MASSACHUSETTS
DEPARTMENT OF ENERGY RESOURCES

The Future Grid from a Municipal Lens

Welcome! Take this opportunity to network and share your thoughts. Around the room, you'll find posters with prompts—feel free to write your questions, ideas, or reflections on them.

The program will begin at 9:00 AM.

Please note: This event is being livestreamed.

GMAC
Grid Modernization Advisory Council

Agenda

8:15 – 9:00	Networking
9:00 – 9:20	Welcome, Keynote Address, Opening Remarks
9:20 – 10:05	Panel I: How is Massachusetts Planning the Grid?
10:05 – 10:40	Panel II: What is in the Electric Sector Modernization Plans (ESMPs)?
10:40 – 10:55	Break – Continued Networking
10:50 – 11:35	Panel III: Navigating Electrification for Municipalities
11:35 – 12:25	Facilitated Table Discussions
12:25 – 12:30	Close and Next Steps

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ENERGY RESOURCES

GMAC
Grid Modernization Advisory Council

The Future Grid through a Municipal Lens

Grid Modernization Advisory Council (GMAC) Stakeholder Session

July 17, 2025

Please note: This event is being livestreamed.

Keynote Address

DOER Commissioner Elizabeth Mahony

GMAC
Grid Modernization Advisory Council

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Opening Remarks

DOER Deputy Commissioner Joanna Troy

Chair of the Grid Modernization Advisory Council

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Primer for Today's Event

- Introduction to DOER
- The Commonwealth's decarbonization plans
- Changes to the electric grid and Massachusetts activities
- What is the GMAC?
- Goals for today

The Department of Energy Resources (DOER)

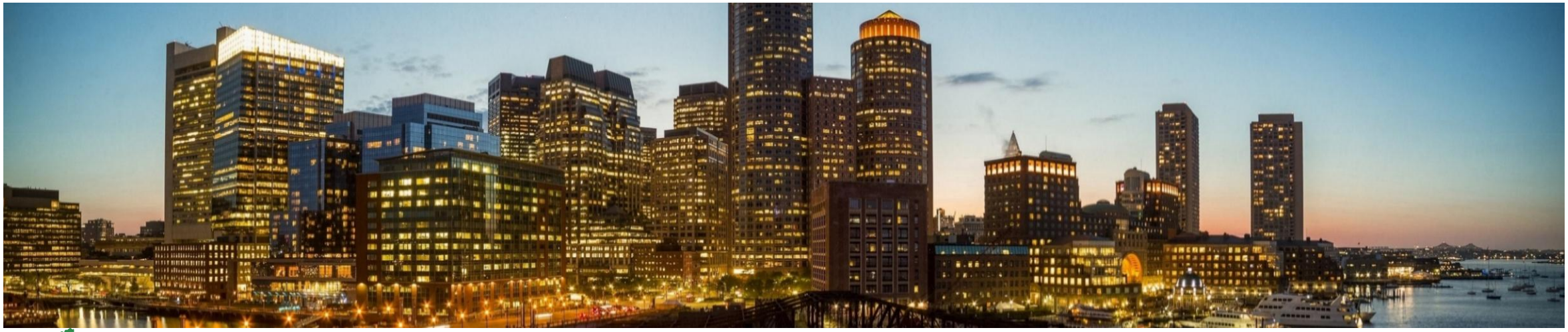
DOER's mission is to create a clean, affordable, resilient, and equitable energy future for all in the Commonwealth.

Who is DOER?

- DOER supports the Commonwealth's clean energy goals as part of a comprehensive Administration-wide response to the threat of climate change.
- DOER focuses on transitioning our energy supply to lower emissions, reducing and shaping energy demand, and improving our energy system infrastructure.

What Does DOER Do?

- Connects and collaborates with energy stakeholders to develop effective policy.
- Implements this policy through planning, regulation, and providing funding.
- Provides tools to individuals, organizations, and communities to support their clean energy goals.
- Is committed to transparency and education, supporting the accessible access to energy information and knowledge.



Context Setting: Commonwealth Decarbonization Plans

MA's climate mandates drive the need for strategically planning the electric grid.

- The Global Warming Solutions Act requires Massachusetts to achieve **Net Zero emissions** in 2050.
- The Clean Energy and Climate Plan for 2050 states that Massachusetts' path to economy-wide decarbonization **relies on an expanded role for the power system.**
- Power sector **grid planning is essential** for realizing a 2050 future in which heating our homes, powering our vehicles, and operating our grid minimally relies on fossil fuels.

2050 CECP Key Benchmarks

TRANSPORTATION

97%
of light-duty vehicles (5 million) electrified

93%
of medium- and heavy-duty vehicles (over 350,000) electrified or non-emitting

BUILDINGS

80%
of homes (over 2.8 million) heated and cooled by electric heat pumps (including those with on-site fuel backups)

87%
of commercial space heated by either electricity or alternative fuels

ELECTRIC POWER

2.5-fold
increase in electric load compared to 2020

97%
of electricity consumed is from clean and renewable sources

NON-ENERGY AND INDUSTRIAL

52%
of industrial energy use electrified

90%
reduction in solid waste disposal

Source: Clean Energy and Climate Plan for 2050

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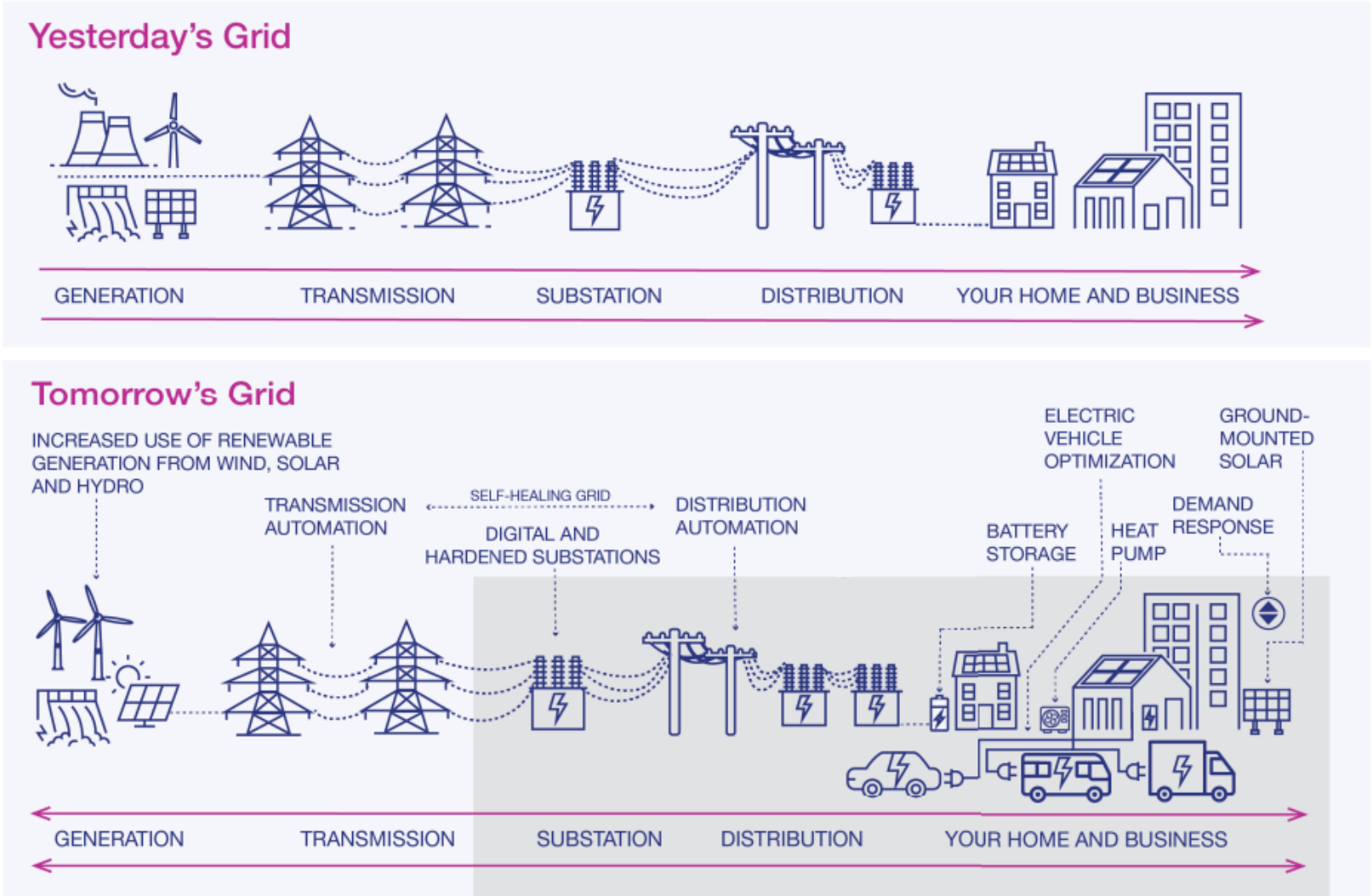
The Electric Grid is Changing

- Today, the grid is changing on the **energy supply** (generation) side and the **energy demand** (end-use) side.
- Electricity system components of the 21st century grid, like **two-way flows of power** and **variable renewable resources**, require a more dynamic grid to respond to electric supply and demand in real-time.

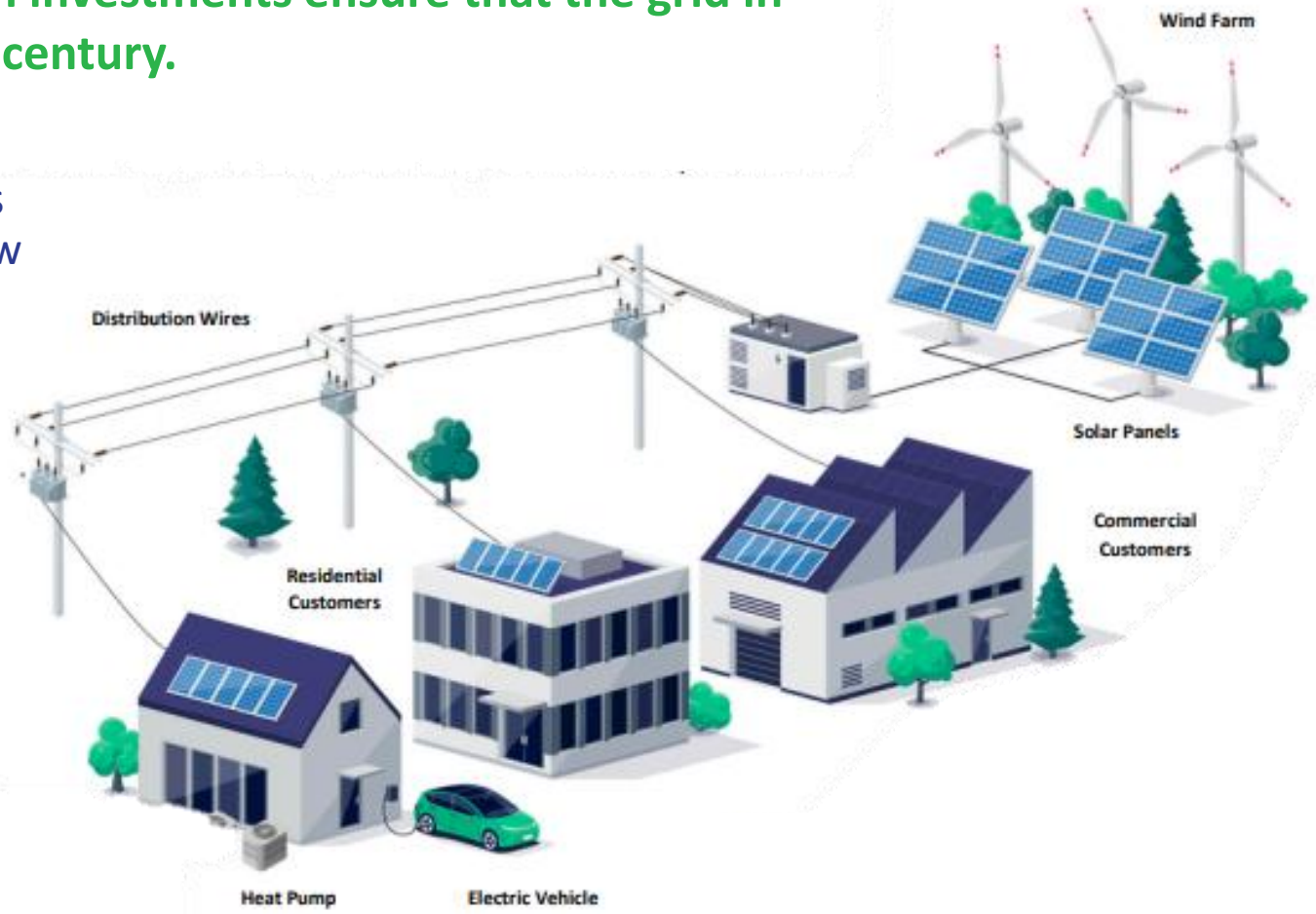


Source: Adapted from National Grid 2024 Electric Sector Modernization Plan

How can we prepare for changes to the grid?

Grid planning activities and grid modernization investments ensure that the grid in Massachusetts can meet the needs of the 21st century.

- **Grid planning activities include:**
  - Strategic electric-sector modernization plans (ESMPs) that include load forecasts, with new load from transportation and building electrification
  - Distributed energy resource (DER) interconnection processes
  - Electric vehicle infrastructure investments and programs
  - DER adoption forecasts
- **Grid modernization investments include:**
  - Hardware and software investments that improve data processing and management
  - New customer portals and enabling technologies



GMAC Grid Modernization Advisory Council

What is the GMAC?

- The Grid Modernization Advisory Council (GMAC) is a stakeholder group committed to advancing a cleaner, more affordable, equitable, and resilient electric grid.
- GMAC reviews and advises the Massachusetts investor-owned electric distribution companies' (EDCs) Electric-Sector Modernization Plans (ESMPs).
- GMAC promotes transparency and greater stakeholder engagement in the EDCs grid planning.

The GMAC and the ESMPs were established by the 2022 Climate Law, “An Act Driving Clean Energy and Offshore Wind”.

In 2025, the GMAC is holding monthly meetings to learn about different elements of grid modernization and grid planning.

How is the GMAC engaged in planning for a modern grid?

The electric distribution companies (EDCs) are charged by statute to proactively upgrade the electric system.

September 2023
The EDCs submitted draft ESMPs to the GMAC for review and recommendations.

January 2024
The EDCs submitted ESMPs to the DPU.

August 2024
The DPU issued Order approving the ESMPs as strategic roadmaps for 2025-2030 grid upgrades.

June 2025
The DPU issued Order with ruling on approved & disapproved investments for short-term cost recovery.

September 2025
DPU will issue Order on the biannual reporting requirements & investigate long-term cost recovery.

The Electric-Sector Modernization Plans (ESMPs) are published every 5-years and must:

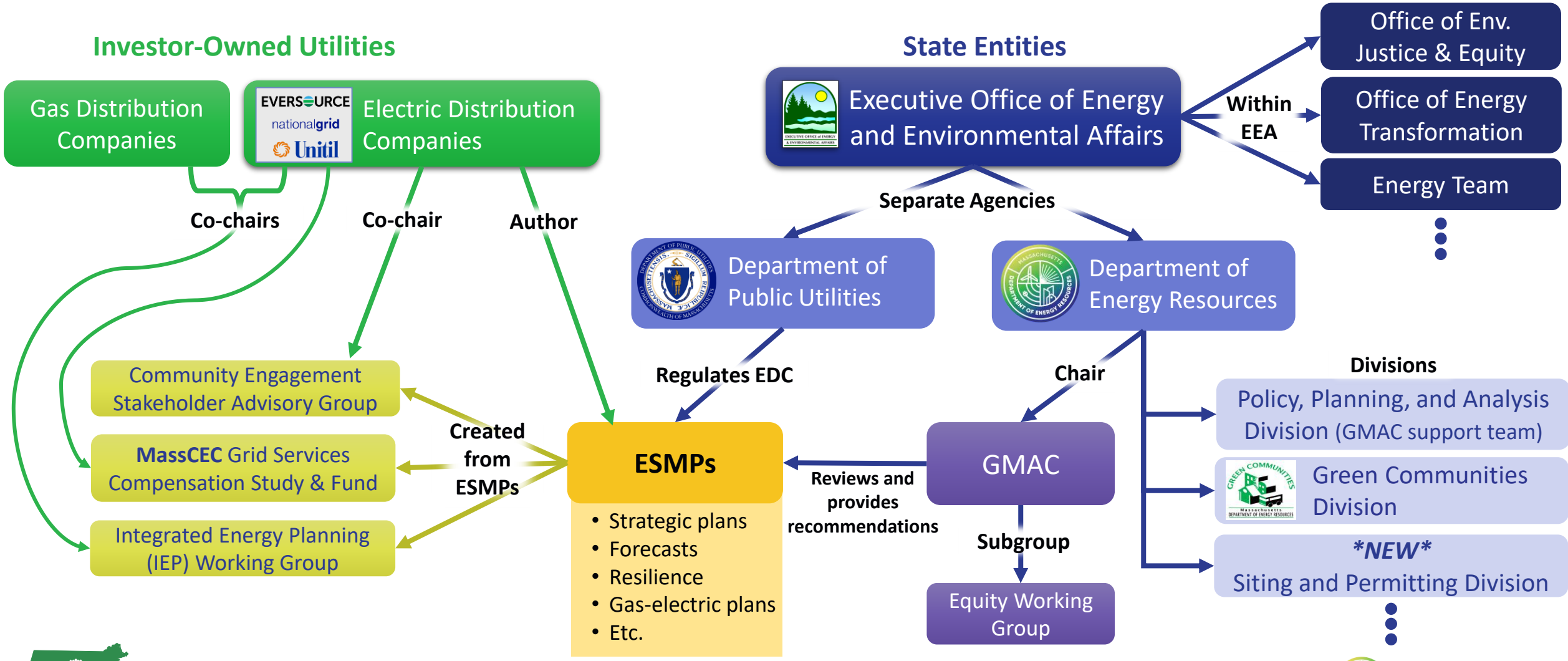
- Improve grid reliability, communications, and resiliency;
- Enable increased, timely adoption of renewable energy and DERs;
- Promote energy storage and electrification technologies for decarbonization;
- Prepare for climate-driven impacts on T&D systems;
- Accommodate transportation and building electrification, and other new loads; and
- Minimize or mitigate impacts on ratepayers.

GMAC Grid Modernization Advisory Council

[Electric Sector Modernization Plans (ESMPs) Information and Recommendations | Mass.gov]

Massachusetts Grid Planning Landscape

Players within the grid planning landscape collaborate across many different topics, including gas and electric system planning, interconnection, stakeholder engagement, and ratepayer programs.



We want to hear about the role of the municipality!

Today's Goals

Today is about learning and collaborating.

GMAC Strategic Planning

- The GMAC is interested in hearing directly from municipalities to better understand **your successes and challenges** with grid modernization.
- Today's discussions will help the GMAC identify priority topics and activities for 2026.
- We want to hear more questions from you! Please save this Post-Event survey to share your thoughts after today's event.

"The Future Grid" GMAC Post-Event Survey

Stay Tuned for Future Events

- The GMAC is interested in hosting events in central and western MA as it is important to hear from all regions across the state.

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How is Massachusetts Planning the Future Grid?

Moderator

Sarah Cullinan
MassCEC

Panelists

Marybeth Campbell
Worcester Community Action Council

Larry Chretien
Green Energy Consumers Alliance

Amy McGuire
Highland Electric Fleets

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Panel II: What is in the ESMPs?

Moderator

Joanna Troy
DOER

Panelists

Jake Dusling
Unitil

Lavelle Freeman
Eversource

Andrew Schneller
National Grid

EDC ESMP
Outcome Presentation

July 17th,2025

Unitil

nationalgrid

EVERSOURCE

Agenda

- Overview of ESMP (Necessity, Timeline, History)
- Planning Process for EDC
- Present Status
- Requests Made / Approved
  - IEP
  - LTSPP
  - GSCF
  - CESAG
  - Additional Company-Specific Programs
- Upcoming Actions

What is an Electric Sector Modernization Plan?

Is an ESMP important to the EDCs, customers and the Commonwealth?

What is an Electric Sector Modernization Plan (ESMP)?

- An ESMP is a comprehensive strategic plan designed to ensure the electric system is capable of supporting the state's climate goals
- Massachusetts General Law Ch. 164 Section 92B
- GMAC Website: https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac

Objectives

- Improve grid reliability, communications and resiliency;
- Enable increased, timely adoption of renewable energy and distributed energy resources;
- Promote energy storage and electrification technologies necessary to decarbonize the environment and economy;
- Prepare for future climate-driven impacts on the transmission and distribution systems;
- Accommodate increased transportation electrification, increased building electrification and other potential future demands on distribution and, where applicable, transmission systems; and minimize or mitigate impacts on the ratepayers of the commonwealth

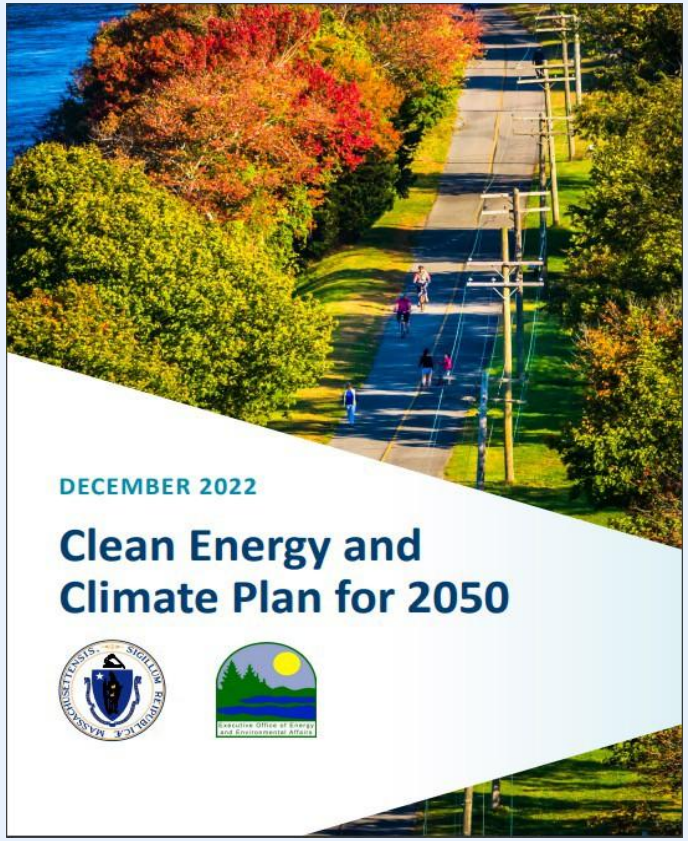
Support the Transition to a Cleaner Energy Future

Plans are designed to support the Commonwealth's climate goals

- Today's electric system not prepared for the level of electrification and interconnection of DERs identified in the CECP
- Support the Commonwealth's pathway to decarbonization with the following investments:

  - Core Investments
  - Hosting capacity (CIP)
  - AMI
  - Utility solar
  - Grid Modernization
  - EV programs
  - Customer investments
  - Platform investments
  - Network investments
  - Resiliency

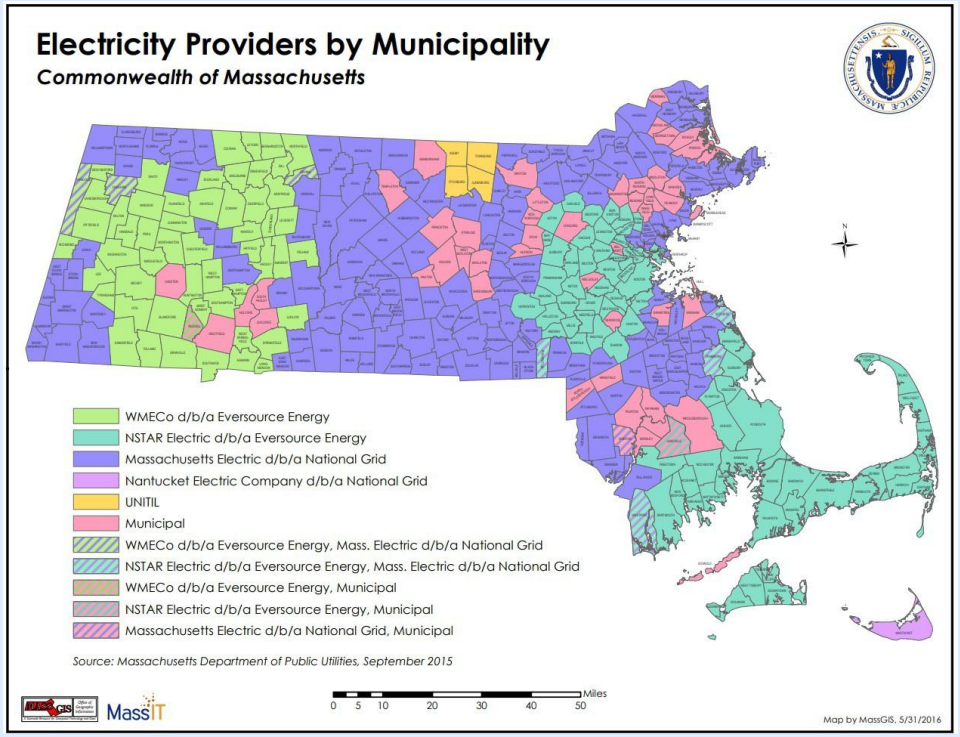
- Goal - Ensure ESMPs distribute benefits in an equitable manner, with
  - attention to mitigate the impacts on historically disadvantaged communities to support a just transition.



https://www.mass.gov/doc/2050-clean-energy-and-climate-plan/download

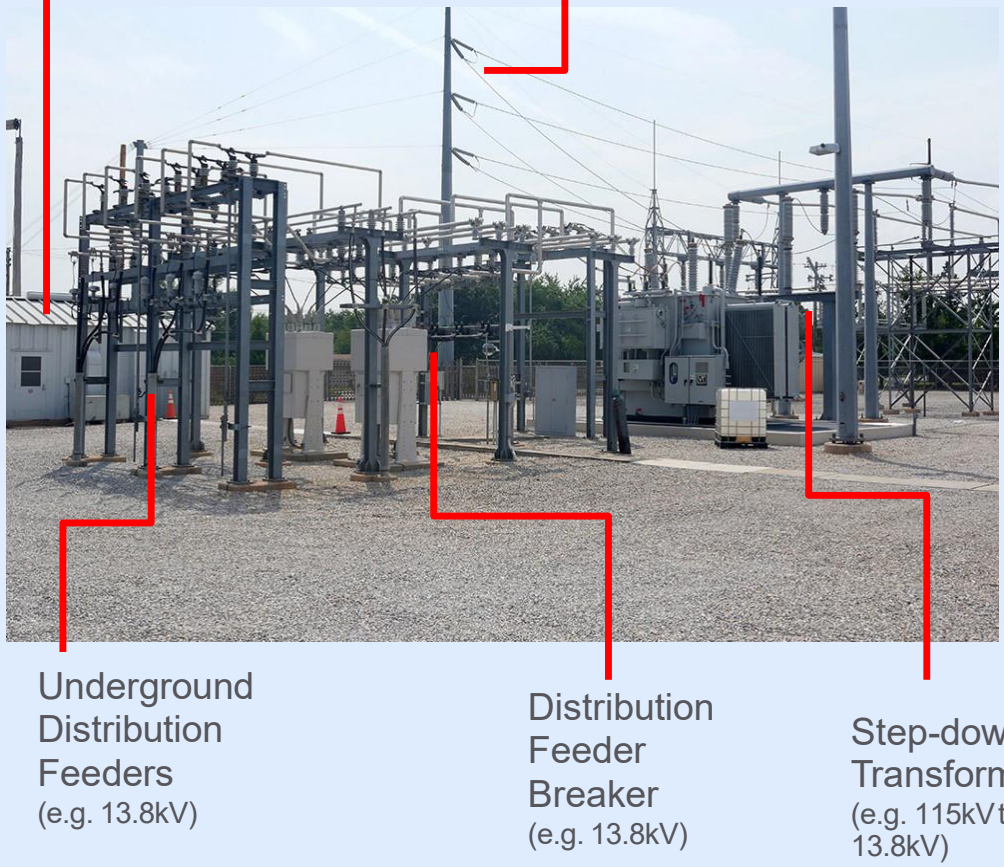
Grid Infrastructure by the Numbers

	Eversource	National Grid	Unitil	State-Wide
Planning Subregions	4	6	1	11
Substations	172	178	15	365
Miles Distribution	20,700	18,500	522	39,722
Miles Overhead	11,500	13,500	454	25,454
Miles Underground	9,200	5,000	68	14,268
Poles	500,000	720,000	19,100	1,239,100
Distribution Service Transformers	172,900	183,600	6,500	363,000
Electric Customers	1.5 million	1.3 million	30,500	2,830,500



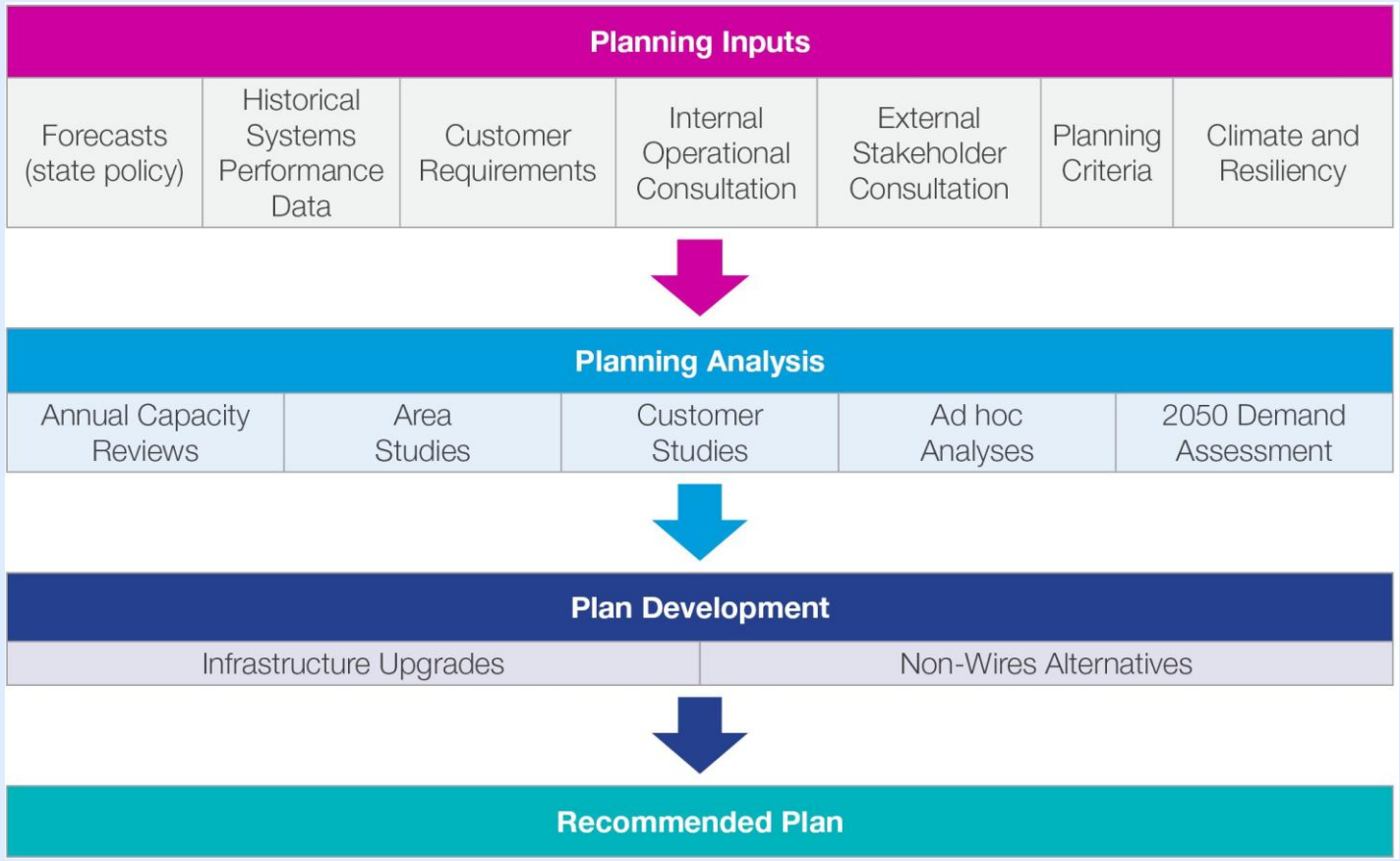
Substations - Key Component of a Clean Energy Future

- Substations link the transmission system to the distribution system, and eventually the end users
  - our customers
    - They convert power utilizing power transformers that do not move or rotate
- Substations are a key component of the electric power system, essential in meeting customer demands and supporting 21st century economies
    - They are critical in converting wind power, solar generation, and any form of clean energy resources from source to customers
- Projects to expand or build new substations are high cost, long duration projects that can become a bottleneck to electrification and other customer requests, if we do not build in advance



Grid Infrastructure – Planning Process

- **The EDCs have formal planning processes that are generally consistent across all three Companies**
  - Forecast identifies projected demand
  - Planning Criteria establishes thresholds for acceptable behavior (EDC-specific)
  - Recommendations (infrastructure and otherwise) are developed to address performance concerns
- **The ESMP process for each EDC was consistent with the goals identified in the legislation and followed established planning processes; the outcomes are EDC-specific based on the unique characteristics of each Company's system.**



Long Term System Planning Process (LTSPP) for DG – A Component of the ESMP

- Factors identified by the GMAC and the Companies that drive development of DG by **enabling hosting capacity in specific locations that benefit the Commonwealth** as a whole and further the state's clean energy objectives (e.g., availability of technically developable land for solar, land cost, proximity to existing transmission and distribution infrastructure, upgrade costs, and forecasted electrification demand to co-optimize infrastructure deployment for solar and electrification enablement, where feasible)
- The **role of flexible interconnection** in deferring or negating the need for certain system upgrades and/or improving the operations of the current distribution system
- **Cost-allocation** methodology
- The process for changing or **updating the LTSPP over time**

Grid Compensation Fund

- **The Grid Services Compensation Fund (GSCF)** is a proposed mechanism we included in the ESMP to recover costs associated with new customer NWAs with an emphasis on **testing, learning, and scaling**.
- It is to be used to cover incentive payments associated with the new customer NWA offerings we proposed in the ESMP, as well as any associated admin costs / marketing associated with implementing those programs.
- It is not an explicit “fund” that we will get upfront, set aside, and draw money from. Rather, the costs for the GSCF will be opex that we recover as part of the proposed ESMP tracker – the same as we would any other opex.
- There are no proposed earnings incentives attached to our usage of the GSCF.

Integrated Energy Planning (IEP)

- **Approved for convening a Joint Utility Working Group**
  - Joint agreement as to what is IEP and discuss the enablers to unlock IEP potential.
  - Learn about what is happening with IEP domestically and internationally.
  - Roadmap items for IEP development.
- **Approved for a comprehensive data exchange.**
- **Approved for conducting electrification feasibility assessments.**
- **Development of digital tools to support IEP coordinated system planning.**
- **Ensure strong, ongoing collaboration with customers and communities while acknowledging the boundaries of IEP and reinforcing the importance of preserving customer choice.**

National Grid - Outcome of the June 13, 2025 ESMP Order

Category	ESMP Project	Eligible (✓) Ineligible (✗)
Network	Substation and Feeder Projects	✗
	Substations supporting EV Highway Charging (Bridgewater, Charlton, and Westborough)	✓
	Early Fault Detection	✓
	Expanded Volt-Var Optimization	✓
	EV Fleet and Warehouse Expansion	✗
	Integrated Energy Planning	✓
Customer	All-Electric New Construction Demo	✓
	Grid Services Compensation Fund: Delivery of non-wires alternatives	✓
	DER Markets Settlement Engine	✓
	Time Varying Rates Billing Engine	✗
	Clean Energy 2.0	✓
	ConnectNow: E2E Load Connection Management Portal & DER Customer Experience	✓
	Flexible Connections for EVs	✓
	Income eligible battery VPP offering	✓
Platform	IT: Asset Planning, Management & Work Execution Digital Products	✓
	IT: Data Management Platforms	✓
	IT: Network Management Platforms	✓
	Communications: Grid Mod DS0 replacement and private fiber	✗
	Communications: Grid Mod Distribution Field Area Network	✓
	Communications: Network and Critical Infrastructure Solutions	✓
	Cybersecurity: Device Management, Network Convergence, Penetration Testing, SOAR	✓

Unitil - Outcome of the June 13, 2025 ESMP Order

Category	ESMP Project	Eligible (✓) Ineligible (✗)
Network	Lunenburg Substation	✗
	South Lunenburg Substation	✗
	Expanded Volt-Var Optimization (VVO)	✓
Customer	FERC 2222	✓
	Grid Services Compensation Fund: Delivery of non-wires alternatives	✓
	Extension of EV Make-Ready Program	✗
Platform	ADMS/DERMS Implementation	✓
	Cyber Security Enhancements	✓
	Automation	✓
Other	Resiliency Enhancements	✓
	ESMP Program Administration	✓

Eversource - Outcome of the June 13, 2025 ESMP Order

Category	ESMP Project	Eligible (✓) Ineligible (✗)
Customer Investments & Programs	Integrated Energy Planning Tools and Resources	✓
	FERC 2222: Software and tools to support DER dispatch in ISO-NE markets	✓
	Demonstrate use of BESS in Volt-VAR Optimization schemes	✓
	Implementation of Grid Services Compensation Fund	✓
Platform Investments	Expansion of DERMS software capability for entire service territory	✓
	Incremental resources to support real time DER dispatch	✓
	Automation	✓
Resiliency	Undergrounding, reconductoring, and other storm hardening infrastructure upgrades to address impacts of climate change as identified by recent climate impact analysis.	✓✗ (Capped)
CIPs	Extension of the Provisional Planning Program for substation and line upgrades to enable DER interconnections with cost allocation.	✓

Break 10:50 – 11:00am

Feel free to take a break, network, and add to the interactive stations around the room!

Navigating Electrification for Municipalities

Moderator

Jonathan Stout
PowerOptions

Panelists

Christine Blais
City of Somerville

Erina Keefe
City of Cambridge

Sarah Bresolin Silver
ENGIE

Kate Tohme
New Leaf Energy

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Facilitated Discussion (11:40 – 12:15 PM)

Please join the group number on your nametag. Each group has a discussion leader and notetaker. Please assign one person to be your reporter.

Facilitated by:
Kathryn Wright, Barr Foundation

- What insights do you have after hearing from the panelists?
- How does what you learned today connect back to your local work?
- Has your community participated in grid planning in the past? If not, what would make participating in state processes more accessible? What challenges is your community facing in pursuing electrification? What are additional ways the state and EDCs can help?
- How else can the state/EDCs support your understanding and interaction with grid modernization and grid planning? Your residents' understanding?
- Anything else you'd like us to know that we didn't ask you about?

Facilitated Discussion Report Back (12:15 – 12:25 PM)

Each table prepares to share 3 key insights from the conversation and turn in the more detailed notes.

- What insights do you have after hearing from the panelists?
- How does what you learned today connect back to your local work?
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Contact Us

GMAC

Next Meeting: July 31, 2025, 1 –3 PM **Register Here**

https://bit.ly/MA-GMAC

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DOER

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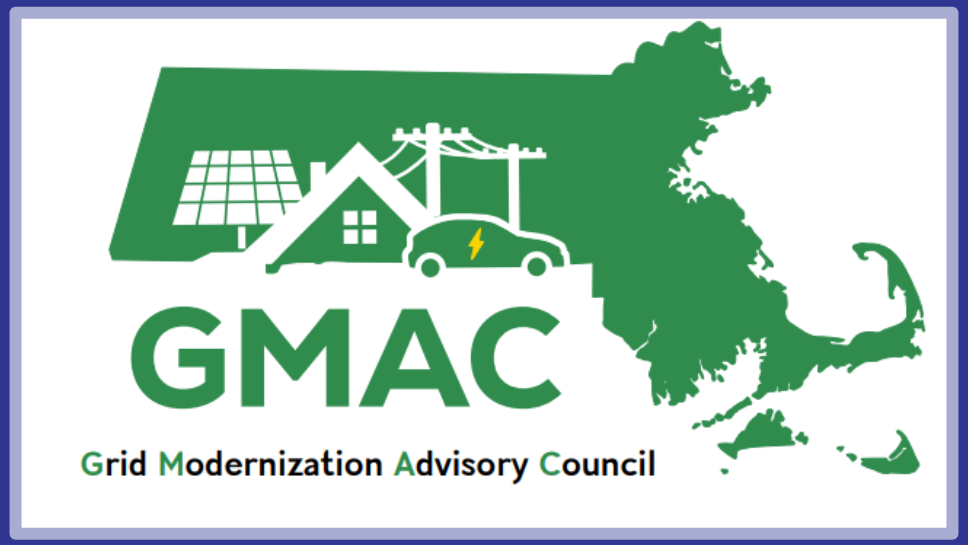
"The Future Grid" GMAC Post-Event Survey



Thank You!