MASSACHUSETTS
DEPARTMENT OF
ENERGY RESOURCES

DOER Peak Potential Study

Using load management to empower consumers and reduce energy costs

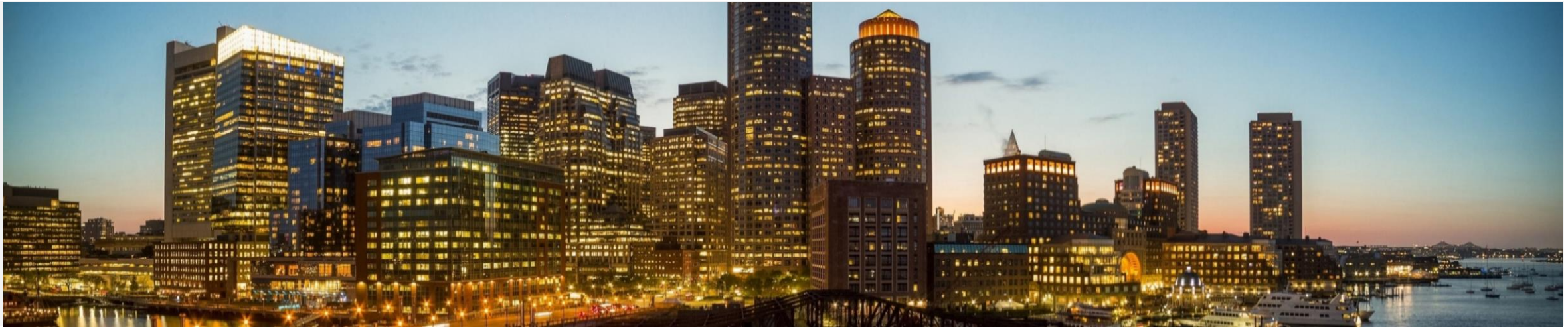
Presented to the EEAC

Presented by
Charles Dawson

Our Mission

The Department of Energy Resources' (DOER) mission is to create a clean, affordable, resilient, and equitable energy future for all in the Commonwealth.

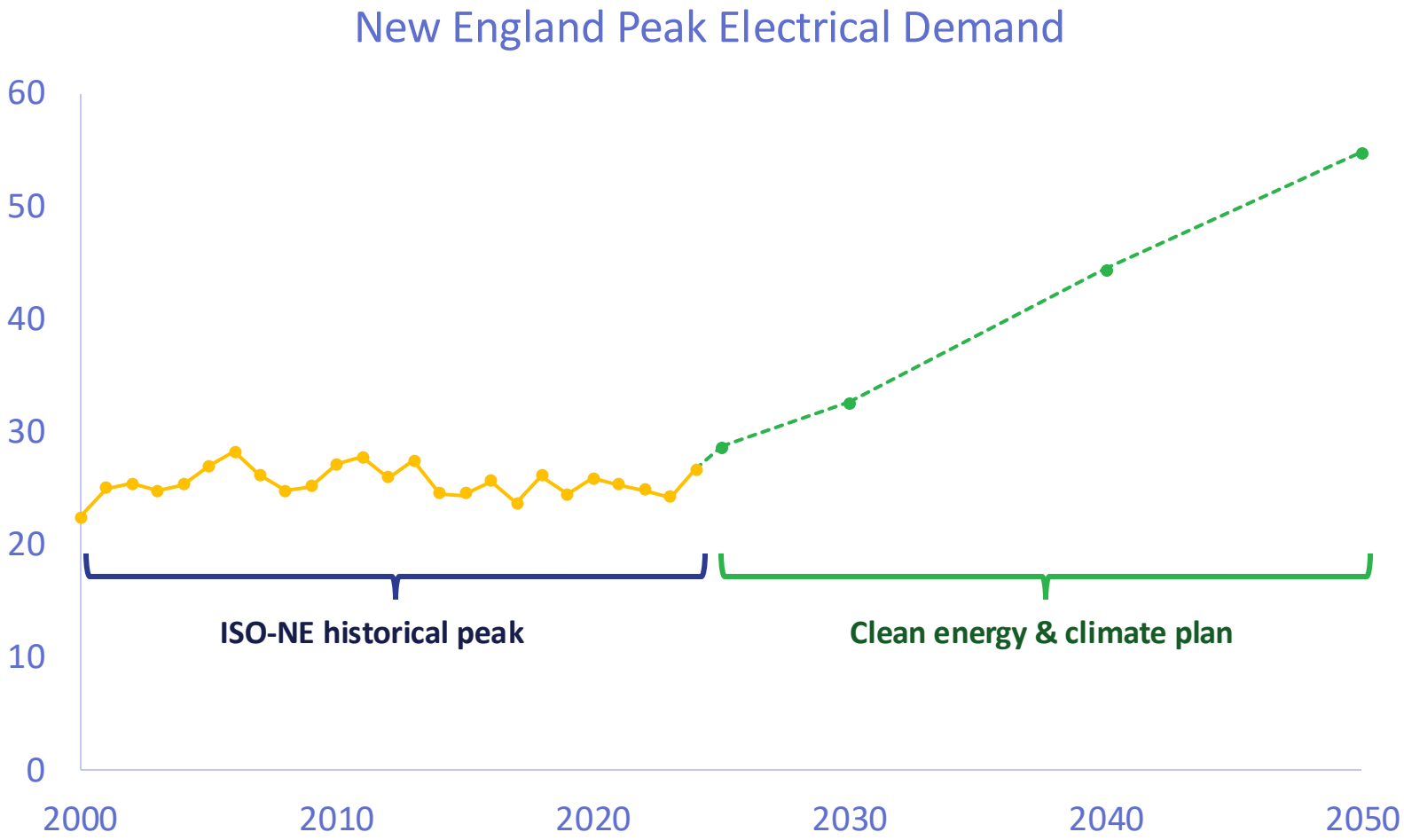
- ***Who We Are**: As the State Energy Office, DOER is the primary energy policy agency for the Commonwealth. DOER supports the Commonwealth's clean energy goals as part of a comprehensive Administration-wide response to the threat of climate change. DOER focuses on transitioning our energy supply to lower emissions and costs, reducing and shaping energy demand, and improving our energy system infrastructure.*
- ***What We Do**: To meet our objectives, DOER connects and collaborates with energy stakeholders to develop effective policy. DOER implements this policy through planning, regulation, and providing funding. DOER provides tools to individuals, organizations, and communities to support their clean energy goals. DOER is committed to transparency and education, supporting the accessible access to energy information and knowledge.*



Outline

- Background & motivation
- Technical potential study
  - Methodology
  - Key Findings
- Policy recommendations

Massachusetts is facing growing load…



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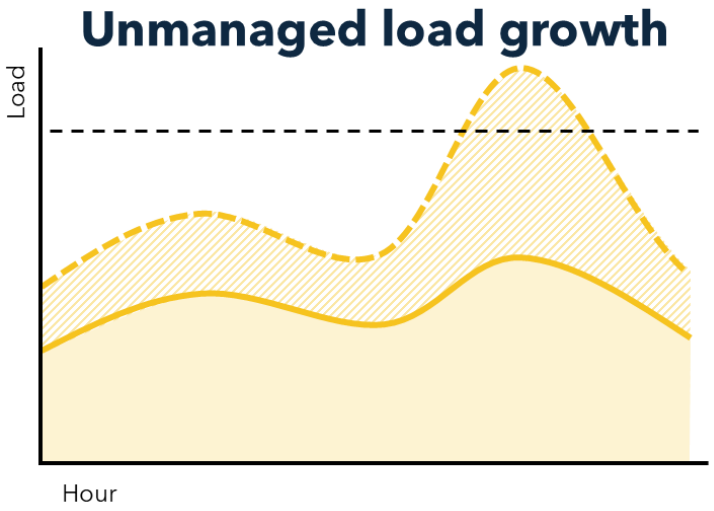
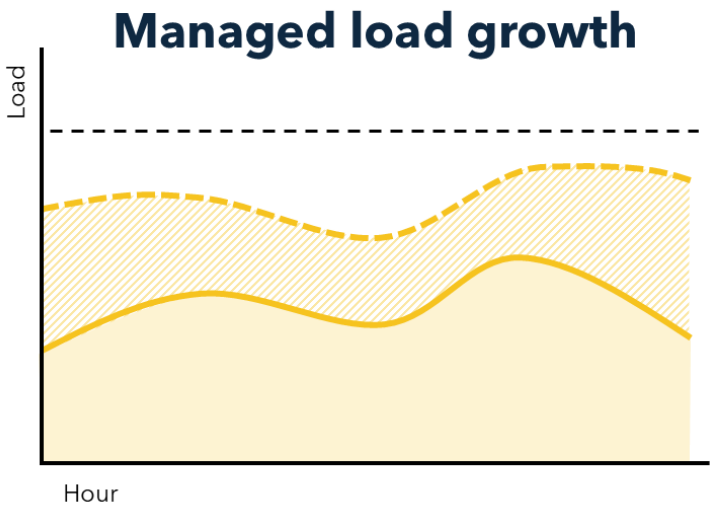
But load growth only increases rates if unmanaged



If peak demand increases faster than total use, it can increase rates.



If peak demand increases slower than total use, it can decrease rates.

Higher peak demand increases grid costs

$$\text{Electricity rates} = \frac{\text{Revenue requirement (\$)}}{\text{Energy sales (kWh)}}$$

Managed growth spreads costs over more kWh

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Load management is a set of policies and technologies to reduce or shift demand during peak hours or in constrained regions

Load management measures	*Load management incentives*
Energy efficiency	*TOU rates*
EVs	*CPP*
Batteries	*Demand response*
Smart thermostats	*Managed charging programs*
…	…

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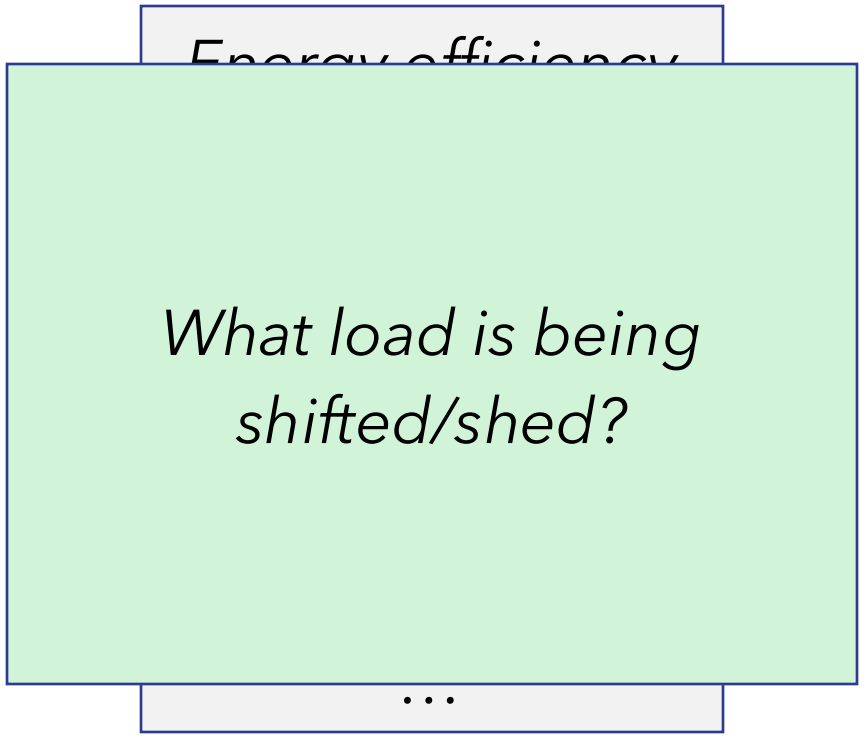
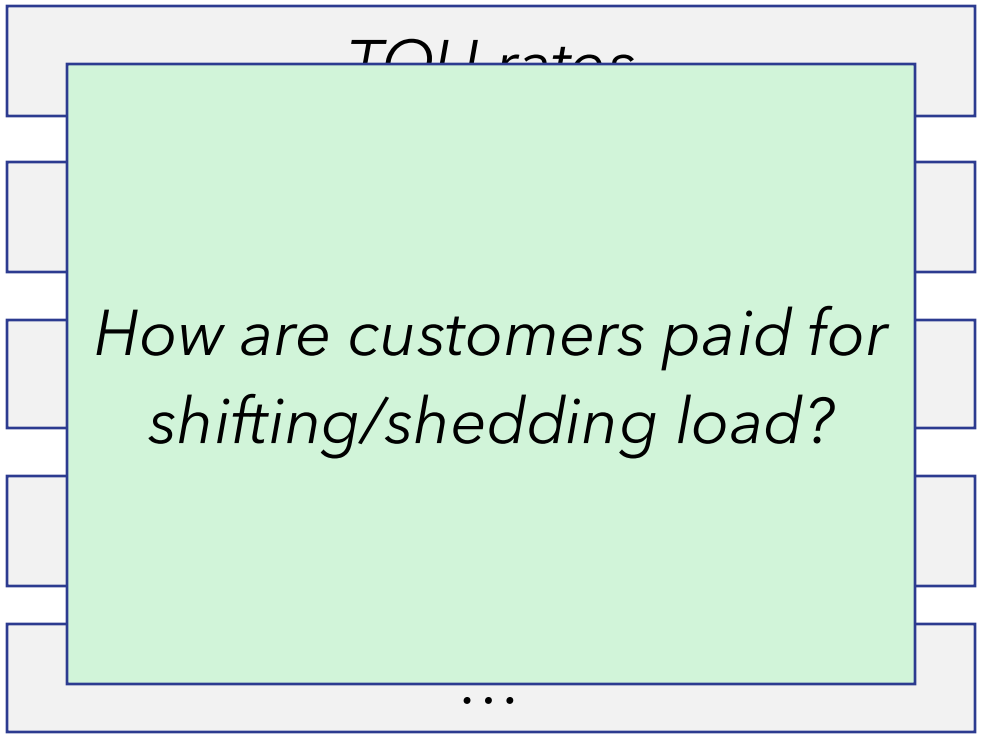
Load management measures



Load management incentives



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In 2025, DOER launched an effort to quantify the potential for peak load reduction and develop a load management strategy to save ratepayers money

1. Technical Potential of Load Management Study

- Who: E3 and AEC
- What: Quantifies the amount of peak load reduction (and costs and benefits) possible in 2030, 2040, and 2050, given the projected pace of electrification.
- How: Bottom-up modeling with review from expert advisory group and 2 public workshops

+

2. Peak Potential Report & Recommendations

- Who: DOER
- What: Makes policy recommendations for unlocking the benefits from load management.
- How: Input from stakeholders through two public sessions & forthcoming comment period

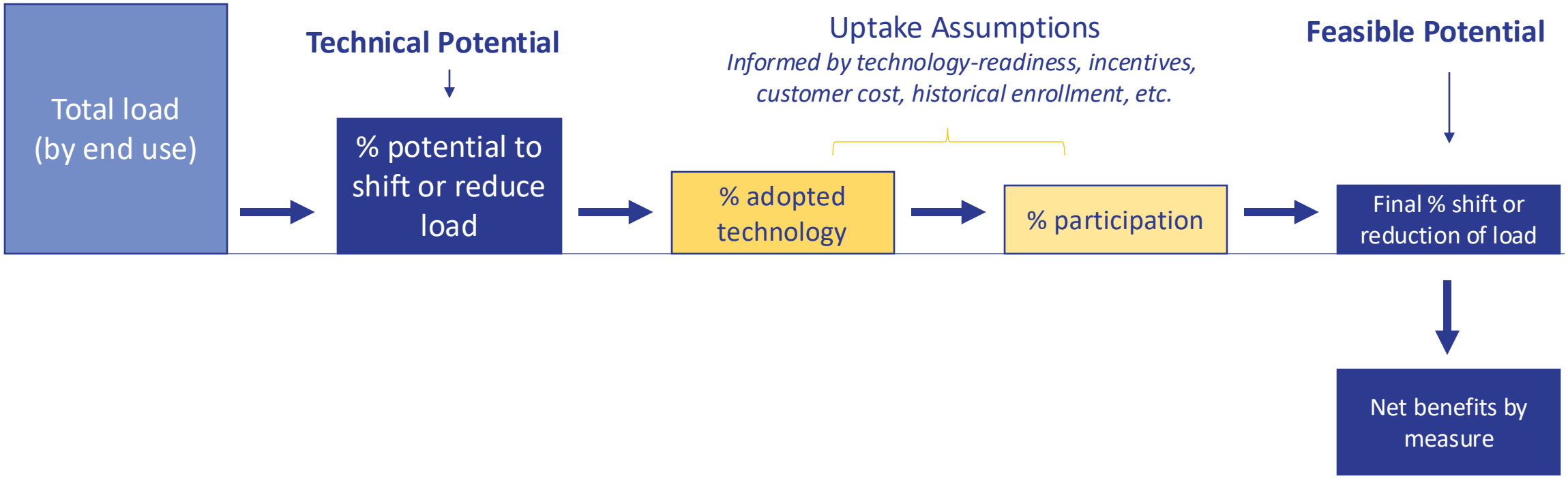
Stakeholder engagement

- Two public workshops (July & September), plus ongoing feedback from stakeholders
- Public comment period (once DOER report is published)

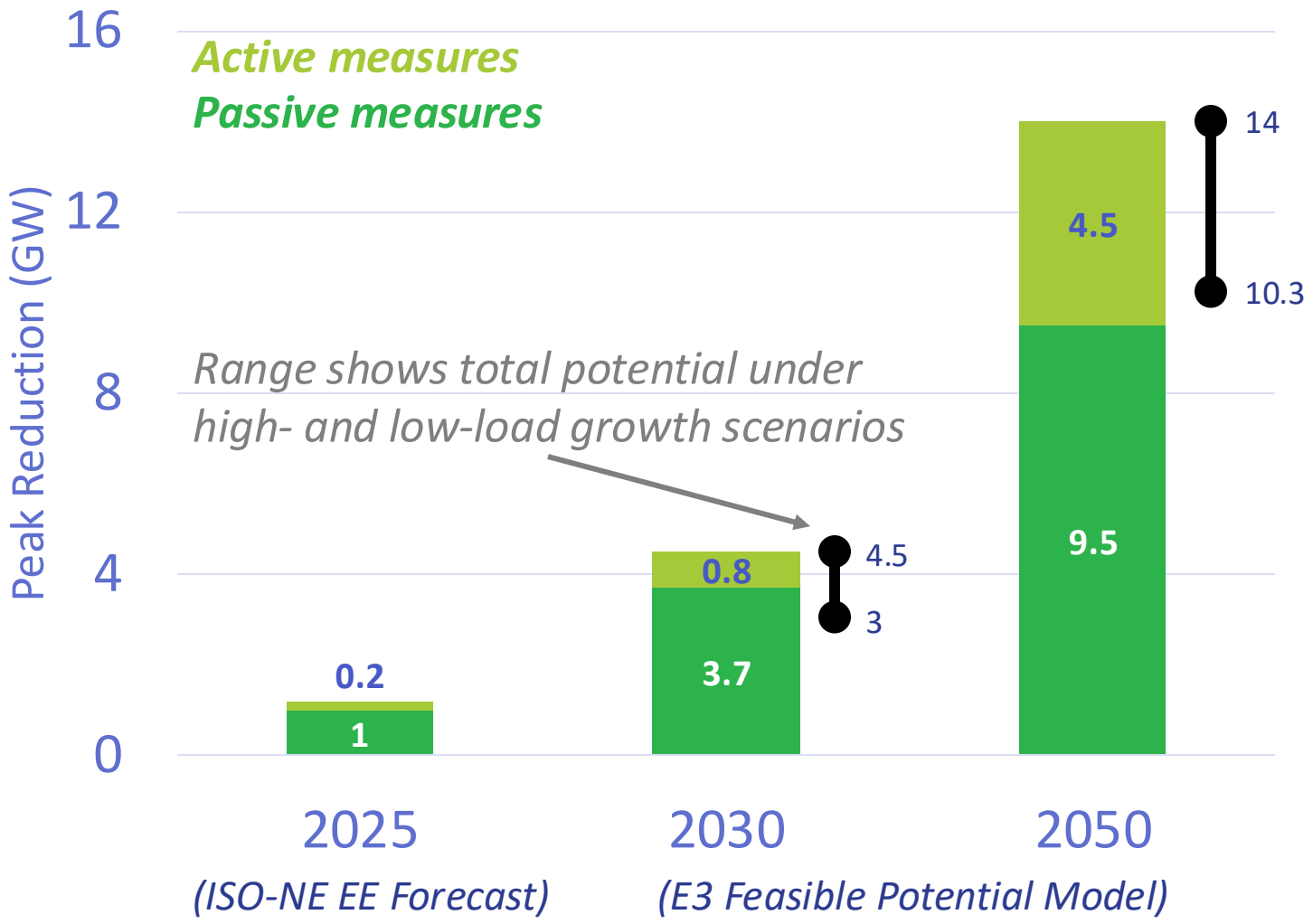
Part 1: Technical Potential of Load Management

Key technical findings

Modeling approach



Finding 1: EE, EVs, BTM storage, and heating flexibility can feasibly reduce peak by 4.5 GW in 2030 and 14 GW in 2050 (in MA)



2030: **4.5 GW** ($1.4 bn/yr)

2050: **14 GW** ($6.6 bn/yr)

Total MA peak reduction (savings)

CECP scenario w/ aggressive load management

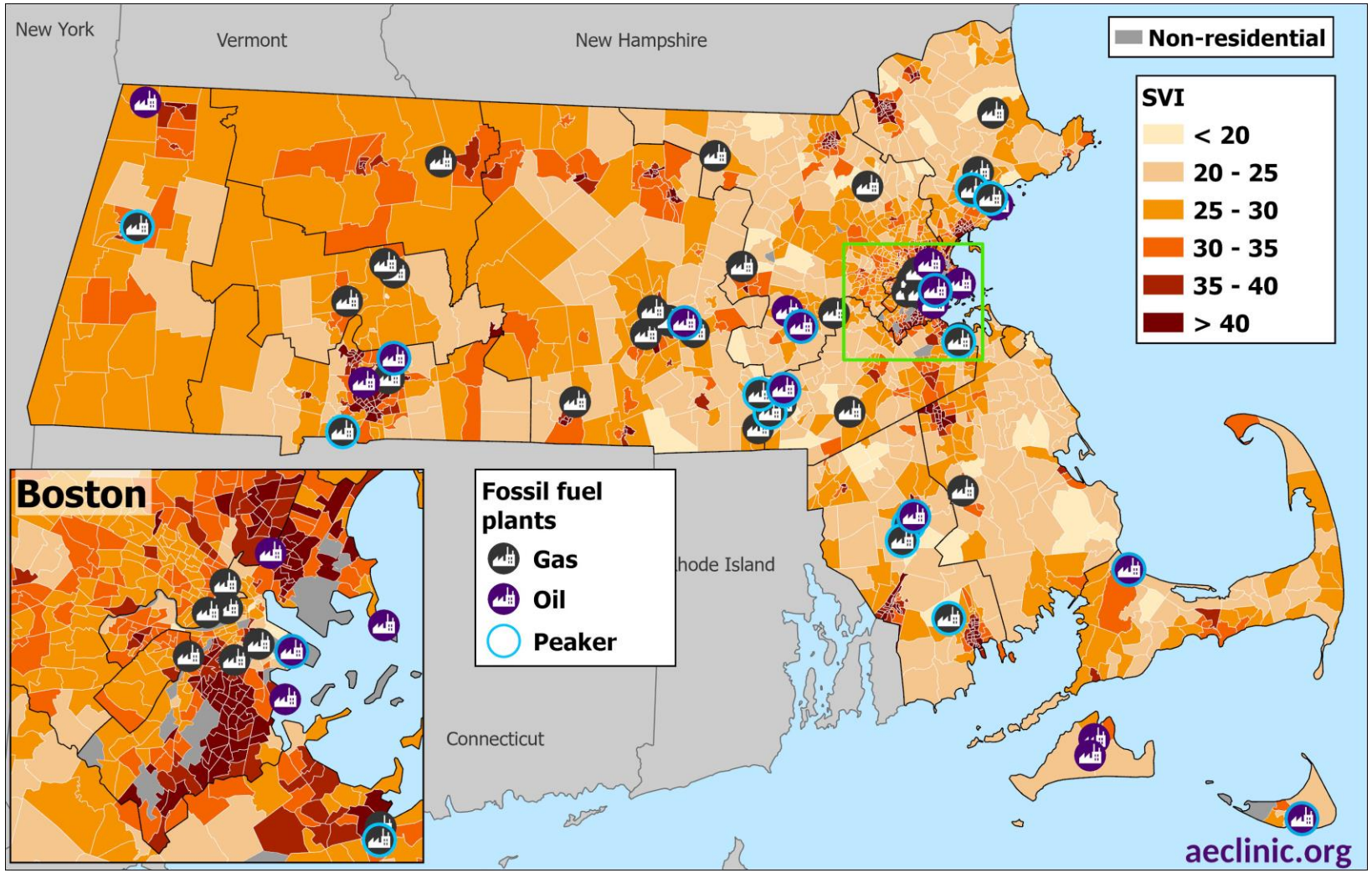
This requires:

- 25% managed charging for LDEVs by 2030
  - 95% by 2050, including 50% V2G
- 200,000 new efficient housing units by 2030
  - 1.5 M by 2050 (per pathways report)
  - Sustain the current pace of retrofits
- 10% of households heating with GSHP by 2050

Finding 2: Both passive and active measures can deliver significant benefits

	2030	*2050*
Energy efficiency	3.5 GW	9.5 GW
EV management	0.3 GW	6.5 GW
Heating & residential appliances	0.3 GW	1.1 GW
	Aggregation and cost-reflective prices can maximize benefits from active measures	

Finding 3: Load management, with careful program design, can provide equity and resilience benefits



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Part 2: Peak Potential Report

Recommendations for unlocking the potential of load management

DOER identifies 6 areas of policy action to realize this potential

E3/AEC technical findings

2030: **4.5 GW** ($1.4 bn/yr)

2050: **14 GW** ($6.6 bn/yr)

Total peak reduction (MA only)

(CECP scenario w/ aggressive load management)

DOER policy recommendations

EE	Double-down on both retrofits and stretch codes for new construction (9.5 GW by 2050).
EVs	Active managed charging & vehicle-to-everything can deliver huge benefits (6.5 GW by 2050).
Price signals	Give customers tools to manage energy costs through TOU rates and demand response.
Aggregation	Support innovation in new technologies and products through customer-centric aggregations.
Equity	Minimize cost shift & reduce barriers to access for renters and LMI customers.
Utility regulation	Provide incentives for peak load reduction and require load flexibility in utility planning.

DOER identifies 6 areas of policy action to realize this potential

E3/AEC technical findings

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DOER policy recommendations

Focus for today's discussion

EE	Double-down on both retrofits and stretch codes for new construction (9.5 GW by 2050).
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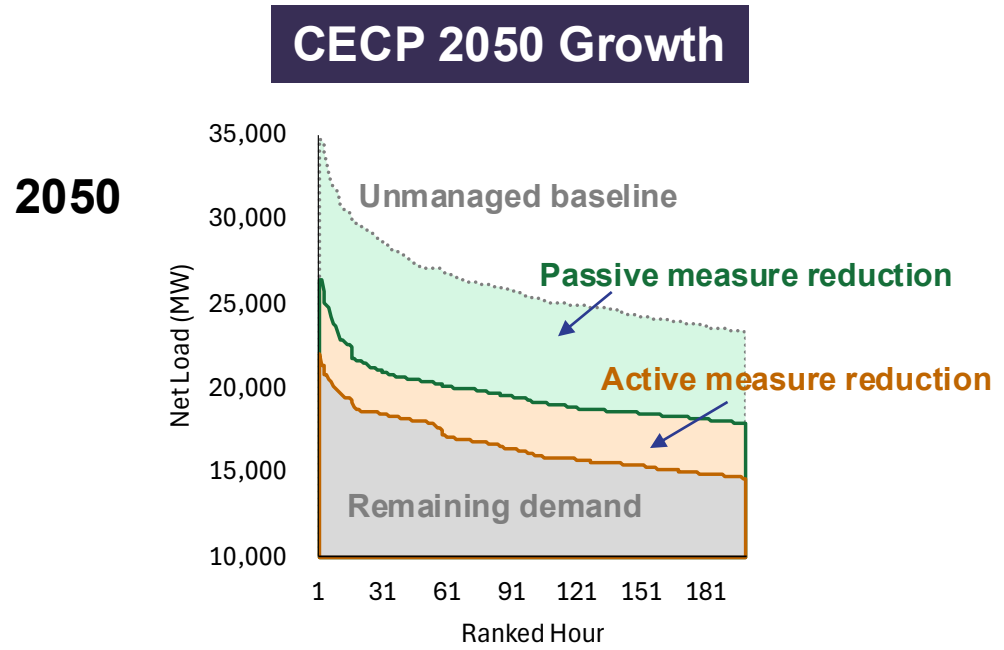
Sustain Massachusetts' lead on energy efficiency

Continue to invest in retrofits through Mass Save and efficient new construction/renovations through the stretch and specialized energy codes.

- **New Buildings**
  - Expand stretch code adoption
  - Accelerate development of efficient new buildings.
- **Existing Buildings**
  - Continue to invest in retrofits through MassSave
  - Include deep retrofits in gas-electric planning
- **Advanced heating (ground source heat pumps)**
  - Evaluate opportunities for up-front incentives, technology, and workforce development to support GSHP deployment

Key technical finding:
2.5-3.5 GW by 2030, 8-9.5 GW by 2050*
From passive load management

* Not all EE in E3's model is incremental to forecasts (e.g., stretch codes are incremental, but ccASHP are not)



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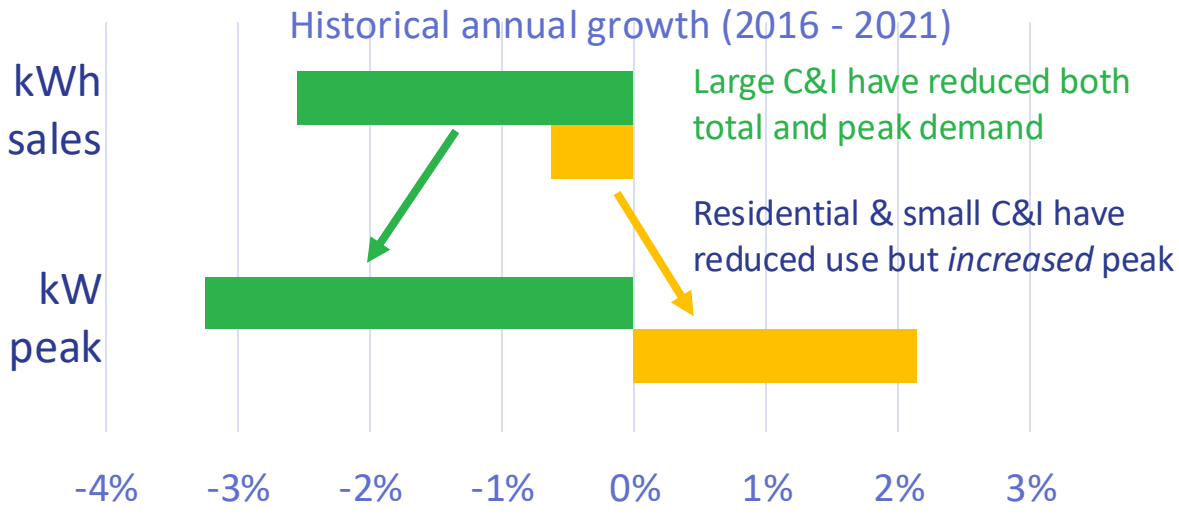
Pay customers for supporting the grid

Provide easy-to-use incentives like TOU rates and tech.-neutral demand response. Design programs to reduce friction and help customers save.

Key technical finding:
100-250 MW by 2030, 0.75-1 GW by 2050
From heating & non-EV residential loads

- **Rates**
  - Default seasonal TOU rate for residential and small C&I customers.
- **Peak pricing & residential DR**
  - Complement TOU rates with technology-neutral peak incentives; e.g., whole-home demand response through ConnectedSolutions



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Support innovation in customer-centric aggregation

Support new load management technologies and product offerings. Leverage community-led energy innovation through the municipal aggregation model.

- **VPP-ready equipment**
  - Develop standards for flexible appliances
- **Customer-centric innovation & aggregation**
  - Support new technologies and business models to bundle load management with reduced supply costs
- **Increase retail/wholesale coordination**
  - Dispatch & operational coordination for reliability
  - Increased wholesale participation as a revenue source

Key technical finding:
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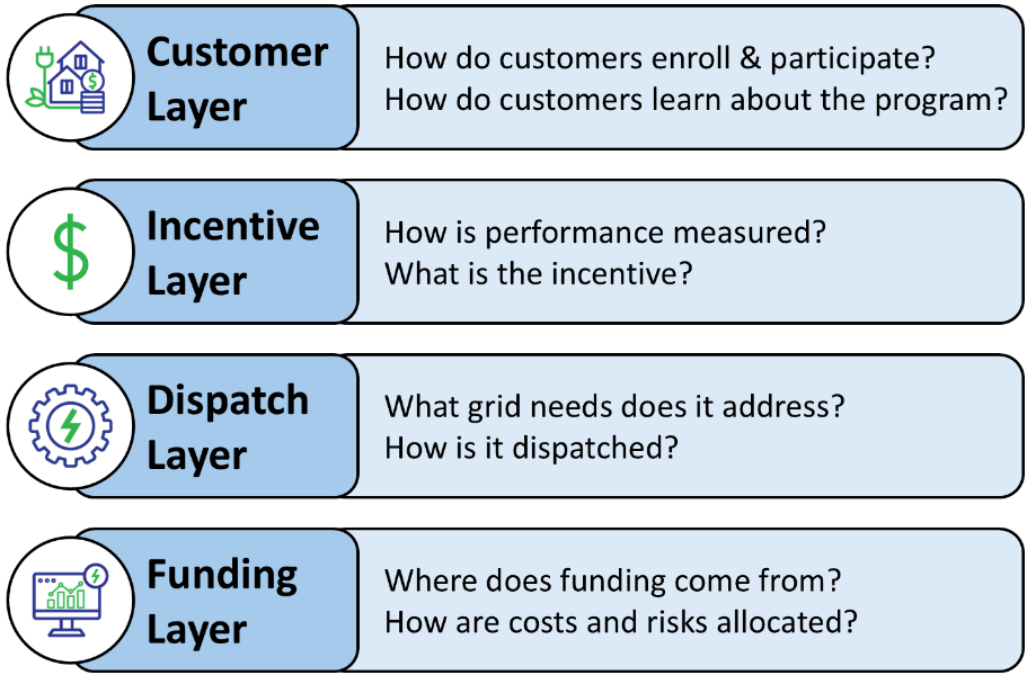
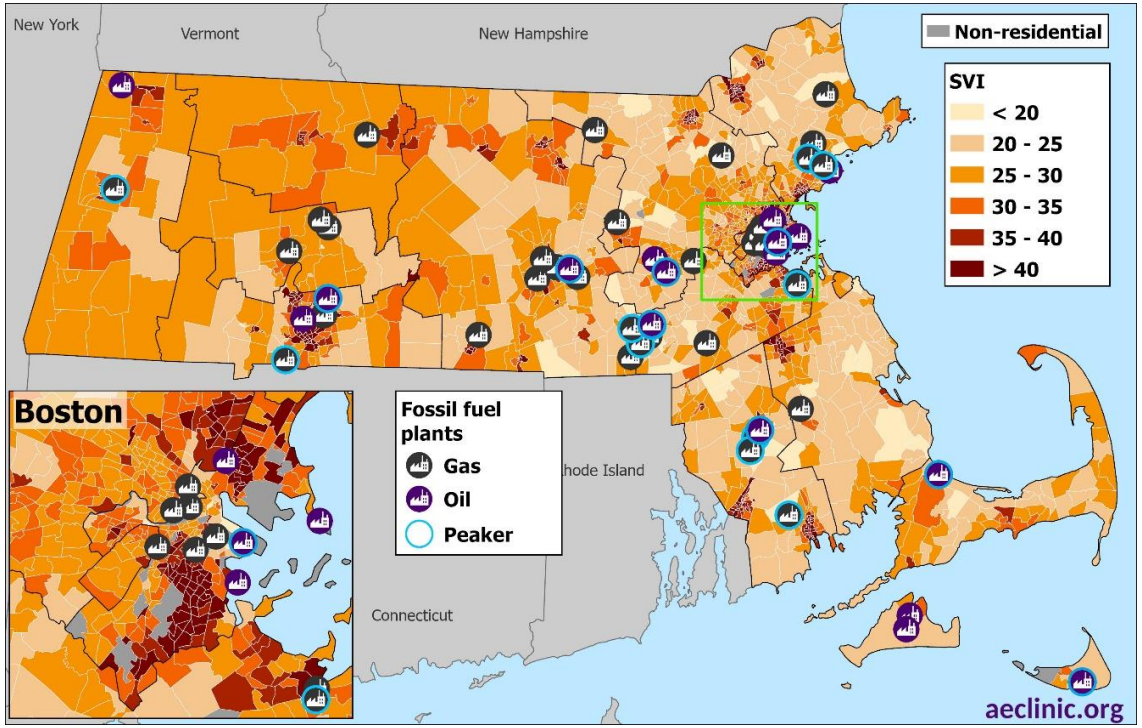


Ensure equitable access and distribution of benefits

Minimize cost shift from incentives, reduce barriers to access and DER ownership for renters and LMI customers, and focus outreach and education.

Key technical finding:
Rate and non-rate impacts of peak load fall heavily on low-income and EJ communities

- **Avoid cost shift**
  - Base compensation on provided benefits
- **Address barriers to participation**
  - Technology-neutral incentives reduce barriers for renters and LMI customers
  - Community outreach & education for new offerings can boost trust and participation
- **Support equitable distribution of benefits**
  - Up-front incentives for load management (e.g., EE, deep retrofits, storage)



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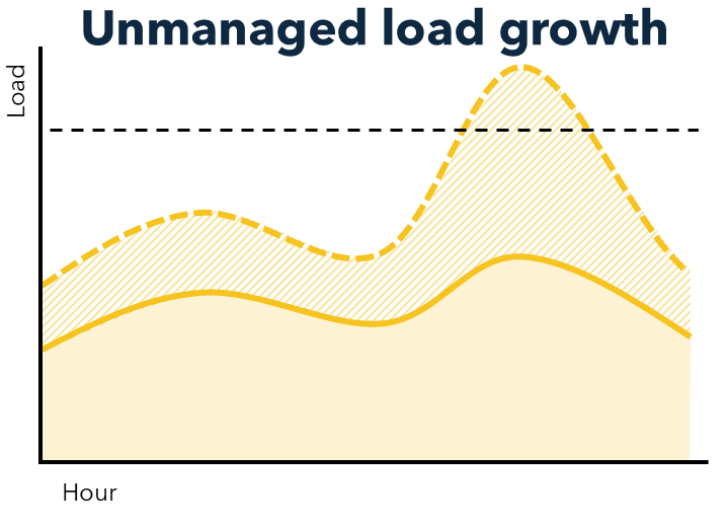
Next steps

- Aiming to publish both reports (E3 and DOER) by early December
- Public comment period & webinar shortly thereafter
    - Final DOER report will include a summary of public comments



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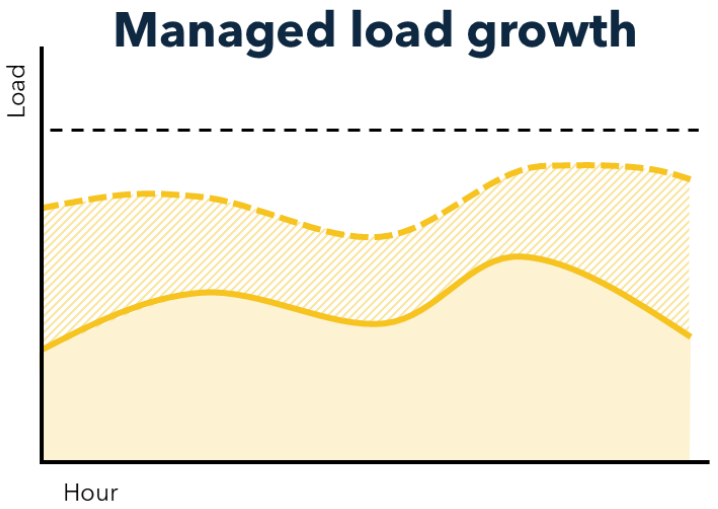

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https://www.mass.gov/info-details/peak-potential-load-management-for-an-affordable-net-zero-grid

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Thank You!