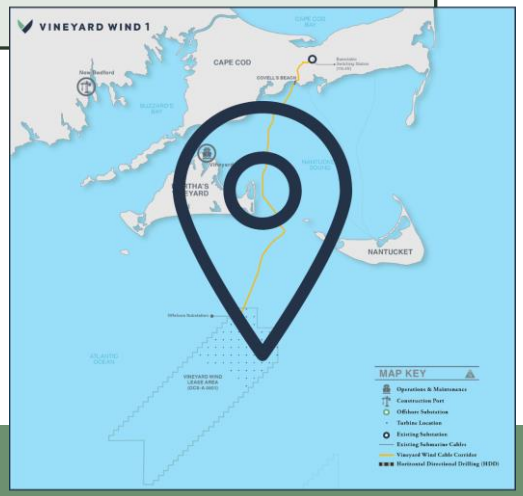
VINEYARD WIND

Vineyard Wind

14 miles south of Martha's Vineyard, off the coast of Massachusetts.

- **First large-scale offshore wind project** in the United States, **Vineyard Wind One**.
- The project is currently under construction, and on track to achieve **full commercial operations in 2024**, delivering clean energy to **400,000 homes and businesses** in the Commonwealth, **reducing carbon emissions** by over **1.6 million tons** per year.
- Vineyard Wind 1 will consist of an array of 62 wind turbines, spaced 1 nautical mile apart on an east-west and north south orientation. The turbines are General Electric Haliade-X turbines, each capable of generating 13 megawatts of electricity.
- From the onshore cable landing site, the cables will be **installed underground along public roads to an onshore substation** in the village of Hyannis. The Vineyard Wind 1 onshore substation will be adjacent to an existing Eversource substation.

VINEYARD WIND



Massachusetts Bay Transportation Authority (MBTA)

45 High St, Boston, MA 02110.

- The **Massachusetts Bay Transportation Authority**, more commonly known as the T, is one of the oldest **public transit systems** in the United States. It's also the largest transit system in Massachusetts.
- As of January 2021, 100% of the MBTA's system is **powered by certified renewable electricity**. Additionally, they **have on-site energy generation via wind turbines and solar arrays**.
- The MBTA's Environmental Management Sustainability Policy lays out the guiding principles to reduce greenhouse gas (GHG) emissions and other air quality impacts, and diligently maintain and exceed environmental compliance at our facilities.
- The MBTA has partnered with True Green Capital to install, operate, and maintain solar canopies at MBTA parking lots. This is in addition to the small scale solar energy arrays on MBTA property at Orient Heights and Braintree stations. The MBTA is also working toward adding solar arrays to new capital projects like Quincy Bus Facility and Riverside parking garage.

Massachusetts Bay Transportation Authority

Microgrid projects in Massachusetts

Boston, Worcester and Chelsea, Massachusetts.

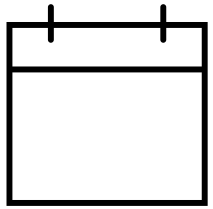
- **RUN-GJC Chinatown – Boston**: The proposal includes eight affordable housing complexes. The project team is strongly committed to modeling a grassroots-driven microgrid project which seeks to address energy justice challenges by engaging politically and economically marginalized communities who are disproportionately affected by high energy costs and the impacts of climate change.
- **CoMWIT - Boston:** This proposal involves a community microgrid centered on Wentworth Institute of Technology campus, serving a collection of university students with 72 percent of students requiring need-based scholarships. Population density in neighborhoods adjacent to the project continue to increase, making the project an opportunity to address capacity issues, potentially saving on utility infrastructure upgrade costs.
- **Community Clean Energy Project (CCEP) – Worcester:** The CCEP seeks to integrate local renewable energy resources with existing community generation assets to provide lower cost electricity, as well as strengthen the energy infrastructure and resiliency, of the Main South neighborhood, an economically disadvantaged community. The project also seeks to create a replicable community energy model by creating a membership-based cooperative.
- **RUN-GJC - Chelsea**: The proposed project seeks to assess a community-led microgrid in low-income neighborhoods in the highly-diverse and densely populated city of Chelsea. The project includes important critical facilities such as public schools, a health care facility, and the New England Produce Center, the second largest produce distribution center in the country.

Medway Grid Energy Storage System

Milford Street, Medway, MA.

- The **Medway Grid Energy Storage System** will use a group of rechargeable batteries to store excess electrical energy at times of low demand, which can then be released later in response to increased demand.
- It will enhance the flexibility and reliability of the grid without creating emissions or waste products.
- System Details:
  Generation: 250 MW/2 Hours
  Parcel Area: 10.6 Acres
  Location: Milford Street, Medway, MA
  Located strategically near an existing utility substation and transmission right of way.

Possible dates



1) Monday **23 September 2024** – Friday **27 September 2024**
2) Monday **28 October 2024** – Friday **1 November 2024**

- Duration: **4/5 working days**
- Other events close to the date:
  - ASEME Annual Meeting (Spanish members): **3 – 4 October 2024**
  - ENLIT: Milan **22 – 24 October 2024**
  - GEODE Autumn Seminar: **11 – 12 November 2024**

Thank You!

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www.geode-eu.org